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REG: Improving the Delivery of Infrastructure Services in the Pacific

Prepared by GlobalWorks, United States of America

For the Asian Development Bank

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Asian Development Bank

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**TA 6257-REG:
Improving the Delivery of Infrastructure Services in the Pacific**



FINAL REPORT

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Volume I: Executive Summary

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1 Introduction

This report contains the findings, regional and national strategies, and recommendations that constitute the chief results of ADB's regional technical assistance (RETA) project: *Improving the Delivery of Infrastructure Services in the Pacific*. The following Volumes comprise the Final Report of the RETA.

Volume I (this volume) is the Executive Summary, providing a synopsis of the main findings concerning the critical issues and the status of infrastructure sectors in the eight ADB Pacific Developing Member Countries¹ participating in the RETA's consultative process, and of the national and regional strategies and of the concept of a Regional Advisory Service that have been developed from the consultations.

Volume II contains the full national strategies and country reports of the eight countries, the regional strategy paper, and the concept paper for a Regional Advisory Service (a capacity that might be developed to support implementation of the regional strategy). Volume II also contains, as an Annex, the full list of persons and organizations contacted by the RETA during the consultation process.

Volume III contains the full papers discussing the critical issues affecting infrastructure that have been examined by the RETA, to wit, (i) Governance and Regulation, (ii) Finance and Private Sector Partnership (PSP), (iii) Asset Maintenance, and (iv) Benchmarking.

For ease of reference, Table 1 summarizes the outputs of the RETA and their locations in the three Volumes of the Final Report.

Table 1: Summary of RETA Outputs

RETA Output	Purpose	Location
Executive Summary		Vol I
Regional Strategy to Promote Improvement in Infrastructure Service Delivery	Based on the national strategies (below), this paper outlines a regional strategy designed to assist the Pacific countries to benefit most effectively from each other's experience, access training, conduct joint actions for synergistic investment, and provide needed specialist technical assistance	Vol II
National Strategies and Country Reports: <ul style="list-style-type: none"> • Cook Islands • Federated States of Micronesia • Fiji • Palau • Papua New Guinea • Samoa • Tonga • Vanuatu 	Eight separate national strategy and country report documents were prepared, detailing the findings of the consultations in the participating countries and outlining a strategy for furthering infrastructure service delivery improvement, tailored to each country's specific circumstances and challenges. The strategies cover each of the infrastructure sectors examined by the RETA (telecoms, water/sanitation, power, roads, ports, and shipping)	Vol II

¹ Cook Islands, Federated States of Micronesia, Fiji, Palau, Papua New Guinea, Samoa, Tonga, Vanuatu. The five PMDCs that did not participate in the consultative process but were involved in the RETA through workshops and output reviews were Kiribati, Nauru, Republic of the Marshall Islands, Solomon Islands, and Tuvalu.

Working Paper on the Concept of a Regional Advisory Service (RAS)	Examines the need and explores options for a regional capacity to provide ongoing advice and assistance to Pacific countries in furtherance of infrastructure reforms and service delivery improvement and to help meet the priorities identified in the national and regional strategies (above)	Vol II
Working Paper on Governance and Regulation	Examines the role and purpose of good governance and regulatory processes in infrastructure service delivery, through institutional arrangements which separate policy, operations, and regulatory functions in a transparent and impartial manner.	Vol III
Working Paper on Finance and Private Sector Partnership (PSP)	Examines options for, and the institutional, governance, and regulatory prerequisites of, accessing innovative sources of finance for infrastructure investment and operations, including from the private sector and encouraging the engagement of the private sector in infrastructure services.	Vol III
Working Paper on Asset Maintenance	Discusses the impact of historically poor asset maintenance affecting many infrastructure sectors across the region, and recommends short- and long-term means to improve maintenance and asset performance, including training, improved budgetary processes, and institutional reforms	Vol III
Working Paper on Benchmarking	Provides an overview of benchmarking practice in the infrastructure sectors in countries participating in the RETA consultations, discusses the value of benchmarking for a range of stakeholders, and recommends means to promote good and consistent benchmarking practice, including through regulation and regional support mechanisms	Vol III

2 Overview

Thinking about infrastructure in the Pacific as a regional issue requiring a collaborative response began in earnest in the last decade and drew inputs from governments, sector managers, and development partners in a structured way at the Asia-Pacific Infrastructure Forum held in Melbourne in December 2004. The World Bank in collaboration with the Japan Bank for International Cooperation and the Asian Development Bank commissioned a study², released in final form in January 2006, which provides a cogent overview of infrastructure in the Pacific, its opportunities and constraints, policy issues, and an indicative comparison of performance in key sectors across the region. The chief questions raised in the 2006 study remain pertinent and have informed the RETA's thinking about the issues and most appropriate strategies for furthering the improvement of infrastructure service delivery in the Pacific:

- What public sector reforms will benefit Pacific countries?
- Can private sector involvement be encouraged?
- How extensive are the opportunities for competition in the Pacific region?
- How effective are the oversight mechanisms in the Pacific?
- How can the public sector be strengthened to deal with barriers to good infrastructure performance?
- How will the reforms and improvements be financed?
- Will benchmarking help to provide a better picture of infrastructure performance?

The present project was conceived as a way to take these efforts and the attendant questions to the next level, deepen and extend the collaboration among stakeholders, examine the practical impact of critical issues facing Pacific infrastructure, and develop strategies to address them. A powerful motivating theme of the effort is that collaboration makes a difference and indeed represents the key opportunity to progress the infrastructure agenda in the Pacific beyond what might be achieved through continuation of conventional approaches. Though the conventional approaches are considerable, involving historically enormous transfers into the region from donor countries and development partners in the form of outside expertise and finance for new assets, in the main they have not been able to harness opportunities that are present in the region as a whole.

These opportunities include, prominently, unleashing the potential of a latent private sector, improving existing markets (and developing new ones) to build up the competitiveness of the region with the rest of the world, and raising awareness of the pragmatic advantages of re-focusing priorities for infrastructure onto service quality for end-users and away from, say, the protection of government monopolies. They are being realized across the region in the form of a groundswell of local decisions made in local self-interest. Local awareness of the potential (or necessity) of change in the region is likely being driven in part by technological advances (e.g., wireless telecoms) and in part by frustration with the status quo, made progressively less bearable because of population pressures and social/political divisions. But it is the 'groundswell' aspect of these decisions – whatever its source – that creates opportunity at the regional level and makes a collaborative effort to improve the region's infrastructure so timely.

² *The Pacific Infrastructure Challenge, A Review of Obstacles and Opportunities for Improving Performance in the Pacific Islands*, World Bank, January 2006.

Whereas in the past, considerable externally-financed investment in infrastructure assets and decades of operational experience provided valuable lessons that could have been learned and applied, they were often not learned and the dots were not connected, perhaps because there was little real local input to major infrastructure decisions, coupled with an expectation that the consequences of bad decisions would be absorbed by donors. The present shows a much different picture, one in which the self-reliance of the region is recognized by many governments as more than a coping strategy but as a means to achieve a new level of development. This is evidenced, for example, by efforts in Samoa, Vanuatu, and in PNG to open markets to competition that had been entrenched and well-connected monopolies and to support fair competition through independent regulation. As some of these decisions run counter to the immediate financial self-interest of the governments concerned, they are evidence of awareness that the 'prize' lies elsewhere. The dots are beginning to be connected and as that happens one can expect a growing demand for information about what the countries of the region are doing and how they are doing it. Lessons learned are, without exaggeration, the region's most valuable asset now.

The RETA has attempted to discover the most important lessons pertaining to the constraints and opportunities facing the region's infrastructure and the peoples that it serves. The recommended strategies have been designed with admiration for the region's progress in recent years and with a deepening respect for its innate capacity to implement effective solutions, once the opportunities and the risks are plainly understood.

3 Structure of the RETA

The RETA takes a broad view of infrastructure in the Pacific, and includes transportation sectors (roads, domestic shipping services, and ports) telecommunications (land lines, mobile phones, and wireless and wired internet services), electricity, and water supply/sanitation. In taking a regional approach to infrastructure to ‘the next level’, the RETA was formulated to progress a core recommendation of the 2006 regional infrastructure study referenced above, namely to fill gaps in knowledge and awareness about the infrastructure sectors, identify priorities, and recommend strategies in accordance with the study’s “approach to meeting the challenge”, depicted below³.

The RETA is focused on the first three arrows starting from the left; the two remaining arrows relate to activities that will be carried forward under a post-RETA regional strategy. The box underlying all of the arrows, *consultation & commitment*, emphasizes that the entire approach is based on close consultation with stakeholders in the countries to identify issues and agree solutions, and collaboration among countries, sectors, and development partners in implementing the solutions. The most important element, however, is the sustained commitment of all parties interested in the improvement of infrastructure services in the Pacific to see the process through to fruition.



An Inception Workshop for the RETA was held in Sydney in August 2006, to which key infrastructure stakeholders from the ADB member countries in the region were invited to discuss the critical issues that the RETA should focus on. Based on this discussion, the following critical issues were identified for focused investigation by the RETA team: (i) Governance and Regulation, (ii) Private Sector Participation and Finance, and (iii) Asset Maintenance. In addition, benchmarking was recognized as a valuable management and regulatory tool affecting all sectors and, as had been strongly recommended in the 2006 regional study, was included as a focus area.

3.1 Consultations

Between February and July 2007, the RETA team conducted a series of intensive consultations in eight participating countries: the Cook Islands, Federated States of Micronesia, Fiji, Palau, Papua New Guinea, Samoa, Tonga, and Vanuatu. The consultations engaged key infrastructure stakeholders such as utility managers, government planners, regulatory officials, private sector representatives, and others. Discussions delved into each country’s direct experience with the constraints and opportunities for dealing with the critical issues facing infrastructure in the region, including finance and regulatory issues, governance, private sector participation, land issues, and asset maintenance and planning. They also focused on how infrastructure might best serve the countries’ and the region’s strategic growth

³ Diagram extracted from the above-referenced *Pacific Infrastructure Challenge* report (2006).

objectives, and what strategies might be undertaken (or strengthened) to achieve them.

3.2 Outputs Prepared

Based on the consultations, national strategies and country reports have been prepared (Volume II). The reports contain lessons of regional significance and form the basis of the RETA's outlook on Pacific infrastructure issues. The consultations have confirmed that the issues and many of the effective responses to them transcend countries in the region and, to a remarkable degree, they transcend sectors. For example, it was commonly found that the constraints to service delivery in say, the ports sector in Samoa and the power sector in FSM relate to the same (or very similar) regulatory issues; finance and asset maintenance issues can be expressed in essentially the same terms across the roads, ports, and government shipping sectors; the private sector can bring new capacity to bear quickly while reducing costs through competition in under-resourced sectors such as shipping, roads, water supply, and telecommunications; etc. This commonality is a happy circumstance, as it significantly cuts the volume of detail relevant to effective solutions, and helps to define a core set of strategies that can be easily grasped at the regional level while still relating to the direct experience of a very large community of infrastructure stakeholders.

A chief concern of the RETA is the way forward after the RETA itself is completed at the end of 2007. The development of regional and national strategies is strongly emphasized and, as part of that, the RETA has developed a concept for a Regional Advisory Service to support strategy implementation. The concept of the proposed Service is presented in a paper contained in Volume II.

In conjunction with the consultations, the RETA team prepared a series of draft working papers that address each of the critical issues. The papers draw on the findings of the consultations and on experience and best practice from other regions of the world and, together with the country reports, constitute the main source documents for defining the strategies proposed for addressing the critical issues. These working papers form Volume III of this report.

3.3 Workshops

In addition to the Inception Workshop mentioned above, two subregional workshops were held during the course of the consultations, to present and discuss initial findings and strategy options. The first was held in Apia, Samoa for stakeholders from countries below the equator, and the second was held in Koror, Palau for countries north of the equator. A Concluding Regional Workshop was held in Wellington in late November as a forum for the participants to comment on the findings, review and, through dialogue, support by consensus the strategies for meeting the priorities for improving the delivery of infrastructure services in the Pacific in the years ahead. Reports of all the Workshops are available on request.

4 Overview of Chief Findings

4.1 Regional Developments

To set the context for what follows, below is an overview of the RETA's findings concerning the region as a whole, highlighting increasing public sector confidence, integration with the rest of the world, and growing support for the private sector.

1. In comparison with even as little as 5-10 years ago, the region appears to have stabilized politically. Obvious counter-examples are Tonga and Fiji, but when one looks across Samoa, PNG, the Cooks, FSM, and Vanuatu, one is struck by a heightened public sector confidence in reform. Policies have a chance now to settle and stick under conditions of improving governance. In Vanuatu, policies which were developed years ago (e.g., for regulation) are now being implemented because of confidence in the civil service that the policies won't be overturned or suspended after the next election. The government there is successfully mounting legal challenges to entrenched monopolies. PNG has made outstanding increases in allocations to chronically under-funded road maintenance and has moved to corporatize road maintenance functions. Samoa has undertaken aggressive market liberalization reforms with greatly strengthened regulatory capacity, and has transferred road maintenance to the private sector. Even in Fiji, reform processes in regulation and market liberalization are proceeding despite recent political upheaval. In Tonga, despite popular unrest, plans are proceeding for urban development planning and market reforms in telecommunications and electricity, with associated regulatory reform (e.g., a new Electricity Act). Corporatization is being adopted as a central approach to infrastructure reform in the region, in recognition of the 'universal' needs for effective management subject to appropriate incentives and accountability.

2. The region is becoming better integrated with the rest of the world, primarily through changes in the telecommunications and aviation industries, but also through changes in the international shipping industry, requiring larger wharves and bigger lifting capacity. The leading growth sector across the region is tourism (growth in the economies of India and China may produce a sea-change in tourism demand globally and in the region, and traditional markets like Japan seem to be rebounding), and there is a keen shared awareness of this. Investments in tourism-related infrastructure together with awareness of the need for good infrastructure overall to support tourism are responding to the call, engendering for example stronger determination to deal with land issues head-on. Heightened concern to deal with roads and water supply issues (and others) is also becoming apparent.

3. Private sector interest, both local and international, is increasing in infrastructure services, especially in telecommunications and aviation, but significantly also in roads maintenance (where market conditions permit), ports operations, and domestic shipping (though much work in market rationalization remains). The conditions for private sector partnerships in infrastructure service delivery are improving, in terms of the regulatory environment and liberalization of markets.

4. Development partner activity seems to be becoming better focused on the region's changes. As examples, telecommunications reform and market liberalization has been greatly assisted by the World Bank, AusAid is developing new and longer term approaches to competition policy and regulation, and the ADB is contributing to infrastructure and transport planning and improving conditions for private sector development.

5. Many of the old problems remain, but increasingly perversely given the more optimistic trends. There remains a great wastage of assets in some instances where budgeting processes continue to starve sectors of resources for maintenance. There remains apparent indifference at the top to the needs of sometimes critically important sectors (e.g., water supply, roads, and domestic shipping in several countries) or at least an extraordinary tolerance for chronic under-performance. Given the more recent and positive trends, however, it is expected that such cases will stand in increasing contrast, and become less tolerable.

4.2 Critical Issues

The main findings with respect to the critical issues addressed by the RETA are summarized below. A full discussion of each issue is contained in the respective Working Papers (Volume III).

4.2.1 Governance and Regulation

The traditional structure of the infrastructure sector in the Pacific is characterized by overlapping responsibilities between agencies and entities responsible for policy making, regulation and operation. Conflicts of interest emerging from these overlapping responsibilities have resulted in:

- Inefficient investment decisions;
- Heavy handed regulatory regimes that do not consider the interests of the consumer or the commercial interest of the operator;
- Constraints on the operator from acting according to commercial principles;
- State enterprises monopolizing or exerting market power to constrain new entrants; and
- State enterprises being required to offer some services below cost to achieve often unclear public service obligations.

International best practice has demonstrated that the best option for the infrastructure sector is to liberalize and introduce competition where possible. This is done through unbundling monopolistic enterprises, developing open access regimes, or reducing the barriers to entry. Where 'natural' monopolies remain, it has been demonstrated that a light-handed regulatory approach (incentive regulation) is the best method to serve the interests of the consumers and the company, though imposing minimal benchmarking requirements on regulated entities simplifies and assists performance monitoring. However, economic regulation is usually a second best option that in many cases would be a transitional measure until competition can be introduced and developed. At that stage, the priority of regulation is to ensure a healthy competitive environment.

The aim of regulation is to protect consumers, while ensuring that the provider(s) remain(s) viable with incentives to operate efficiently. The term 'price control' does not imply that the regulator dictates the prices the provider(s) can charge, but that the control is a constraint preventing, for example, monopoly-abusive prices. As long as the provider(s) complies with this constraint, it is free to choose its prices and it has every incentive to act as efficiently as possible. The regulator, by ensuring efficient pricing and, where applicable, healthy competition, provides the groundwork for proper incentives to service providers and (often) a demonstrable stimulus to infrastructure institutional reform, as has been observed in several sectors and countries including telecoms (Samoa, Fiji) and power (PNG).

4.2.2 Finance and Private Sector Partnership

Given the history of poor infrastructure investment and maintenance, most infrastructure stakeholders consulted in the Pacific agree there is a need for a new strategy for promoting and maintaining infrastructure, away from the highly political investment processes of the past. Moreover, fiscal realities constrain Pacific governments from funding a substantial expansion of infrastructure investment (though public sector finance will likely remain an important constituent of infrastructure finance overall for the foreseeable future). Best (or better) practice in infrastructure finance increasingly involves a partnership with the private sector, the RETA focuses on public-private partnership models and other ways of jointly financing new infrastructure, including appropriate seeding, training and strengthening roles for development partners.

Attracting private sector finance at affordable costs requires governments to reduce the climate of risk and avoid policy uncertainty, thereby allowing predictable revenue streams to be delivered from infrastructure investments. Clear policy statements, actions, and associated regulatory frameworks and enforcement of transparent legal and contractual structures are essential to build private sector confidence in infrastructure opportunities. If private infrastructure contracts are structured to deliver quality services they can also deliver secure and indexed returns to investors over long periods, which is just what long term investors and pension funds desire.

To the financing institutions, a spread of such assets across countries can reduce overall risk and deliver secure returns. Potential investors seek assurances regarding predictable policies on tariffs, new investment, related infrastructure developments and the competitive climate. They seek the benefits of sound regulation that protects investors and customers and enforces fair and reasonable tariffs, such that investments are sustainable and can facilitate growth and maintenance on a commercial basis.

Community Service Obligations. The public sector is charged with delivering services deemed essential and where there are external and community benefits to public provision. A traditional fear is that allowing pure private sector delivery will be more costly to consumers and will constrain coverage in less profitable (i.e., rural) areas, leaving the less viable services as a burden on government. While cross-subsidized rural or low income delivery supplemented by full cost recovery for others can address this asymmetry with private ownership and/or management, the perceived complexity of mixed public/private delivery of services has in the past restricted use of the private sector. However, the evidence is clear that in the case of telecommunications, shipping, and ports, for example, there are major benefits in applying private sector incentives to design, investment and management, provided there are clear conditions of asset maintenance imposed on contractors and reasonable options for transferring assets back to government.

Value for Money. The private sector is successfully contracted to provide services only if prior analysis by government demonstrates a clear financial advantage of private sector delivery compared with public sector provision as estimated by a “comparator”. Various models of private approaches to design, construct, finance, and manage formerly public services have been successful in different parts of the world. The key is to prepare “comparators” and contracts that can attract sound private sector bids and so deliver such competitive outcomes. In this light, countries wishing to expand private sector partnerships need to develop a framework or policy statement, endorsed by Cabinet, which covers:

- Plans for integrated expansion of infrastructure;
- Scope for application of private sector partnerships;
- Alternative models of partnership – national and regional;
- Means of protecting the public interest, regulatory objectives and processes;
- Models for ensuring value for money – public-private comparators;
- Risk identification, allocation and management;
- Engaging the interest of the market; public relations
- Enhancement of Government accountability and support structures.
- Training and institutional strengthening initiatives to cover the above

4.2.3 Asset Maintenance

Poor maintenance limits the capacity of the region's considerable investment in assets to provide the sustained services for which the investments were designed. Poor maintenance is most acute among service providers that lack an explicit commercial orientation. Resolution of the 'maintenance problem' is a fundamentally a management and contractual issue. In the Pacific, there are short term means to assist existing service providers to begin to address maintenance issues and long term means to build structures that provide appropriate incentives.

Elements of a strategy to address maintenance problems in the short term include (i) assessment of maintenance needs and costs and identification of critical gaps in technical skills; (ii) budget preparation and communication; resolve any issues between the service provider and budget authorities regarding required formats and inclusiveness in budget and submission preparation; (iii) define feasible targets through continuous performance monitoring (benchmarking); (iv) pilot programs in private sector contracting for maintenance and gradual build-up of capacity for contract management and supervision; and (v) enforcement: rigorously apply existing regulatory and supervisory functions of government to service providers, thus helping to overcome longstanding inertia in asset management.

Poor maintenance in the long term is not an isolated problem and has no isolated solution. Incentives (and sanctions) that compel management to make decisions in the public interest will sustain, but not guarantee, good practices. Incentives are presently absent in many sectors because of a lack of competition or a lack of accountability, and often both. An incentive system can be established in these sectors through institutional (corporatization) and regulatory reform and, where feasible privatization.

4.2.4 Benchmarking

The purpose of benchmarking is to provide information that is useful to set priorities in each infrastructure sector and thus improve performance, but the process and its results will be valuable in different ways to different stakeholders. There are three groups that benchmarking should address, each seeking to identify a characteristic set of needs:

1. *Governments (national and local)*: performance monitoring and regulation, priorities in reform initiatives, subsidies and recurrent budget allocations, and capital investments;
2. *Utilities*: priorities for capacity building, maintenance expenditures, and capital investments;

3. *ADB and development partners*: priority areas in which to open dialogue with governments regarding future programmed assistance.

Benchmarking as an ongoing process is ultimately sustained by sector management, but can be instilled by appropriate government and regulatory supervision. The most challenging aspect of benchmarking is in the initial stages of establishing capacity for it and establishing the executive practices that make the best use of benchmarking as a management tool. Once this is done, benchmarking may be sustained by the self-interest of managers to keep key information flowing to support strategic and tactical decisions and to document their performance to regulators.

The experience with benchmarking across sectors and countries in the Pacific is varied. The working paper on benchmarking in Volume III contains a tabulated summary of the status of benchmarking in the countries visited during the consultations. In general, benchmarking appears to be most ingrained in sectors which are relatively more commercialized and better regulated (and hence, in the main, are the better performers). The cause and effect relationship is in fact difficult to discern: while benchmarking supports better decision making and better management (benchmarking causes good management and better performance), it may equally be that it is simply a hallmark of better-run utilities (good management causes benchmarking) – in either case, good management and benchmarking are closely associated. Less ambiguous is that poorly-performing service providers rarely engage in benchmarking; it is possible that such entities resist benchmarking simply to avoid highlighting poor performance. The impetus for benchmarking in such cases will almost inevitably have to be imposed externally (e.g., through regulation).

The effort to get benchmarking going at the outset of the process in many organizations could be assisted by awareness-raising of benchmarking as a valuable management tool, provision of training and technical support and, through the design of the benchmarking process, limiting the scope of data requirements, standardizing indicators, and keeping them simple. Indicators will change over time to meet changing needs and may be elaborated as an organization's operations grow and/or become technologically more sophisticated. A proposed list of key indicators for each of the infrastructure sectors relevant to the RETA is attached as the Annex to the benchmarking working paper in Volume III. These have been discussed with sector managers and are subject to modification.

Benchmarking, however, is a long term process that requires much more than awareness raising and short term assistance to build and sustain momentum. As it has in the telecom sector, benchmarking will develop in tandem with institutional reform, increasing management accountability, and the pressures that are imposed by regulation and an increasing commercial orientation.

5 Proposed Strategies

5.1 Regional Strategy

The regional strategy paper (see Volume II) outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services across the region, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined and compared across countries, followed by brief surveys of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, regional priorities for action, and a proposed regional strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

The regional strategy should be read in conjunction with the eight national strategies that have been prepared under the RETA (see below), which are organized with identical structure and format. This has been done to strengthen the linkages between national and regional actions, and help to make plain the areas where regional action can be most effective in building capacity in the region's countries to come to grips with infrastructure issues and get more out of the considerable investments in infrastructure that all have made.

At the risk of belaboring an obvious point, the term 'region' doesn't have the same connotation in the Pacific as it does in, say, Southeast Asia, the Middle East, or Europe, where countries occupy a contiguous landmass. The Pacific region is a collection of small countries separated by thousands of miles of open water. They have much in common and they have many differences. There is much that they can learn from each other and, because of their similar environments, a solution that has worked in one part of the region will probably work in another. But it is also clear that regional solutions that might apply elsewhere, such as sharing power lines, developing and regulating joint access to water resources, or integrating land or river transport systems do not apply here, and that the available choices for regional synergies are fewer⁴. In the future, it may be possible to reduce costs or increase income through joint marine resource management, rationalizing or even regionalizing air and sea transport systems, joint purchasing (such as the joint fuel purchasing arrangements now being piloted by the Pacific Power Association on behalf of member power utilities) and other means that help to integrate the region.

In the here and now, however, the RETA focuses on more immediate objectives and on a rather more limited array of potentials, overwhelmingly country-focused. Essentially, actions that will be effective for Pacific infrastructure will be those that help to replicate viable solutions in parallel in many countries, through sharing of experience and information, sharing of training resources, and any other forms of technical cooperation that help to promote productive replication. Fortunately, solutions that work – some of them representing quite bold departures from traditional practice – have been demonstrated in Pacific countries and it is this experience that represents the most important beacon for the region.

⁴ A key exception is in telecommunications, a sector in which the Pacific countries are in effect 'contiguous' or could be made so.

Although the overviews, sector priorities, and strategies are built up from the country-level consultations and the national strategies developed from the consultation process, the focus in the regional strategy is on regional actions that can make possible genuine synergies or reductions in cost. Regional coordination can assist the replication of good models of reform in different countries and thus improve on the effectiveness of various national actions taken in parallel. Where highly relevant, such coordination is proposed. However, where national actions must play a decisive role in a given reform they are not proposed as part of the 'regional strategy' even if they are to be undertaken in several countries, but remain expressed as national priorities. Proposed elements of the regional strategy are limited to those to which the value added through regional action is most highly significant. For details of sector status in each country and the proposed national-level actions by sector, please refer to the respective national strategies in Volume II.

The proposed priority sectors for regional action are: (i) telecoms, for which the region as a whole can search for and cooperatively implement options for increased access to satellite and undersea cable capacity for international and inter-island communications; (ii) the roads sector, where countries can benefit from simultaneous design and implementation of computerized road asset management systems and associated training; and (iii) the domestic shipping sector, where a regional project could provide a hydrographic survey of the region and produce an accurate and GPS-consistent set of coastal charts for all countries, while simultaneously upgrading search and rescue operations and associated training. In these sectors and in the water, power, and ports sectors, coordination and assistance is proposed at the regional level to improve the replication of national-level reforms (e.g., corporatization and regulatory capacity building processes, development of CSO policies, etc.) when such reforms are required in a majority of the countries of the region.

5.2 National Strategies and Country Reports

In form identical to the regional strategy paper, each national strategy paper in Volume II outlines the main findings of the RETA concerning the critical issues in the country concerned, with respect to the six sectors. Each national strategy report also contains, as an Annex, the country consultation report on which the national strategy is based. The main considerations and findings pertaining to each country are highlighted in the summaries below.

Though the strategies across six infrastructure sectors in eight countries do not permit brief summary in this Volume, the key features of the national strategies include (i) capacity building for regulation and public enterprise monitoring, including improvements in benchmarking and performance-based budgeting processes; (ii) market liberalization and replacement, where feasible, of monopoly service providers by competitive providers; (iii) establishment of sound policies for community service obligations and associated examination of the costs of service delivery in remote areas and policy regarding service entitlements; (iv) furtherance of institutional reform and corporatization of government service providers; (v) promotion of private sector partnerships with government through capacity building in government contracting and supervision functions and fostering conditions conducive to accessing private sector sources of finance and investment.

5.2.1 Cook Islands

By far, the growth opportunity of the Cook Islands (population about 15,000) is tourism. The raw material needed for tourism is everywhere in evidence. Growth of tourism, particularly in the outer islands, could carry the country to unprecedented

national income and employment opportunities. However, the impact of tourism on local resources, institutional capacities, and pressures to reform institutions (up to and including, for example, franchising the outer islands to develop tourism infrastructure and marketing of services), could transform governance of the country and would take considerable time to put into place. The team notes that reform of tax laws in concert with tourism development, particularly in the form of taxes on property and capital gains, could greatly strengthen the revenue base of the Cook Islands and provide the government finance necessary to address the resource and reform issues that will arise in the future.

The recent draft Infrastructure Master Plan is a powerful tool for coming to grips with needed infrastructure investments in the near and medium terms, an advantage not enjoyed by most other Pacific island countries at present.

The solid waste sector appears to be leading the region in awareness of solid waste issues in small island states. The introduction of waste recycling and selling of scrap metal overseas – essentially turning solid waste into a business – is far-sighted and provides a most useful example to other Pacific island countries to watch and emulate.

Overall, the regulatory system in the Cook Islands, while often well specified on paper, does not deliver the thoroughness, transparency, and efficiency required of it. There is a notable disconnect between government central agencies providing oversight and performance monitoring of infrastructure services and the line departments and SOEs charged with providing the services. In carrying out its monitoring role, MFEM's procedures have often been received as 'red tape' while failing to support improved performance. For SOEs, the CIIC lacks capacity to carry out its responsibilities effectively and provides little meaningful supervision or corrective impact on SOE operations.

There is an urgent need for a high-level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization of subsidized government services to supplement the Infrastructure Master Plan. The Government's imminent review of the MOW is a step towards this, but the scope needs to be considerably broadened to address the wider regulatory issues.

The capacity of outer islands administration needs a thorough re-examination, with realistic assessments of the costs of meeting the government's targets for provision of minimum services to the outer islands, and undertaking of practical steps either to (i) identify and provide the government resources necessary to deliver the services and fill the necessary gaps to ensure sustainability, or (ii) reduce the government's targets for the outer islands to something that the country can more easily afford.

5.2.2 Federated States of Micronesia

The FSM (population about 108,000) comprises four island States: Pohnpei (home to 30% of the population and where the national capital resides, at Palikir), Kosrae (7% of the population), Chuuk (50%), and Yap (13%). The geographic spread of the islands across the north Pacific is enormous: Yap at the western end is separated from Kosrae in the east by several thousand miles. Inter-island passenger traffic is almost entirely by air; sea-borne cargoes are delivered direct to each State by international shippers. The States cohere in a loose federal structure, but public administration and decisions concerning infrastructure services are almost entirely taken at the State level. Telecoms is the only sector served by a truly national utility –

all other sectors are served by State entities. Infrastructure services are subject to marked differences across the States.

Infrastructure development in the FSM since Independence in 1986 has been supported by funding from the Compact agreements with the United States. The first Compact Agreement (1986-2001) largely failed in its aims of capacity building (though Pohnpei and Yap appear to have done better in power, water, and sanitation services during that period than the other two States). The second Compact Agreement (2004-2023) is better designed to support infrastructure capacity building than the first, with long term strategic planning and explicit criteria for infrastructure investment and maintenance. Initial disbursements under the second Agreement have been slow as the FSM national and state governments adjust to the new requirements. However, there are encouraging signs that the new requirements are having a desirable effect, combined with a perceptibly higher government priority for improving infrastructure services. The greatest degree of improvement can be seen in Chuuk, where new management of the State power and water utility, with support from the Compact, is coming to grips with chronic deficiencies in asset maintenance, metering and customer relations, land issues, and internal cash flow. In concert with generally heightened awareness of critical infrastructure issues in the country, the ADB Omnibus loan will provide financing for asset extension and renewal in water supply, sanitation, and power projects throughout the country.

However, infrastructure services in FSM still face some fundamental constraints. Firstly, regulatory capacity is largely undeveloped. Environmental regulatory agencies exist at the State level but all are under-funded and under-staffed in comparison to needs. (The exception in this area is Kosrae, where environmental regulation appears to be pro-active and well managed, despite insufficient funding.) There is little or no formal tariff regulation in the FSM, except in Pohnpei.

Maintenance of infrastructure assets in the FSM, a critical issue of long standing, remains critical. Mechanisms are in place under the second Compact agreement to begin to address it, including mandated allocations to maintenance from approved infrastructure project budgets. However, poor maintenance will continue to be a severe constraint on service delivery until gaps in skills (e.g., project preparation including engineering, cost estimation, financial control and budgeting, budget submission, and technical operations) are filled through training and institutional reform, and higher allocations to maintenance are made by government decision makers.

Infrastructure planning and project implementation is under the control of the national Infrastructure Plan Implementation Committee and its subsidiary State IPICs, though it does not appear that this arrangement has to date been effective in overcoming chronic constraints in planning, project preparation, and project supervision capacity. There is a lack of local skills in engineering and project supervision. This constrains also the country's ability to harness the private sector competitively in infrastructure investment or O&M services (the private sector commonly traditionally operates ports and stevedoring services in FSM, but not competitively).

Rigid national government or foreign private sector monopolies are in control of the strategic aviation and telecommunications sectors. In comparison with other countries in the Pacific, the FSM is severely lagging in terms of competitive market development in these sectors, and this limits access and raises the cost of such services to consumers in the FSM. Inter-island marine transport is extremely limited with one domestic passenger vessel (Yap does a notable job in providing State-supported domestic shipping services, but only within the State). Though there is

considerable potential for tourism in the FSM, development is restricted due to the monopolies in the communications and transport markets, and a low government priority to marketing tourism overseas. Opening of these markets and advancement of tourism would likely have a considerable positive impact on the local economies of the FSM.

In sum, though infrastructure is well supported with external finance, service delivery improvement depends on further policy development, particularly in the areas of regulation and market liberalization, and capacity building in project planning and implementation.

5.2.3 Fiji

Fiji (population about 840,000) has gained a wealth of experience in corporatization and commercialization of key infrastructure service sectors, including ports, telecommunications, and electricity. Reform processes in these sectors, often resulting in greatly improved conditions for private sector participation, have continued after corporatization and some are continuing now (e.g., in telecoms). Restructuring of the long-ago corporatized Fiji Electricity Authority (FEA) since 2001 has paved the way for private sector independent power producers to enter the generation market in a substantial way, and outsourcing of O&M functions has allowed a halving of FEA permanent staff requirements. (FEA currently retains a self-regulatory function, but this will be resolved under multi-sector regulatory reforms – see below.) International ports operations have greatly improved since corporatization was completed in the late 1990s.

Fiji is taking bold steps in opening markets to competition and market forces, especially in the critical sectors of aviation and communications. This can be expected to have strong effects in terms of improved coverage and service quality, lower costs, and better access to export markets (including tourism). Needed regulatory reforms are also being addressed: multi-sector regulatory capacity building (a TA project first developed by the ADB and AusAID in late 2006) is to proceed with the government's own resources, while a Fiji government-funded analysis of the government's social obligations in a number of key infrastructure sectors, including power, water, and transport was completed in 2006 and now forms the basis of a coherent subsidy policy in the management of public enterprises. However, both the Commerce Commission and the Ministry of Public Enterprises are currently under-resourced and under-staffed to carry out their functions adequately.

The same cannot be said for other critical sectors, including roads maintenance (and the government plant pool that is supposed to support roads maintenance), water supply and sewerage, government buildings maintenance, and government shipping services. Roads maintenance and the water and sewerage sector are well on the way to corporatization but many steep challenges remain in terms of filling gaps in skills and marshalling the additional financial and human resources required to bring those sectors up to a higher standard of performance. Government shipping, plant pool maintenance, and government buildings are areas of extreme asset fatigue and under-performance, and which suffer from chronically inadequate funding for sustainable operations and little prospect of attracting private sector participation. These sectors can certainly benefit from reforms similar to those which Fiji has already implemented successfully in ports and electricity; a crisis in service delivery (especially in shipping services) awaits if inaction in these sectors continues.

Outsourcing of government buildings maintenance, increased outsourcing of roads maintenance supported by increased resource allocations to create a long term,

predictable market for roads maintenance in which the private sector can participate, will likely achieve rapid increases in the performance of these sectors and ultimately lower costs. There is an urgent need to complete the institutional reform process underway in the water and sewerage sector, supported by accelerated progress with the Suva-Nausori Upgrade project. Mechanical Services and Government Shipping Services should arrange to sell all assets as soon as practicable and fully privatize those services.

5.2.4 Palau

Palau (population about 21,000) has several inherent advantages that will support stable development, growth in jobs, and investment opportunities. The country's pristine tropical and marine environment offers unique tourist attractions and it is geographically well-placed to cater to high-end tourist markets in Japan, Europe, and N America. The government's plans to increase tourist arrivals from the present 80,000 to 250,000 within a few years seem almost modest in comparison with the apparent potential. Though much of the tourism potential remains untapped due to limited investment, a new road network into the large island of Babeldaob that will be commissioned in 2007 should accelerate investment in tourist facilities; access to land for such developments is not nearly as constrained by title issues as it is in other Pacific island countries. Palau's Compact of Free Association with the United States provides the country with substantial grant assistance for the development of infrastructure and, equally importantly, guarantees the right of Palauans to live and work in the US, thus keeping unemployment and attendant poverty in check.

A third notable feature is that Palau has historically been able to rely on considerable bilateral grant support to infrastructure services in addition to that from the US. Due to its geographical position and historical/cultural ties with many of the developed countries in the region, continuation of such assistance into the long term seems likely. Despite the boost to real incomes that such assistance provides, the RETA team notes that chronic external subsidies to certain sectors (e.g., the water supply and sanitation) has produced a legacy of weak service provision with drastically insufficient resources and staff for routine maintenance, asset management, and quality control. This highlights what appears to be Palau's key vulnerability: as assets grow and as development proceeds, the country's capacity to provide quality infrastructure services will come under increasing strain and may undermine the pace of development and, in time, the quality of life for the residents of Palau. The point seems especially clear in 2007, as a vast new addition to the roads network will be commissioned without identifiable capacity to keep it maintained in the future.

The lack of effective regulation in Palau is, in the view of the RETA team, at the root of the problem. For example, key decisions regarding the structure of the telecoms market appear to be made at a political level without due consideration of rural service obligations or consumer options for urban services; there is no evident 'level playing field' for the entrance of competitive providers. In the water sector, there is no authority with whom the service provider (BPW) can seek adjustments of the tariff to improve cost recovery, and there is no external authority to enforce water quality and effluent standards. In the ports sector, rates are set more or less unilaterally by the private sector contractor, without effective external review of costs and competitiveness. It is anticipated that the effects of poor regulation in Palau will be felt more keenly in the future as the economy continues to diversify and grow.

5.2.5 Papua New Guinea

In contrast with much of the rest of the Pacific region, tourism in PNG (population about 5.2 million) is undeveloped and a rapid expansion in that sector is not in prospect, due largely to limited infrastructure outside of the main urban centers and persistent public safety concerns. However, PNG is wealthy in other natural resources and these are driving a sustained economic boom and a substantial improvement in the government's fiscal health. Allocations to asset maintenance and infrastructure service delivery have greatly increased in recent years. The country is in an enviable position of being able to experiment with different approaches to funding infrastructure investment and service delivery, based on its wealth of resources and a large but so far untapped domestic market potential. In hopes of realizing this potential, the private sector and to some extent the public sector are beginning to take more investment risks, most notably in telecommunications but also in transportation. A critical factor facilitating this development in no small measure has been the creation of a sound regulatory environment through establishment of the Independent Consumer and Competition Commission (ICCC), which has gained a reputation for impartiality and effectiveness since its establishment in 2003. Management improvements evident in the SOEs for electricity and water supply are either caused by good regulatory influence or have been strengthened by it. Similar improvements in maritime and road transport can and, it seems, ultimately will result from the same influence (though the challenges in this regard seem to be steepest in marine ports due to an exceptionally long history of neglect).

In comparison with many other PDMCs, there is relatively little indication of the expected policy initiative or other pre-cursors of reform in the infrastructure sectors of PNG. Government officials and utility personnel did not express the perception of a need for structural reform. Typically, a core public management initiative to support the reform process is the emergence of the Ministry of Finance as a champion and coordinator of infrastructure reform working with other key agencies in Ministries related to the sector. The RETA has aimed to reinforce this in most countries by working through an infrastructure committee, but this didn't work in PNG. It is possible that strong political intervention in PNG infrastructure contributes to this environment. Often, the need for reform is apparent through actual or perceived crises in the sector, but these may be masked in PNG by external grant assistance enabling the government to avoid making hard choices to improve the quality of infrastructure services.

Despite the current difficulties faced by ICCC in the liberalization of the telecom sector⁵, the creation of this independent regulatory authority contributes strongly to the reform process. While the authority of the ICCC is currently being tested in both the courts and Parliament, it is the fact that this agency is established under its own law and is not subject to direction from the government that has allowed licenses to be granted to two entrants to the telecom market as well as to PNG Sustainable Energy Limited (PNGSEL) to operate electricity generation and distribution in the Western Province. ICCC is a new agency and has significant capacity constraints that it is addressing through training and recruitment.

PNG Sustainable Development Program Ltd (PNGSDP) is worthy of particular comment. It does not fit easily into the specific categories of the paper, but it starting

⁵ The issuance of 2 telecom licenses by ICCC has been challenged in the courts. As at July 2007, the PNG national court has ruled in favor of ICCC but it is expected that Telekom will challenge this decision.

to have an impact on investments and service delivery in power and road infrastructure throughout PNG, particularly in rural areas.

PNGSDP is the majority (52%) shareholder of Ok Tedi Mine Ltd (OTML) in the Western Province, having taken over BHP's shares in 2001. PNGSDP's Board has 3 Directors appointed by BHP, 3 by the national government (1 each from the Bank of PNG, the Chamber of Commerce, and Treasury), and 1 from Singapore, where the company is registered. The purpose of PNGSDP is to invest 33% of its dividend income in rural infrastructure; the balance of dividend income is invested in long term funds. Of the 33% of income earmarked for projects, 33% is spent in the Western Province and 67% in the rest of PNG. PNGSDP has two subsidiaries to carry out project implementation: PNG Sustainable Infrastructure Ltd (PNGSIL) to focus on transport infrastructure (roads, ports, and airstrips) and on water and sanitation, and PNG Sustainable Energy Ltd (PNGSEL) to focus on rural electrification. Dividends paid to PNGSDP are reported to average around K300 million per year, implying a flow of some K100 million per year to development projects. OTML currently expects that the mine will remain open through 2013, with a longer period considered probable (depending on future copper prices). PNGSDP has been engaged as the project manager of a World Bank-funded roads sector project and is contributing funds to the investment.

Though PNGSDP project investments are made in addition to, not in lieu of, taxes paid to the national and provincial governments, the company apparently expects to make little or no income from them. (For example, many of the infrastructure projects concern the rehabilitation and maintenance of provincial and national roads.) PNGSIL maintains that their long term goal is to provide for sustained rural investment in infrastructure through creation of a trust fund that would generate income and to which the provincial and national governments would continue to contribute after the mine closes. The trust fund would contract with local landowners for long term maintenance services. Current plans call for the construction of a road from Kiunga to Daru and port facilities in Daru. Though starting in the Western Province, the clear intention is to extend a successful model nationwide. In other parts of the country, PNGSIL has already begun to work on roads rehabilitation and maintenance in conjunction with oil palm producers, demonstrating that the model need not depend on Ok Tedi or even on minerals.

5.2.6 Samoa

Samoa (population about 180,000) has achieved outstanding success in liberalizing a key sector – telecommunications – that has resulted in immediate benefits to consumers in the form of increased coverage and reduced cost. In combination with much improved air services into and out of Samoa (again resulting in more service at reduced cost), the country's economy and opportunities for productive private investment have been positively transformed.

The liberalization of both telecommunications and air transport has resulted from a concerted 'push' from the top down by the government of Samoa underpinned by a timely study of sector reform potential by a development partner, and motivated by an accurate vision of economic opportunity. Another impressive area is in roads maintenance, in which the private sector has been engaged in construction and maintenance for a number of years, under well-managed contracts with the Ministry of Works (which has successfully adjusted to a focused regulatory/supervisory role).

Other sectors in Samoa, especially water, power, and ports, while showing signs of improvement, could benefit from a similar mindset of reform as that which has been

applied to telecommunications and roads. The water sector has undertaken extensive investment in rural water supply and, in an effort to come to grips with the more extensive demands on management, has begun to implement a well-structured rural performance monitoring capability that can now be expanded to embrace the urban water systems as well. There exists, however, much larger scope for private sector involvement in operation and maintenance than is currently utilized in rural and urban operations, and in upcoming sewage collection and treatment operations. A similar comment applies to the power sector, where steps are just beginning to bring the private sector into operations such as pole erection. Much more can be done, and the track record of bold sector reform in Samoa supports confidence in the outcome.

5.2.7 Tonga

In telecommunications, Tonga (population about 117,000) is on the brink of major sectoral changes and technical innovation. Remote area mobile phone coverage seems set to improve with the introduction of WiMax technology, and connectivity internationally has become more convenient with the introduction of roaming agreements; both innovations are from the government-owned TCC. International players with more technology and finance are likely to enter the Tonga telecom markets as TCC intends to sell a minority share, and TonFon their entire operation⁶. Other sectors, particularly ports and roads, appear to be stagnating or gradually declining in performance, with lack of training and outsourcing key issues.

Infrastructure regulation is a prime cross-sectoral concern in Tonga. Regulatory capacity at present is low and inadequate to address the rapidly growing demand for and changing structure of infrastructure service delivery in the Kingdom. Regulatory reform, if carried out transparently and with adequate resources for requisite technical and financial skills, has the potential for identifying performance standards and the resource requirements for best-practice service delivery in all sectors and in all areas of the country. Reform is also required to tap the considerable resources of the private sector, in expertise, equipment, and finance, in support of infrastructure services. Coordination of infrastructure planning across sectors is lacking, but could be promoted through development of multi-sector regulatory capacity. The role of the Ministry of Public Enterprises could be considerably enhanced in this regard. The MPE has reportedly stated its intention to remove elected officials for public enterprise boards by the end of 2008.

Regulation is however a contentious political issue in Tonga, and the current government appears not to favor the development of independent regulation for infrastructure, preferring instead that regulatory functions be retained by the respective Ministries, as reflected in comments on a previous draft of this strategy paper and in discussion at the Concluding Workshop of the RETA⁷. Nevertheless, it is a key finding of the RETA that independent regulation (whether single sector or multi sector) is a core element driving much successful infrastructure reform across the Pacific. The RETA team believes that the success of attempts to address other core issues facing infrastructure in Tonga, such as widening the scope for private sector partnership, accessing new sources of finance, and supporting an enabling environment for healthy competition will be constrained by a lack of sound and independent regulation.

⁶ Digicel reportedly bought TonFon in late 2007.

⁷ 28-29 November 2007, Wellington, NZ.

Utilization of the private sector in infrastructure is low and severely constrained by lack of transparent regulation and consequent lack of predictable markets for the private sector to participate in. This is perhaps easiest to see in the case of land transport and roads maintenance, now severely constrained by inadequate maintenance funding, no road standards enforcement, and high costs. A step forward has been taken by the formation of a Ministry of Transport and consolidation of roads administration under it. A credible maintenance budget for roads is urgently needed in order to introduce outsourcing of maintenance services to the private sector and potential reduction in costs. It is not clear whether community management of secondary roads in Tonga is an innovative, empowering idea or is simply a fact borne of fiscal necessity; secondary roads are commonly in terrible shape.

There is no postal delivery service in Tonga, and as a consequence utility service providers such as the water authority, power companies and telecommunications companies employ staff to physically read the meter (power and water) and deliver invoices (all three). This is a significant duplication in effort and carries high cost. As the major service providers are all Government owned the Government should investigate a tripartite solution to the billing function. This should also include contracting out these services to the private sector. Some form of electronic bill payment, self read meters and use of mobile phone technology in invoicing and paying could have real operational and cost advantages.

The Minister of Public Enterprises has stated that the GoT has a clear objective to get back to their core functions and to outsource, contract out or privatize non-core functions (including PPPs). This objective will ensure that the people of Tonga receive the greatest range of services at the lowest reasonable cost.

The ADB has commenced the third phase of a TA which looks at the Rationalization of Public Enterprises in Tonga. As a consequence and pending the completion of that TA, this paper makes few comments on possible privatization of Public Enterprises.

5.2.8 Vanuatu

Vanuatu (population about 212,000) is making substantial strides towards promotion of competition in crucial infrastructure sectors, especially telecoms and international aviation. Though the telecoms competition policy is still a matter of legal contention, it seems clear that the market will become competitive sooner rather than later. Plans are in the making to upgrade international airport facilities to allow additional long range carriers to serve Vanuatu routes, perhaps opening new tourist markets in Asia. Air Vanuatu itself places admirable emphasis on serving domestic routes, thus supporting prospects for growth of tourism in the outer islands. In the past, infrastructure and economic planning in Vanuatu has been said to be mainly reactive and highly influenced by shifting political winds, but there are clear signs that this is changing.

Regulation is a complementary area where significant advances have been made. Multisector regulation, with support from the World Bank and AUSAID, is now a near-term prospect. Water supply catchment regulation, lacking in so many other Pacific island countries, is also in place.

Use of the private sector in infrastructure service delivery is also in evidence, but may not reflect deliberate policy. For example, though domestic shipping services are entirely privately operated, the sector faces a serious crisis in capacity and public safety because the government has not sufficiently supported the sector with either investment (e.g., for nav aids) or market regulation to ensure that conditions are

appropriate for private sector operations. The private sector is contributing well to ports operations in Port Vila, largely due to good management in the company concerned, but not in Santo, where contract performance is evidently not well supervised or enforced. UNELCO's operations in power supply well pre-date Independence; through new regulatory arrangements, the government will strengthen its handling of this sector's private sector 'status quo'. Also, UNELCO has shown a supporting willingness to help meet government objectives to serve rural areas and to introduce cost-effective renewable energy in generation (some options being pursued are highly experimental), despite being financially protected by automatic fuel adjustments in the tariff formula. TVL, on the other hand, is an example of a company with majority private shareholding which has provided serious resistance to the government's efforts to liberalize the sector.

Tourism, as in most Pacific island countries, represents the leading economic growth potential of the country, but development will require a tightly integrated approach to tourism and infrastructure investments, with upgrades of airstrips and passenger handling facilities proceeding in tandem with the growing tourism market in the outer islands. From discussions with the government and with the aviation service providers, consensus is that the problem is one of chicken **and** egg, so closely will the developments need to be coordinated. The Tourism Master Plan of 2004 is a good starting point for Civil Aviation planning, and could extend to shipping services also, as there appears to be substantial potential for tourism-oriented shipping services.

5.3 Regional Advisory Service (RAS)

The concept paper for a Regional Advisory Service (see Volume II) examines the feasibility of building long term regional support for maintaining momentum of national infrastructure reforms, and is based on the national and regional strategies that have been developed (above). Such a service would operate within the general framework of the approach proposed by the RETA to deal with the critical issues (Volume III), e.g., improving governance through the separation of policy, regulatory and operational responsibilities, liberalizing infrastructure service markets to introduce competition and promote private sector participation, strengthening institutional structures, and building capacity for regulation. In this context, the essential roles of an RAS would be to (i) facilitate the replication throughout the region of good models of infrastructure service improvement developed for certain sectors by some Pacific countries and (ii) mobilize specialist expertise and training resources quickly and as needed by the countries to help initiate and then strengthen and maintain momentum in ongoing reform efforts.

A key insight to emerge from the consultation process, perhaps rather obvious in hindsight, is that an RAS-type capacity would be best placed to help *countries* get on with *national* strategies, instead of playing a central role in, for example, accessing more telecommunications capacity for the region or conducting region-wide hydrographic surveys or implementing other such purely *regional* strategies. RAS assistance would be available to regional strategies of course, but the core of RAS activity would concern national actions that are based upon successful experience in the region and that in many cases would be replicated in several countries. In a nutshell, these national-level activities would concentrate on the following:

- Regulatory capacity building (legislation, policy formulation, training)
 - Protect the public interest (fair pricing);
 - Monitor sector performance;
 - Enforce ground rules for market liberalization; and
 - Create conditions conducive to private sector participation
- Rural service support and Community Service Obligation (CSO) policy formulation and implementation
 - Establish commercial viability of service to all segments of the population
- Institutional restructuring (corporatization) and promotion of private sector participation through policy changes and capacity building;
 - Establish incentives and accountability of the service provider for sustained quality performance; and
 - Make substantial increases in private sector outsourcing and direct investment feasible
- Coordination of Training Services through twinning arrangements (in conjunction with regional industry associations) and short courses
 - Raise technical skills (O&M and troubleshooting procedures);
 - Raise management skills in areas including financial control and reporting, budget preparation, preparation of tenders, and contract supervision; and
 - Raise Board-level skills
- Discrete rapid response TA projects at sector level

- Fill gaps in specialist expertise (e.g., tariff reviews, resource management policies, etc.)

A purely regional role that an RAS *could* fill is as a highly accessible clearinghouse for the exchange of information and experience in the region, through the routine production of reports and bulletins and the active maintenance of an email-based network of key infrastructure stakeholders and an RAS website. As discussed in the RAS working paper, development partner program harmonization for infrastructure is another key potential role for an RAS.

A Regional Advisory Service, comprising a core of full time specialists across the range of infrastructure sector issues, could meet the needs of government agencies to implement infrastructure reform under a national and regional framework. Regionalism is a concept supported by the Pacific Islands Forum through the Pacific Plan as a means by which capacity limitations in service delivery can be overcome and economic opportunities increased through market integration. Options for the establishment of a Regional Advisory Service include the establishment of a stand-alone agency modeled on the Pacific Financial Technical Advisory Centre (PFTAC); the expansion of the operations of an existing support facility such as the Public Private Infrastructure Advisory Facility (PPIAF); or the placement of the service within an existing regional agency with an appropriate mandate, such as the Pacific Islands Forum Secretariat. Such a Regional Advisory Service would be governed under a structure comprising representatives from PDMC government agencies involved in infrastructure sector reform.

Asian Development Bank

TA 6257-REG: Improving the Delivery of Infrastructure Services in the Pacific



FINAL REPORT

Volume II

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services across the region, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined and compared across countries, followed by brief surveys of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, regional priorities for action, and a proposed regional strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

The regional strategy (this document) should be read in conjunction with the several national strategies that have been prepared under the RETA¹, which are organized with identical structure and format. This has been done to strengthen the linkages between national and regional actions, and help to make plain the areas where regional action can be most effective in building capacity in the region's countries to come to grips with infrastructure issues and get more out of the considerable investments in infrastructure that all have made.

At the risk of belaboring an obvious point, the term 'region' doesn't have the same connotation in the Pacific as it does in, say, Southeast Asia, the Middle East, or Europe, where countries occupy a contiguous landmass. The Pacific region is a collection of small countries separated by thousands of miles of open water. They have much in common and they have many differences. There is much that they can learn from each other and, because of their similar environments, a solution that has worked in one part of the region will probably work in another. But it is also clear that regional solutions that might apply elsewhere, such as sharing power lines, developing and regulating joint access to water resources, or integrating land or river transport systems do not apply here, and that the available choices for regional synergies are fewer². In the future, it may be possible to reduce costs or increase income through joint marine resource management, rationalizing or even regionalizing air and sea transport systems, joint purchasing (such as the joint fuel purchasing arrangements now being piloted by the Pacific Power Association on behalf of member power utilities) and other means that help to integrate the region.

In the here and now, however, the RETA focuses on more immediate objectives and on a rather more limited array of potentials, overwhelmingly country-focused. Essentially, actions that will be effective for Pacific infrastructure will be those that help to replicate viable solutions in parallel in many countries, through sharing of experience and information, sharing of training resources, and any other forms of technical cooperation that help to promote productive replication. Fortunately, solutions that work – some of them representing quite bold departures from traditional practice – have been demonstrated in Pacific countries and it is this experience that represents the most important beacon for the region.

¹ These have been developed for eight countries (Cook Islands, Fiji, FSM, Palau, PNG, Samoa, Tonga, Vanuatu).

² A key exception is in telecommunications, a sector in which the Pacific countries are in effect 'contiguous' or could be made so.

Following is a tabular and fuller narrative summary of the key features of each infrastructure sector in the Pacific. Each subchapter corresponding to each infrastructure sector is concluded by a proposed regional strategy for the sector (sections X.9 below). Although the overviews, sector priorities, and strategies are built up from the country-level consultations and the national strategies developed from the consultation process, the focus in the regional strategy is on regional actions that can make possible genuine synergies or reductions in cost. Regional coordination can assist the replication of good models of reform in different countries and thus improve on the effectiveness of various national actions taken in parallel. Where highly relevant, such coordination will be proposed. However, where national actions must play a decisive role in a given reform they will not be proposed as part of the 'regional strategy' even if they are to be undertaken in several countries, but will remain expressed as national priorities. *Proposed elements of the regional strategy will be limited to those to which the value added through regional action is most highly significant.*

For details of sector status in each country and the proposed national-level actions by sector, please refer to the respective national strategies.

Based on the sector overviews presented below, the proposed priority sectors for regional action are: (i) telecoms, for which the region as a whole can search for and cooperatively implement options for increased access to satellite and undersea cable capacity for international and inter-island communications; (ii) the roads sector, where countries can benefit from simultaneous design and implementation of computerized road asset management systems and associated training; and (iii) the domestic shipping sector, where a regional project could provide a hydrographic survey of the region and produce an accurate and GPS-consistent set of coastal charts for all countries, while simultaneously upgrading search and rescue operations and associated training. In these sectors and in the water, power, and ports sectors, coordination and assistance is proposed at the regional level to improve the replication of national-level reforms (e.g., corporatization and regulatory capacity building processes, development of CSO policies, etc.) when such reforms are required in a majority of the countries of the region.

Table 1: Regional Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>Technology has improved with the introduction of mobile phones and wireless internet, greatly widening the scope for competitive entry into the sector. Where entry has been allowed (e.g., Tonga, Samoa, and lately in Fiji) there has been improvement in service coverage and reduction in costs to users.</p> <p>Competition must be accompanied by sound regulation (see below), as experience in Palau has shown.</p> <p>Restricted access to bandwidth in the Pacific for international communications represents a general constraint on the sector region-wide.</p>	<p>Generally, the sector in the Pacific is underdeveloped, inefficient, unreliable, highly subsidized, and fails to meet applicable water supply or effluent quality standards. In most areas of the Pacific the water supply is not potable.</p> <p>Centralized sewage collection and treatment facilities exist in only a few countries (Fiji, PNG, FSM); elsewhere, countries rely on septic tank systems.</p> <p>Exceptions include PNG and Vanuatu (Port Vila only). Tonga and FSM have corporatized water service providers. Elsewhere, water supplies in the Pacific are untreated, often unmetered, with users charged no fees or flat rates. Contaminated water supplies are causing serious health issues in some countries.</p>	<p>The urban power sector is largely corporatized under accountable, autonomous management, and charging cost-recovery tariffs to users.</p> <p>The rural power sector is best developed in Tonga and Samoa through concerted government rural investment programs. Rural electrification is being progressed in some areas of PNG under private sector initiative.</p> <p>Elsewhere rural electricity supplies are largely based on village or mini-grid systems powered by small diesel generators difficult to keep fuelled and maintained in remote locations and largely dysfunctional. Household-based solar home systems are not yet widespread.</p>	<p>The roads sector is, in general, poorly maintained and under the care of entities that are under-equipped and under-financed to do the job properly. Lack of awareness at the top levels of government of the economic importance and priority of well-maintained roads is commonly observed.</p> <p>An exception is Samoa, where government has increased funds for roads maintenance and has competitively outsourced maintenance work to the private sector. In PNG, government has greatly increased the annual allocation to roads maintenance (from about 10% of the annual need to close to 100%).</p> <p>Elsewhere, the roads sector receives a small fraction (in some cases, 0%) of the assessed need for annual preventative maintenance for roads. Roads maintenance is reactive and thus rehabilitative, rather than preventative.</p>	<p>The commercial ports are generally maintained to a reasonable standard whereas minor ports are often derelict.</p> <p>Authorities in charge of commercial ports are generally corporatized and are commercially viable, though in some countries (PNG, Tonga) the corporatization process hasn't been fully implemented.</p> <p>Minor ports are typically under the management of the Public Works Department (or equivalent).</p>	<p>Government owned and operated shipping services are present in Fiji, Samoa, and Tonga. Elsewhere (Vanuatu, PNG, and the Cook Islands), the domestic shipping services are entirely private sector operated. Nearly all inhabited islands (even the remote Nuias in Tonga) are served.</p> <p>The domestic shipping sector is not commercially viable in any country, with the possible exceptions of PNG and Samoa.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Community Service Obligations	'Community Service Obligations' are not well defined in Pacific countries beyond 'encouraging' providers to extend services to rural communities. Wireless communications are now reducing the cost of rural connections, and coverage seems set to improve. However, a sound CSO policy is needed in most countries in order to 'commercialize' rural services in the eyes of all service providers and promote investment.	There are no defined Community Service Obligations in the water sector, though many countries make attempts to make basic services in the outer islands or rural areas available. .	Except in PNG, there are no defined Community Service Obligations in the power sector but governments have provided extensive investment and subsidy programs to extend power services in rural areas. A viable institutional solution to off-grid rural electrification is still lacking in most countries.	There are no defined Community Service Obligations in the roads sector in the region. Roads development is essentially driven by economic/commercial interests; isolated communities in the interiors of large islands remain quite isolated.	There are no defined CSOs in the ports sector. Some countries (PNG, Cook Islands, Vanuatu) have built an extensive network of minor ports in the outer islands. As mentioned, many of these are derelict and have not been designed to cater for long term growth in inter-island traffic. Significant increases in such traffic will require considerable additional investment.	Except in Fiji, there are no defined community service obligations in the shipping sector. In Fiji, a route licensing scheme has been introduced which assigns certain shippers to certain routes, with subsidies paid to the licensed shippers on non-economic routes.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	<p>Regulation of the sector has traditionally been absent; rates have been set by the monopoly providers themselves. There is growing recognition that regulation is needed to ensure healthy competition. Samoa currently leads in implementing a telecoms regulation law that achieves service quality and coverage improvements and cost reductions through competition.</p> <p>Telecoms regulation can lead the way into multi-sector regulation in some countries and this will provide a viable model for other countries to follow.</p>	<p>Water supply tariffs are generally not regulated (the exceptions being PNG and Fiji); tariffs are usually set by the supply entity and approved by Cabinet. Water and effluent quality is monitored, to varying degrees of regularity and rigor, by the countries' Environment ministries (or equivalent).</p>	<p>Economic regulation of the power sector is largely absent in the region, except in Fiji, PNG, and Pohnpei (FSM). The power sector is likely to come under multi-sector regulation in Samoa and Vanuatu. Technical regulation functions are often retained by the power utilities.</p>	<p>The sector is not regulated. However, there have been institutional changes in PNG, Fiji, and Tonga (mentioned briefly above) that are designed in part to improve roads sector monitoring, planning, and maintenance scheduling. There are no toll roads in the region.</p>	<p>Except in PNG and Fiji, the ports sector is not regulated; international ports fees are generally set by the port Authority concerned. In most countries fees are not charged in minor ports.</p> <p>Commercial ports stevedoring operations are commonly outsourced to the private sector, but there are few private sector service providers and contracts are generally not competitive. Ports operation (contractor) fees are not regulated.</p>	<p>The sector is not price regulated, but government shipping rates (set low and below cost predominantly) generally establish the price regime for the sector.</p> <p>There is a maritime authority in all countries that is responsible for search and rescue and for the maritime navais system.</p> <p>In most countries search and rescue arrangements are inadequate and the navais systems are in advanced disrepair. Further, several countries (Fiji, PNG, Vanuatu) have indicated that coastal navigational charts are outdated and unreliable.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	<p>There are no significant maintenance issues in the telecoms sector.</p>	<p>Assets are generally well maintained by commercially-oriented water supply entities (PNG, Vanuatu (Port Vila)).</p> <p>In contrast, unaccounted for water (UFW) is often 50% or more in non-corporatized water supply entities such as Public Works departments (Fiji, Samoa, Palau). In such cases, leakages from the distribution networks are high, treatment facilities (if they exist) are often overloaded and thus do not function properly, and supply interruptions due to broken pumps and pipes, etc., are frequent and often of long duration.</p>	<p>Maintenance is largely not a significant issue in the urban power sector. Diesel-based rural power supplies, in contrast, are essentially non-sustainable due to acute difficulties with maintenance and logistics to remote locations, and a lack of necessary technical skills in rural areas.</p> <p>Lack of outsourcing of O&M services or of direct private sector investment in generation in most countries. The outstanding exception is Fiji, in which large diesel station O&M has been outsourced there is considerable investment by Independent Power Producers (IPPs). (There is also an IPP operating in PNG, but that project hasn't worked well due to a faulty pricing mechanism in the supply contract.)</p>	<p>Poor roads maintenance is a serious and chronic issue in many countries. Preventative maintenance attracts almost no funding in any country except Samoa, PNG, and (to a far lesser extent) Fiji. Roads assets in general are poorly monitored, are repaired on a continuing stop-gap basis, and are not improving in overall quality.</p>	<p>Maintenance of the commercial ports is adequate to keep them operating, but several are under near-term pressure to upgrade and rehabilitate facilities to cater for larger ships.</p> <p>The minor ports receive little maintenance support and are in poor shape. The minor ports require extensive refurbishment and upgrading if they are to play more of a role in outer islands and rural development.</p>	<p>Maintenance issues are generally severe in the sector across the region, except in Samoa, Tonga, and PNG.</p> <p>In other countries, vessels still in service for domestic shipping are old and worn out; keeping them maintained well enough to keep them in service is a serious challenge that has provoked a crisis in the sector in some countries. Commercial conditions in the sector are not conducive to major new investment in vessel replacements or upgrades.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	Technological advances have permitted competition, great improvements in coverage and service quality, and reductions in rates to users. These improvements are accompanied by effective regulatory arrangements that generate a level playing field for competitive providers and incentives for investment.	Corporatization has worked well in PNG for water supply in both the urban and rural sectors. Privatization has succeeded in improving the water supply in Port Vila (Vanuatu). Considerable investments in urban sewage collection and treatment and in rural water supplies are being made in Samoa. Corporatization efforts in the sector are underway in Kosrae (FSM) and Fiji.	<p>Corporatization of urban power sector has proceeded, generally successfully, and tariffs have been adjusted to recover full costs from consumers. Utilities in PNG, Fiji, Cook Islands, and FSM are using prepayment meters. The improvements to cash flow have helped utilities to improve maintenance and service quality.</p> <p>Private sector participation in Fiji and provides a compelling model for utilities in other countries to follow.</p> <p>Power sector technical training is more available to small utilities now than in the past, via twinning arrangements organized by the regional Pacific Power Association.</p>	<p>Samoa has implemented a bold new program for better roads maintenance through outsourcing, and this has led to gradual improvements in roads quality.</p> <p>Higher allocations by government to roads maintenance in PNG is reportedly having a salutary effect on roads quality – there is a major push now underway to rehabilitate the economically crucial Highlands Highway.</p>	The commercial ports in Fiji have been fully corporatized and, in conjunction with asset upgrading and full onshore mechanization, are operating at world standards of throughput efficiency. The Samoa ports are also highly efficient.	<p>Fiji has undertaken route licensing which should help to rationalize the sector and make routes more commercially viable. This provides a model that other countries (especially Vanuatu) can follow.</p> <p>Also in Fiji, the Fiji Islands Maritime Safety Authority (FIMSA) has been declared a 'reorganization entity' and thus will be corporatized, in the process taking over the maritime nav aids system (and upgrading it), and undertaking responsibility for hydrographic survey.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>The monopoly service providers in some countries have mounted resistance to market liberalization through legal challenges and restrictive commercial policies. This appears to be the case in Vanuatu and PNG. In other countries (e.g., FSM) the market liberalization process hasn't yet begun.</p> <p>The sector is constrained by limited satellite and undersea cable capacity for international (and in many countries, inter-island) communications. Considerable investment will be needed to increase the capacity available to the Pacific. Regional efforts to increase access to undersea cable capacity are now underway under the Pacific Islands Forum Secretariat.</p>	<p>The sector has stagnated in many countries in which the water supply continues to be operated as a public service by government departments. Many entities do not possess the staff skills to carry out adequate operations and maintenance procedures, and training is needed. Private sector participation in the sector is extremely limited in the Pacific.</p> <p>There has been scant attention paid to CSO policy and there is considerable reluctance to adjust the water tariff to generate more revenue from users. Raw water resources are coming under strain.</p>	<p>The rural power sector suffers from a lack of planning in most countries, poor institutional arrangements, very limited private sector participation in services or investment, and no sound CSO policies (except in PNG). A widespread lack of economic regulation of the sector (except in PNG and Fiji) may be limiting private sector interest in participating in the sector.</p>	<p>Roads maintenance entities are often under-equipped, under-skilled, and under-financed to carry out adequate roads maintenance. They lack the management tools to monitor roads assets efficiently or to plan maintenance activities.</p> <p>Road maintenance activities, under severely restricted budgets, are primarily reactive to incidents of serious road damage (from storms) and wear and tear. "Passability" is the low standard sought to be met in many countries.</p>	<p>Urgent investment is needed in some ports for extensions and upgrades to cater for higher volumes and larger ships.</p> <p>Several ports (including some of the largest, e.g., PNG) lack onshore mechanization and thus cannot match the throughput rates of the most efficient ports in the region (Samoa, Fiji).</p> <p>Stevedoring services in commercial ports, usually outsourced, are often without competition, with contractors setting their own fees.</p> <p>Difficulties in maintaining minor ports has resulted in a large number of them in very poor condition. Ports facilities on most outer islands are not well developed in any case. Few of the minor ports are commercially viable under present conditions.</p>	<p>Hydrographic charts are outdated and inaccurate; nav aids systems are outdated and rundown; and arrangements for search and rescue are not adequate to protect the public safety.</p> <p>Governments have not adequately defined objectives for the sector or provided the regulation (with appropriate CSO policy) which can protect the commercial viability of the sector as a whole, provide incentives for investment, produce cash flows sufficient to support adequate maintenance, and ensure that all needed routes are adequately served.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> Establish effective telecoms sector regulatory capacity throughout the countries of the region. Samoa provides a compelling model to follow. Extend regulation to multiple sectors (power, water, ports, shipping). Projects to build multi-sector regulatory capacity have been formulated in Samoa and Fiji. Routine benchmarking around agreed key performance indicators should be included as part of the regulatory process in all sectors under the jurisdiction of the multi-sector regulator. 	<ul style="list-style-type: none"> The sector is largely unregulated (PNG and Fiji are exceptions); tariffs are under political influence and held below cost; and there is no defined CSO policy for the sector in any country. These factors restrict the commercial viability of the sector in many countries, and limit the scope for private sector participation in O&M and investment. 	<ul style="list-style-type: none"> The sector is largely unregulated (PNG and Fiji are exceptions); there are few well defined CSO policies for the sector in the region. These factors restrict the commercial viability of the rural power sector in many countries and limit the scope for private sector participation in O&M and investment. 	<ul style="list-style-type: none"> Roads performance and quality standards monitoring is presently limited in scope and ad hoc (the tools of comprehensive asset management do not exist in the roads maintenance entities); There is a need for increased outsourcing, the roads maintenance entities should gradually assume mainly a contracting and performance monitoring role. 	<ul style="list-style-type: none"> For the minor ports, performance and quality standards monitoring is not present. The entities in charge of minor ports do not possess tools of port asset management; There are no defined Community Service Obligations policies with respect to ports; Increasing competition in stevedoring services in the commercial ports is desirable but the scope for this is probably limited. 	<ul style="list-style-type: none"> Domestic shipping needs to be fully established as an autonomous, commercially-oriented sector, appropriately regulated. Most countries need to build independent multi-sector regulatory capacity and formally incorporate price regulation of domestic shipping within its jurisdiction (see above, section 2.7). There is a clear need to rationalize the domestic shipping routes, to make them financially viable with upgraded and more reliable vessels. Restricting entry will have the effect of raising tariffs, and a contribution from government under a CSO policy will be needed. Technical regulation and safety enforcement needs to be strengthened in all countries.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Liberalize the telecoms markets by allowing competition and ceasing legal and commercial protection for monopoly service providers; • Implement appropriate telecoms regulatory capacity in each country; pursue multi-sector regulatory capacity incrementally; • Establish sound CSO policy in each country for telecoms, water, power, ports, and domestic shipping; • Assess options for increasing satellite and undersea cable capacity for international and inter-island communications; cooperate regionally to promote investment in increased capacity. 	<ul style="list-style-type: none"> • A Water Policy is needed in most countries to assess the safe limits of raw water resource extraction rates. • Non-corporatized water supply entities need to be corporatized. • The sector needs to come under effective economic regulation; tariffs need to be adjusted to reflect the full costs of providing service; • A CSO policy for water supply (and other sectors as discussed above), is needed; • Training capacity in technical skills and management needs to be increased and made accessible to service providers under national and regional assistance programs. 	<ul style="list-style-type: none"> • A rural electrification master plan or framework is needed in most countries, including a general assessment of institutional constraints for rural electricity services; • The sector needs to come under effective economic regulation to level the playing field and encourage private sector participation; • A CSO policy for power supply (and other sectors as discussed above), is needed to make coverage of services to all segments of the population commercially viable. 	<ul style="list-style-type: none"> • Realistically assess the requirement for roads maintenance in each country where not already done; raise awareness in government of the strategic importance of maintaining roads standards. • Establish an asset management system for roads throughout the country; • Increase or introduce outsourcing for roads maintenance on the Samoa model. 	<ul style="list-style-type: none"> • Investment in upgrading and rehabilitation of the commercial ports in some countries is urgently required; • The administration of minor ports needs to be reviewed in most countries in the context of developing national CSO policy covering ports, power, water, telecoms, and domestic shipping; • Outsourcing of outer islands infrastructure administration and maintenance (including minor ports) should be maximized. 	<ul style="list-style-type: none"> • A top-to-bottom sector review is needed in most countries; regulation of entry and tariffs and a CSO policy will be required. This should be done in the context of a review of service policy to outer islands. For key reforms needed to strengthen service delivery (including shipping) to outer islands, see section 3.8; • Repair and rehabilitation of maritime navaid systems; • Efficient price regulation to sustain the commercial viability of a competitive industry, supported by a sound CSO policy; • A regional effort to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Assist the replication of existing good models of telecoms regulation (e.g., in Samoa, PNG, and emerging in Fiji and Vanuatu); • Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping); • Coordinate multilateral and bilateral financial support under national and regional programs for training in regulatory best practice; • Develop cooperative approaches to increasing access to undersea cable and satellite capacity (presently being addressed under the PIFS). 	<ul style="list-style-type: none"> • Establish economic regulation through assistance to multi-sector regulatory approaches with training in regulatory best practice; • Assist the replication of existing good models of water sector corporatization; • Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping); • Assist the development and replication of sound water policy to plan extraction and protect the integrity of raw water supplies in all countries; • Coordinate multilateral and bilateral financial support under national and regional programs for training. 	<ul style="list-style-type: none"> • Establish economic regulation of the power sector through assistance to multi-sector regulatory approaches with training in regulatory best practice (as proposed in section 2.9); • Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping) through means similar to the above. 	<ul style="list-style-type: none"> • Assist countries to review, and upgrade as required, the procedures for reporting expenditures on roads maintenance, to include progress in meeting key performance indicators; • Assist countries to develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and Fiji; • Assist countries to identify gaps in job functions and skills for good roads management and maintenance (including contracting and supervision); identify ongoing training resources to meet training needs. 	<ul style="list-style-type: none"> • For approaches amenable to regional assistance to strengthen service delivery (including minor ports) to outer islands and rural areas, see section 3.9. 	<ul style="list-style-type: none"> • For key reforms needed to strengthen service delivery to outer islands (including shipping), and regulatory reforms, see section 3.9; • Assist all countries to assess the current state of their maritime nav aids systems and prepare appropriate rehabilitation projects, upgrading technology as required to meet modern shipping needs; • Conduct a detailed GPS survey of the South Pacific as a regional TA to produce an accurate set of hydrographic charts of the entire region. Increased hydrographic training capacity and improvements in international and local systems for distress signaling and response and associated training to be included.

2 Telecoms

2.1 Sector Structure and Service Quality

Traditionally, the telecoms sector in the Pacific has been dominated by monopoly companies, usually 100% government owned³. In the 1970s and 1980s, concessions were often granted to overseas companies like Cable and Wireless to establish international communications, while the fundamental landline infrastructure was built by government-owned companies; the overseas concessions were gradually taken over by governments. The monopoly rates made such arrangements highly profitable. Penetration rates were low since fixed-line telecommunications facilities in remote areas are expensive and often not commercially viable.

In the last ten years, however, technology has improved dramatically with the introduction of mobile phones and wireless internet (capable of both data and voice communication). This has greatly widened the scope for entry into the sector of competitive service providers. Where these have been allowed entry (e.g., Tonga, Samoa, and lately in Fiji) there has usually been a substantial improvement in service coverage and a reduction in costs to users. That the benefits to the country of such service improvements to the population and to the economy at large greatly outweigh the loss of revenues previously earned by the monopoly provider is an insight readily appreciated by those countries that have liberalized their telecommunications markets. Competition alone, however, is not sufficient to produce this outcome, but must be accompanied by sound regulation (see below), as experience in Palau has shown.

Restricted access to bandwidth for international communications, through limited satellite capacity and very steep costs for undersea cable capacity, represents a general constraint on the sector region-wide.

2.2 Community Service Obligations

Traditionally, the concept of ‘Community Service Obligations’ has not been well defined in Pacific countries, for telecommunications or other sectors. Monopoly providers have generally been ‘encouraged’ to provide services for rural communities but experience with this across the region has been highly variable. Wireless communications are now reducing the cost of rural connections, and coverage (in conjunction with increased competition) seems set to improve. However, a sound CSO policy is needed in most countries in order to make subsidies transparent and thus to ‘commercialize’ rural services in the eyes of all service providers.

2.3 Regulatory Arrangements

Regulation of the sector has traditionally been absent; rates have been set by the monopoly providers themselves. There is growing recognition, however, that to attain the benefits of market liberalization, regulation is needed to ensure healthy competition⁴. Samoa has taken the lead in implementing a telecoms regulation law that has been successful in achieving service quality improvements – including a substantial increase in coverage in rural areas – and cost reductions through

³ But not always: the telecoms monopoly in Vanuatu is only 1/3 owned by government.

⁴ Refer to the working paper on Regulation and Governance for further discussion of the role and functions of regulation.

competition. To varying degrees, Fiji and Vanuatu are pursuing the same policies and PNG has also developed sound regulatory capacity (but telecoms market liberalization remains a contentious issue). The Samoan model of regulation needs to be adopted broadly across the region.

Successful regulation of telecommunications in the region will lead the way into multi-sector regulation in some countries and this will provide a viable model for other countries to follow. Telecoms regulation establishes capacity (powers, expertise, administration) that is readily extendable under one house to other sectors at considerable cost savings and efficiency gains in comparison with building such capacity separately for several sectors. The Regulator in Samoa will gradually be extended to cover the power sector and water, then potentially shipping and ports. In this sense, market liberalization of the telecoms sector and associated regulatory capacity building may spearhead improvements in multiple infrastructure sectors.

2.4 Maintenance Issues

There are no significant maintenance issues in the telecoms sector. The service providers are technically well advanced (and increasingly so), are commercially oriented, and well financed. Maintenance is generally well recognized as a bread-and-butter issue on which commercial success depends⁵.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

Technological advances have permitted competition, great improvements in coverage and service quality, and reductions in rates to users. These improvements have been attained in countries that have developed effective regulatory arrangements for the sector that generate a level playing field for competitive providers and incentives for investment.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The monopoly service providers in some countries (often 100% government owned) have mounted resistance to market liberalization through legal challenges and restrictive commercial policies in some cases substantially delaying the liberalization process and increasing costs to users and potential competitors. This appears to be the case in Vanuatu and PNG. In other countries (e.g., FSM) the market liberalization process hasn't yet begun and does not appear to be in near term prospect.

More generally, the telecoms sector in the Pacific is constrained by limited satellite and undersea cable capacity for international (and in many countries, inter-island) communications. Considerable investment under regional cooperative arrangements will be needed to increase the capacity available to the Pacific. Regional efforts to increase access to undersea cable capacity are now underway under the auspices of the Pacific Islands Forum Secretariat.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

⁵ The working paper on Asset Maintenance discusses further the role of maintenance in service delivery and commercial viability.

- Establish effective telecoms sector regulatory capacity throughout the countries of the region. Samoa provides a compelling model to follow. Fiji and Vanuatu are in varying stages of implementing similar capacity. Effective telecoms regulation can then be extended to multiple sectors (power, water, ports, shipping). Projects to build multi-sector regulatory capacity have been formulated in Samoa and Fiji.
- Routine benchmarking around agreed key performance indicators should be included as part of the regulatory process in all sectors under the jurisdiction of the multi-sector regulator.

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- Liberalize the telecoms markets by allowing competition and ceasing legal and commercial protection for monopoly service providers;
- Implement appropriate telecoms regulatory capacity in each country; pursue multi-sector regulatory capacity incrementally;
- Establish sound CSO policy in each country, for telecoms, water, power, ports, and domestic shipping;
- Assess options for increasing satellite and undersea cable capacity for international and inter-island communications; cooperate regionally to promote investment in increased capacity.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Assist the replication of existing good models of telecoms regulation (e.g., in Samoa, PNG, and emerging in Fiji and Vanuatu) in countries of the region through regional and country-level workshops, led by ‘champions’ from countries that have implemented them. Champions could also be engaged to provide direct consulting services to countries engaged in regulatory reform. Services and workshops could be coordinated through a Regional Advisory Service or other development partner agency;
- Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping) through means similar to the above;
- Coordinate multilateral and bilateral financial support under national and regional programs for training in regulatory best practice;
- Assist the region to develop cooperative approaches to exploring regional options for increased access to undersea cable and satellite capacity (it is understood that this is presently being addressed under the PIFS).

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

In broad terms, the water/sanitation sector in the Pacific is underdeveloped, inefficient, unreliable, highly subsidized, and fails to meet applicable water supply or effluent quality standards. In most areas of the Pacific the water supply is not potable. Assets are often rundown and overloaded, operated by government departments that lack the resources necessary to bring operations up to acceptable standards of quality and reliability.

Centralized sewage collection and treatment facilities exist in only a few countries (Fiji, PNG, FSM); sewage facilities are to be built in Samoa and rehabilitated in FSM. Elsewhere, countries rely entirely on septic tank systems, which are often under-sized and ill-maintained, representing a growing threat to groundwater supplies.

There are some outstanding exceptions, however. In PNG, the water supply in the national capital and in provincial centers is operated by corporatized, commercially oriented entities providing quality services. The entity that operates the supplies in the provincial centers intends to extend services to district centers, thereby significantly extending the reach of public water supplies throughout PNG. In Vanuatu, the urban water supply (Port Vila only) is fully privatized and the water produced is potable. In Fiji, the water supply and sanitation sector has been undergoing corporatization and treatment facility/ distribution system upgrading for a number of years, with the objective of improving quality standards and reliability. Tonga and FSM also have corporatized water service providers. Elsewhere, however, water supplies in the Pacific are untreated, often unmetered, with users charged no fees or flat rates. Contaminated water supplies are causing serious health issues in some countries.

3.2 Community Service Obligations

There are no defined Community Service Obligations in the water sector, though many countries make attempts to make Outer Island or rural services available. The generally more commercially-oriented urban water supply in most countries is usually under an urban water utility, whereas rural and Outer Island supplies are under a Public Works Department (or equivalent) or under village management, operated purely as a social service. In Samoa, for example, the government through the Samoa Water Authority is making determined efforts to build water supply systems in rural areas. In Fiji, village-based water supply systems (nearly all from surface water sources) are subsidized by government but are handed over to the villages for operations and maintenance. In Vanuatu and the Cook Islands, the Public Works Department or equivalent operates community water supplies in the outer islands but these aren't reliable and the water is not treated.

3.3 Regulatory Arrangements

Water supply tariffs are generally not regulated (the exceptions being PNG and Fiji); tariffs are usually set by the supply entity and approved by Cabinet. Water and effluent quality is monitored, to varying degrees of regularity and rigor, by the countries' Environment ministries (or equivalent).

3.4 Maintenance Issues

Assets are generally well maintained by commercially-oriented water supply entities (Vanuatu and PNG) and in such cases, unaccounted for water (UFW, the percent of raw water supplied to the system that is lost through leakages and illegal connections) is between 20 and 30 percent. In Pohnpei and Yap (FSM), the water supply entities are corporatized and perform far better than the counterpart entities in Chuuk and Kosrae (although structural improvements are planned for both of those States also).

In contrast, UFW is often 50% or more in non-corporatized water supply entities such as Public Works departments (Fiji, Samoa, Palau). In such cases, leakages from the distribution networks are high, treatment facilities (if they exist) are often overloaded and thus do not function properly, and supply interruptions due to broken pumps and pipes, etc., are frequent and often of long duration.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

Corporatization has worked well in PNG for water supply in both the urban and rural sectors. Privatization has succeeded in improving the water supply in Port Vila (Vanuatu). Considerable investments in urban sewage collection and treatment and in rural water supplies are being made in Samoa. Corporatization efforts in the sector are underway in Kosrae (FSM) and Fiji.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The institutional structure of the water supply/sanitation sector has stagnated in many countries in which the water supply continues to be operated as a public service by government departments. Many entities do not possess the staff skills to carry out adequate operations and maintenance procedures, and training is needed. Private sector participation in the water sector, either in outsourcing of O&M services or in direct investment in facilities, is extremely limited in the Pacific (the exception, as mentioned is the urban water supply in Port Vila). In most Pacific countries, there has been scant attention paid to CSO policy and there is considerable reluctance to adjust the water tariff to generate more revenue from users. In most countries, population and commercial pressures are mounting on inefficient and unreliable water supplies, and this is beginning to place strains on raw water resources.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The sector is largely unregulated (PNG and Fiji are exceptions); tariffs are under political influence and held below cost; and there is no defined CSO policy for the sector in any country. These factors restrict the commercial viability of the sector in many countries, limit the flow of resources from users to support the costs of the sector, and limit the scope for private sector participation in O&M and investment. Market forces cannot therefore be effective in motivating improvements in the sector, which will remain a burden on government resources.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- A Water Policy is needed in most countries to assess the safe limits of raw water resource extraction rates, and ways in which the resource should be husbanded to cater for future growth.
- Non-corporatized water supply entities need to be corporatized, in order to be authorized to collect charges from users commensurate with costs and to become subject to positive and negative incentives to perform, autonomously but with accountability⁶;
- The sector needs to come under effective economic regulation; tariffs need to be adjusted to reflect the full costs of providing service;
- A CSO policy for water supply (and other sectors as discussed above), is needed to make coverage of services to all segments of the population commercially viable; private sector participation needs to be encouraged, for outsourcing of services and for investment;
- Training capacity in technical skills and management including budget preparation for the water sector needs to be increased and made accessible to service providers under national and regional assistance programs, including twinning arrangements with counterpart utilities in neighboring countries.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Establish economic regulation of the water sector through assistance to multi-sector regulatory approaches with training in regulatory best practice as proposed above (section 2.9);
- Assist the replication of existing good models of water sector corporatization (e.g., PNG) in countries of the region through approaches similar to those recommended above for replication of regulatory capacity (section 2.9);
- Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping) through means similar to the above;
- Assist the development and replication of sound water policy to plan extraction and protect the integrity of raw water supplies in all countries;
- Coordinate multilateral and bilateral financial support under national and regional programs for training (including through twinning arrangements) in technical and management best practice in the sector.

⁶ The corporatisation process and its impacts on infrastructure performance is further discussed in the working papers on finance and regulation/governance.

4 Power

4.1 Sector Structure and Service Quality

The urban power sector across the region is largely corporatized under accountable, autonomous management, and charging cost-recovery tariffs to users. In some countries (FSM, Palau, Tonga, Cook Islands, Vanuatu), urban generation options are limited entirely to diesel which, because of international fuel prices, is far more expensive than in the past. Even countries with hydro resources (Fiji, PNG, Samoa) face demand that exceeds available hydro capacity and thus are relying increasingly on diesel. In Fiji, Vanuatu, and the Cook Islands, the respective power utilities (or governments) are beginning to invest in wind-powered generation.

Of the countries in which consultations were conducted, the rural power sector has been best developed in Tonga and Samoa through concerted government rural investment programs. Rural electrification is being progressed in some areas of PNG under private sector initiative. Elsewhere rural electricity supplies are largely based on village or mini-grid systems powered by small diesel generators which were initially subsidized by governments but which are difficult to keep fuelled and maintained in remote locations and for which skills for O&M are lacking. These small rural power systems, generally operated by villages or by the Public Works Department (or equivalent) are a considerable financial burden on governments and are largely dysfunctional. Rural electrification programs increasingly emphasize household-based solar home systems in place of diesel, but these are not yet widespread.

4.2 Community Service Obligations

Except in PNG (which grants a K85 million/year subsidy for rural electrification to the power utility in return for a contracted investment program), there are no defined Community Service Obligations in the power sector but, as described above, governments have provided extensive investment and subsidy programs to extend power services in rural areas. A viable institutional solution to off-grid rural electrification, that would address sustainable maintenance needs and provide requisite skills for O&M in remote locations, is still lacking in most countries.

4.3 Regulatory Arrangements

Economic regulation of the power sector is largely absent in the region, except in Fiji, PNG, and Pohnpei (FSM). The power sector is likely to come under multi-sector regulation in Samoa and Vanuatu. Technical regulation functions are often retained by the power utilities.

4.4 Maintenance Issues

Maintenance is largely not a significant issue in the urban power sector. Diesel-based rural power supplies, in contrast, are essentially non-sustainable due to acute difficulties with maintenance and logistics to remote locations, and a lack of necessary technical skills in rural areas.

In the urban power sector, however, there is a notable lack of outsourcing of O&M services or of direct private sector investment in generation in most countries. The outstanding exception to this is Fiji, in which all of the large diesel station O&M has been outsourced to a Saipan company and there has been considerable investment (completed and planned) in non-diesel sources of generation by Independent Power

Producers (IPPs) on Viti Levu, the main island. Private sector participation has allowed the utility, the Fiji Electricity Authority, to reduce its capital investment program considerably and to approximately halve its total O&M staff strength. (There is an IPP operating also in PNG, but that project hasn't worked well for the utility, PNG Power, due to a faulty pricing mechanism in the supply contract.)

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

Over the past ten years or so, corporatization of urban power service providers has proceeded, generally successfully, and tariffs have been adjusted to recover full costs from consumers. In addition, utilities in many countries (e.g., PNG, Fiji, Cook Islands, FSM) have begun to use prepayment meters for domestic and small commercial consumers, which reduce meter reading and billing costs and accounts receivable. The resulting improvements to cash flow have helped utilities to improve maintenance and service quality.

Private sector participation in the power sector has been an outstanding success in Fiji and provides a compelling model for utilities in other countries to follow.

Power sector technical training is more available to small utilities now than in the past, via twinning arrangements organized by the regional Pacific Power Association.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The rural power sector in particular suffers from a lack of coherent planning in most countries, poor institutional arrangements (public works departments often carry service provision responsibility but lack the technical skills, financial resources, or incentives to do it effectively), very limited private sector participation in services or investment, and no sound CSO policies (except in PNG) that could make off-grid rural power services commercially viable. A widespread lack of economic regulation of the sector (except in PNG and Fiji) may be limiting private sector interest in participating in the sector.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The sector is largely unregulated (PNG and Fiji are exceptions); there are few well defined CSO policies for the sector in the region. These factors restrict the commercial viability of the rural power sector in many countries and limit the scope for private sector participation in O&M and investment.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- A rural electrification master plan or framework is needed in most countries, to guide public sector and private sector decision making in rural power investment; in many countries also, a general assessment of institutional constraints for rural electricity services and options for solutions (e.g., private sector concessions, creation of a rural electrification authority, etc.) is also needed;

- The sector needs to come under effective economic regulation to level the playing field and encourage private sector participation;
- A CSO policy for power supply (and other sectors as discussed above), is needed to make coverage of services to all segments of the population commercially viable;

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Establish economic regulation of the power sector through assistance to multi-sector regulatory approaches with training in regulatory best practice as proposed above (section 2.9);
- Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping) through means similar to the above;

5 Roads

5.1 Sector Structure and Service Quality

The roads sector across the region is, in general, poorly maintained and under the care of entities that are under-equipped and under-financed to do the job properly. Government-owned heavy equipment for roads maintenance is often in short supply, due to chronic maintenance problems. Lack of awareness at the top levels of government of the economic importance and priority of well-maintained roads is commonly observed.

As in other sectors, there is an outstanding exception to this pattern: in Samoa, the government has increased annual allocations to the Ministry of Works Transport and Infrastructure for roads maintenance and has competitively outsourced maintenance functions to the private sector. The government is thus relieved of the burden of owning and maintaining a pool of heavy plant, while administering a predictable stream of expenditures for maintenance under contracts in which the private sector is held financially accountable for performance. It thus appears that in Samoa, due to a policy change that invites the private sector to play a crucial role, the roads sector 'problem' that once plagued Samoa and continues to plague many other countries has been effectively addressed. In PNG, also, there have been substantial positive developments: the private sector (a company associated with the Ok Tedi mine) has become engaged in transport infrastructure construction and maintenance in the Western Province whereas nationally, the government has greatly increased the annual allocation to roads maintenance (from about 10% of the annual need to close to 100%) and has created a National Roads Authority to gradually take over responsibility (and funding) for roads maintenance from the PWD. A similar institutional development is underway in Fiji and in Tonga, roads maintenance responsibility will shift from Public Works to the Ministry of Transport (though whether the institutional change implies an increase in maintenance funding is unclear in either case).

Elsewhere, the roads sector receives a small fraction (in some cases, 0%) of the assessed need for annual preventative maintenance for roads. In some countries, the annual maintenance requirement hasn't been assessed. In all such countries, roads maintenance is reactive and thus rehabilitative, rather than preventative, and there is little or no movement towards higher roads standards or usability.

5.2 Community Service Obligations

There are no defined Community Service Obligations in the roads sector in the region. Roads development is essentially driven by economic/commercial interests; isolated communities in the interiors of large islands remain quite isolated.

5.3 Regulatory Arrangements

The roads sector is not regulated in the region. However, there have been institutional changes in PNG, Fiji, and Tonga (mentioned briefly above) that are designed in part to improve roads sector monitoring, planning, and maintenance scheduling (see below). With the exception of a short causeway in Kiribati, there are no toll roads in the region.

5.4 Maintenance Issues

Poor roads maintenance is a serious and chronic issue in many countries. Preventative maintenance – actions which maintain a road at a good standard, as opposed to actions which merely repair road damage as it occurs – attracts almost no funding in any country except Samoa, PNG, and (to a far lesser extent) Fiji. Roads assets in general are poorly monitored, are repaired on a continuing stop-gap basis, and are not improving in overall quality.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

As mentioned above, Samoa has implemented a bold new program for better roads maintenance, in which the private sector takes a central role, and this has led to gradual improvements in roads quality. It appears also that higher allocations by government to roads maintenance in PNG is having a salutary effect on roads quality – there is a major push now underway to rehabilitate the economically crucial Highlands Highway.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Roads maintenance entities (usually, Public Works Departments) are under-equipped, under-skilled, and under-financed to carry out adequate roads maintenance. They lack the management tools to monitor roads assets efficiently or to plan maintenance activities. A computerized Road Asset Management System (RAMS) is known to be in use only in PNG and Fiji (though even there it has not been kept up well in recent years). Such a tool is a crucial element of any attempt to keep track of roads conditions and plan maintenance activities efficiently.

Road maintenance activities, under severely restricted budgets, are primarily reactive to incidents of serious road damage (from storms) and wear and tear. “Passability” is the low standard sought to be met in many countries. Under these conditions, it is not possible to devote resources to asset rehabilitation or improvement.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads performance and quality standards monitoring is presently limited in scope and ad hoc (the tools of comprehensive asset management do not exist in the roads maintenance entities);
- There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing, the roads maintenance entities should gradually assume mainly a contracting and performance monitoring role.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- In the many countries in which it has not yet been done or recently updated, realistically assess the requirement for roads maintenance throughout the country; raise awareness in government of the strategic importance of maintaining roads standards.

- Establish an asset management system for roads throughout the country, to be operated and maintained by the relevant roads maintenance entity(ies) responsible for urban and rural roads;
- Increase or introduce outsourcing for roads maintenance on the Samoa model.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Assist countries to review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the roads maintenance entity(ies) to the budget decision makers in government, to include progress in meeting key performance indicators;
- Assist countries to develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and Fiji; categorize roads by type and use; and prepare a manual for operation and maintenance of the asset register and roads maintenance management system;
- Assist countries to identify gaps in job functions and skills to fill roles required for good roads management and maintenance (including in relation to contracting and supervision), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs.

6 Ports

6.1 Sector Structure and Service Quality

There is a distinct divide across the Pacific in the ports sector, between ‘commercial’ ports which countries depend on for international marine traffic, and minor ports serving outer islands and rural communities. By and large, the commercial ports are maintained to a reasonable standard (although variable, and there are certainly cases where upgrade work and rehabilitation is urgently needed), whereas the minor ports are often derelict.

The commercial ports are the life-blood of the island countries’ economies. They are quite variable in terms of mechanization and operational efficiency, and many are in the throes of reacting to recent changes in the international shipping industry, changes which tend towards larger ships and higher volumes per voyage. This is placing heavy near-term strains on the investment budgets of some ports (e.g., Tonga, Cook Islands), which must extend berths, storage facilities, etc., quickly in order to avoid significant cost penalties or service interruptions.

Authorities in charge of commercial ports are generally corporatized and are commercially viable, though in some countries (PNG, Tonga) the corporatization process hasn’t been fully implemented and the ports remain under considerable political influence (compromising their ability to finance investment or set fees that recover costs, for example). Minor ports are typically under the management of the Public Works Department (or equivalent).

6.2 Community Service Obligations

There are no defined CSOs in the ports sector. Some countries (PNG, Cook Islands, Vanuatu) have, over the years, built an extensive network of minor ports in the outer islands. As mentioned, many of these are derelict and have not been designed to cater for long term growth in inter-island traffic. Significant increases in such traffic will require considerable additional investment.

6.3 Regulatory Arrangements

Except in PNG and Fiji, the ports sector is not regulated; international ports fees are generally set by the port Authority concerned. In most countries fees are not charged in minor ports.

Commercial ports stevedoring operations are commonly outsourced to the private sector, but there are few private sector service providers and contracts are generally not competitive. Ports operation (contractor) fees are not regulated.

6.4 Maintenance Issues

As mentioned, maintenance of the commercial ports is adequate to keep them operating, but several are under near-term pressure to upgrade and rehabilitate facilities to cater for larger ships. The minor ports receive little maintenance support and, as mentioned, are in poor shape. By and large the minor ports require extensive refurbishment and upgrading if they are to play more of a role in outer islands and rural development.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

The commercial ports in Fiji have been fully corporatized and, in conjunction with asset upgrading and full onshore mechanization, are operating at world standards of throughput efficiency. The Samoa ports are also highly efficient.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

As mentioned, urgent investment is needed in some ports for extensions and upgrades to cater for higher volumes and larger ships, without which costs will rise or services may be interrupted. Several ports (including some of the largest, e.g., PNG) lack onshore mechanization and thus cannot match the throughput rates of the most efficient ports in the region (Samoa, Fiji).

Stevedoring services in commercial ports, usually outsourced, are often carried out by entrenched companies without competition, which set their own fees.

Difficulties in maintaining minor ports has resulted in a large number of them in very poor condition. However, ports facilities on most outer islands are not well developed in any case. Few of the minor ports are commercially viable under present conditions.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- For the minor ports, performance and quality standards monitoring is, in general, not present. The entities in charge of minor ports do not possess tools of port asset management;
- There are no defined Community Service Obligations policies with respect to ports, but generation of such policies would begin the process of making the minor ports commercially viable and thus attract the interest of the private sector;
- Increasing competition in stevedoring services in the commercial ports is desirable but the scope for this is probably limited.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- Investment in upgrading and rehabilitation of the commercial ports in some countries is urgently required;
- The administration of minor ports needs to be reviewed in most countries in the context of developing national CSO policy covering ports, power, water, telecoms, and domestic shipping;
- Outsourcing of outer islands infrastructure administration and maintenance (including minor ports) should be maximized in order to assist the government to close the capacity gaps under present arrangements.

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For approaches amenable to regional assistance to strengthen service delivery (including minor ports) to outer islands and rural areas, see above section 3.9.

7 Shipping

7.1 Sector Structure and Service Quality

Domestic shipping services do not constitute a key infrastructure sector in all countries (largely absent in the FSM and Palau, for example) but in other countries (Cook Islands, Fiji, Vanuatu, Samoa, Tonga) are vital for services to large segments of rural population. Government owned and operated shipping services are present in Fiji, Samoa, and Tonga. In Fiji and Tonga, the government shippers operate in competition with the private sector. Elsewhere (Vanuatu, PNG, and the Cook Islands), the domestic shipping services are entirely private sector operated. In general, in countries where a domestic shipping sector is present, all inhabited islands (even the remote Nuias in Tonga) are served.

The domestic shipping sector is not commercially viable in any country, with the possible exceptions of PNG (where the domestic shipping sector is operated by interlinked international shipping companies) and Samoa (where the government shipping company is profitable because of extensive charter services, rates for which are not regulated).

7.2 Community Service Obligations

Except in Fiji, there are no defined community service obligations in the shipping sector in the region. In Fiji, a route licensing scheme has been introduced which assigns certain shippers to certain routes, with subsidies paid to the licensed shippers on non-economic routes.

7.3 Regulatory Arrangements

The domestic shipping sector across the region is not price regulated, but government shipping rates (set low and below cost predominantly) generally establish the price regime for the sector. In Fiji, private sector shipping services have recently (2nd quarter 2007) come under licensing of routes by the Fiji Islands Maritime Safety Authority (FIMSA), a move largely supported by the private shippers, as it restricts entry into established routes, which without entry restrictions and limited traffic become uneconomic to serve.

There is a maritime authority in all countries that is responsible for search and rescue and for the maritime nav aids system, but in most countries the arrangements for search and rescue are inadequate and the nav aids systems are in advanced disrepair and rely on outmoded (visual) technology. Further, several countries (Fiji, PNG, Vanuatu) have indicated that coastal navigational charts are outdated and unreliable.

7.4 Maintenance Issues

Maintenance issues are generally severe in the sector across the region. The countries where maintenance problems are felt least are Samoa and Tonga, both of which operate government-run and commercially-viable shipping services (and perhaps not coincidentally, have benefited from overseas grants for investment in the past and will soon take delivery of new vessels financed by grant aid from Japan), and in PNG, where vessels are owned and operated by large international shipping companies or their affiliates.

In other countries, however, vessels still in service for domestic shipping are old and worn out; keeping them maintained well enough to keep them in service is a serious challenge that has provoked a crisis in the sector in some countries. In the worst cases (Vanuatu, Fiji), the majority of the fleet, both government and privately owned, needs to be scrapped, but commercial conditions in the sector are not conducive to major new investment in vessel replacements or upgrades.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

As mentioned, Fiji has undertaken route licensing and this should help to rationalize the sector and make routes more commercially viable. This provides a model that other countries (especially Vanuatu) can follow.

Also in Fiji, the Fiji Islands Maritime Safety Authority (FIMSA) has been declared a 'reorganization entity' and thus will be corporatized. As part of this process relevant legislation will be harmonized and made consistent with international conventions. FIMSA will take over management of the maritime nav aids system (and will spend resources to upgrade it), and will undertake responsibility for hydrographic survey.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Hydrographic charts are outdated and inaccurate; nav aids systems are outdated and rundown; and arrangements for search and rescue are not adequate to protect the public safety. There is an urgent need for a regional project to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response.

Privatization and outsourcing in the sector is common across the region, but (privatization especially) has not worked well, largely because governments have not adequately defined objectives for the sector or provided the regulation (with appropriate CSO policy) which can protect the commercial viability of the sector as a whole, provide incentives for investment, produce cash flows sufficient to support adequate maintenance, and ensure that all needed routes are adequately served.

7.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Like the ports sector, domestic shipping needs to be fully established as an autonomous, commercially-oriented sector, appropriately regulated.
- Most countries need to build independent multi-sector regulatory capacity and formally incorporate price regulation of domestic shipping within its jurisdiction (see above, section 2.7). Tariffs are not regulated but are generally highly competitive. There is a clear need to rationalize the domestic shipping sector, in order to make routes financially viable with more reliable vessels. At a minimum, this will require direct market regulation (restricting entry to routes and issuing licenses, as is being done in Fiji) and thus improvement in the enabling conditions for private sector investment in new shipping capacity. Restricting entry will have the effect of raising tariffs, and a contribution from government in the form of subsidies under a CSO policy will be needed.
- Technical regulation (including all safety aspects including nav aids supervision and maintenance and distress response) and licensing of routes needs to be strengthened in all countries. In most countries, this will entail

strengthening the maritime safety authority, through corporatization and larger resource allocations.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed across the region to further improve service delivery include the following:

- A top-to-bottom sector review is needed in most countries to determine a sustainable strategy to provide safe commercially-viable domestic shipping services; regulation of entry and tariffs and a CSO policy will be required. This should be carried out in the context of a comprehensive review of service policy to outer islands, in which these elements are included. For key reforms needed to strengthen service delivery (including shipping) to outer islands, see above section 3.8;
- Repair and rehabilitation of the maritime nav aids system in all countries (except PNG, where this has been recently completed) is urgently required.
- Efficient price regulation is required to sustain the commercial viability of a competitive industry, supported by a sound CSO policy;
- There is an urgent need for a regional effort to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response;

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed regional approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For key reforms needed to strengthen service delivery to outer islands (including shipping), and regulatory reforms, see above section 3.9;
- Assist all countries to undertake a detailed assessment of the current state of their maritime nav aids systems and prepare appropriate rehabilitation projects, upgrading technology as required to meet modern shipping needs;
- Conduct a detailed GPS survey of the South Pacific as a regional TA to produce a consistent and accurate set of hydrographic charts of the entire region, including Fiji, Solomon Islands, PNG, Vanuatu, Samoa, Niue, Tonga, and the Cook Islands. Increased hydrographic training capacity and improvements in international and local systems for distress signaling and response and associated training to be included.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in the Cook Islands, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

By far, the growth opportunity of the Cook Islands is tourism. The raw material needed for tourism is everywhere in evidence. Growth of tourism, particularly in the outer islands, could carry the country to unprecedented national income and employment opportunities. However, the impact of tourism on local resources, institutional capacities, and pressures to reform institutions (up to and including, for example, franchising the outer islands to develop tourism infrastructure and marketing of services), could transform governance of the country and would take considerable time to put into place. The team notes that reform of tax laws in concert with tourism development, particularly in the form of taxes on property and capital gains, could greatly strengthen the revenue base of the Cook Islands and provide the government finance necessary to address the resource and reform issues that will arise in the future.

The recent draft Infrastructure Master Plan is a powerful tool for coming to grips with needed infrastructure investments in the near and medium terms, an advantage not enjoyed by most other Pacific island countries at present.

The solid waste sector appears to be leading the region in awareness of solid waste issues in small island states. The introduction of waste recycling and selling of scrap metal overseas – essentially turning solid waste into a business – is far-sighted and provides a most useful example to other Pacific island countries to watch and emulate.

Overall, the regulatory system in the Cook Islands, while often well specified on paper, does not deliver the thoroughness, transparency, and efficiency required of it. There is a notable disconnect between government central agencies providing oversight and performance monitoring of infrastructure services and the line departments and SOEs charged with providing the services. In carrying out its monitoring role, MFEM's procedures have often been received as 'red tape' while failing to support improved performance. For SOEs, the CIIC lacks capacity to carry out its responsibilities effectively and provides little meaningful supervision or corrective impact on SOE operations.

There is an urgent need for a high-level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization of subsidized government services to supplement the Infrastructure Master Plan. The Government's imminent review of the MOW is a step towards this, but the scope needs to be considerably broadened to address the wider regulatory issues.

The capacity of outer islands administration needs a thorough re-examination, with realistic assessments of the costs of meeting the government's targets for provision of minimum services to the outer islands, and undertaking of practical steps either to

(i) identify and provide the government resources necessary to deliver the services and fill the necessary gaps to ensure sustainability, or (ii) reduce the government's targets for the outer islands to something that the country can more easily afford.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>All services provided by a single government-owned corporate monopoly, the Telecom Cook Islands Ltd (TCI).</p> <p>TCI has approximately 4,500 mobile phone subscribers and 6,500-7,000 landline subscribers countrywide (84 percent of occupied dwellings). There are 405 ADSL (broadband internet) customers in Rarotonga, including about 25 percent of occupied households. However, international “roaming” service is not available.</p>	<p>The Ministry of Works (MOW) is responsible for government-operated infrastructure services that haven’t been corporatized: water supply, outer islands electricity, solid waste, and roads.</p> <p>The water is not treated and is not metered. No user charges are levied. Access to a public water supply is nearly universal throughout the Cook Islands, but the supply in the outer islands is dysfunctional in many areas.</p>	<p>Electricity in Rarotonga supplied by Te Aponga Uira (TAU), 100% government-owned Corporation. Power is provided on Rarotonga 24 hr/day, with near-universal access.</p> <p>On the outer islands, electricity supply is under the island administrations. OMIA provides diesel generators and periodic maintenance services. Power provided for 18 hrs/day on most islands; the percent of the islands’ populations that have access to these supplies is not known.</p>	<p>Roads in Rarotonga are under non-corporatized Ministry of Works. Outer islands roads are under the OMIA. Sector shares same institutional constraints and poor maintenance described for the water sector and the outer islands electricity.</p> <p>There is near-universal access to primary and secondary roads in Rarotonga. Road access is highly variable in the outer islands (some islands have no roads).</p>	<p>The Cook Islands Ports Authority (CIPA) is the government-owned corporate body responsible for the country’s international port in Rarotonga and for the port at nearby Aitutake. The CIPA does not operate any other port in the outer islands, which are the responsibility of the respective island administrations.</p>	<p>The shipping sector is operated by a private company which operates infrequent freight and passenger services to the outer islands with two vessels, though both are at the end of their useful lives and lack proper passenger accommodation.</p>
Community Service Obligations	<p>All islands have telephone access, even in the remote northern group. Each inhabited island has an earth station feeding landlines. Mobile services have limited coverage in the southern group. Mobile phone signal coverage even in Rarotonga is spotty. Rates markedly higher than in Fiji, Tonga, and Samoa.</p>	<p>There are no defined community service obligations in the water sector.</p>	<p>There are no defined community service obligations in the power sector.</p>	<p>There are no defined community service obligations in the roads sector.</p>	<p>There are no defined community service obligations in the ports sector.</p>	<p>There are no defined community service obligations in the shipping sector. Outer island residents depend on domestic shipping services as air services to the outer islands are limited and costly.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	<p>TCI has a Guarantee of Exclusivity in legislation that expires on 1 July 2007. Presently no telecom regulation exists in the Cook Islands, and no legislation has yet been prepared to provide for it.</p> <p>The Cook Islands Investment Corporation (CIIC) is required to provide oversight of the SOEs including the TCI, regulate tariffs, and monitor performance, but lacks sufficient staff and budget for this. The CIIC needs to build capacity to work effectively with the SOEs.</p>	<p>There are no regulatory arrangements for the water sector. Technical monitoring of water quality is carried out by the provider (the MOW).</p> <p>MFEM has oversight of MOW's infrastructure line departments, including setting performance targets in each sector and approving maintenance expenditures and procurement.</p> <p>There is a need for a high level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization.</p>	<p>The power sector is unregulated. The tariff on Rarotonga is set by the TAU Board, and on the outer islands by the OMIA, and approved by Cabinet.</p> <p>The Cook Islands Investment Corporation (CIIC) is required to provide oversight of the SOEs including the TAU. Issues related to CIIC discussed with respect to telecom sector apply equally to electricity and other sectors served by SOEs.</p>	<p>There are no regulatory arrangements for the roads sector.</p>	<p>The ports sector is not regulated; international ports fees are set by the CIPA Board. Like other SOEs, however, the CIPA is under the supervision of the CIIC.</p> <p>No ports fees are charged for any port in the outer islands, apart from nearby Aitutake. As the outer islands ports are under island administration, their operations are not supervised by the CIIC.</p>	<p>The Maritime Cook Islands Ltd manages the shipping register under a management agreement with MOT. There are no other regulatory arrangements for the shipping sector.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	There are no significant asset maintenance issues in the telecom sector.	Funds are not adequate for proper maintenance of the intakes or piping systems; leakage is large (but immeasurable) and intake-blockages are common. Despite concerns over livestock-induced pollution of the catchment areas, none of the water is treated and delivered water has never been potable. Delivered water is commonly turbid during rainy periods.	There are no significant maintenance issues in the power sector in Rarotonga, though power interruptions are a problem on the south coast of Rarotonga, apparently for technical reasons. On the outer islands, poor maintenance is severe due to lack of personnel, insufficient technical skills, the remoteness of OMIA to carry out maintenance functions, and institutional weaknesses of village administration of services. The tariffs on the outer islands reportedly do not fully recover operating costs.	Funds are inadequate for maintenance of roads, affecting mainly secondary roads in Rarotonga and all roads in the outer islands. The quality of secondary roads in Rarotonga and all roads in the outer islands is reportedly poor.	There are no significant maintenance issues reported for the ports at Rarotonga and Aitutake. Ports in the outer islands, however, suffered damage in the cyclones of 2005 and are poorly maintained. The OMIA does not receive sufficient funding from government to address the maintenance/ rehabilitation issues.	The maintenance status of the private vessels that serve the sector is not known, but the vessels themselves are reportedly at the end of their useful lives and are not well equipped for passenger traffic.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	Telephone access is available on every inhabited island. In addition, TCI have introduced new broadband internet services in Rarotonga.	A government review of the MOW is underway, in which institutional and maintenance issues are being addressed; outcomes are not known. NZAID and AusAID will fund improvements to the water supply services in the outer islands.	The electricity tariff in Rarotonga is sufficient to cover TAU's costs and enable the utility to deliver reliable services. The costs of generation are high due to exclusive reliance on diesel capacity. TAU intends to build a new power station in the next two years in Rarotonga to improve system reliability. TAU seeks advice on affordable and reliable generation options for Rarotonga.	None identified.	None identified.	None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>Exclusive government monopoly service provider results in above-average rates and a quality of service that doesn't meet world standards. Competition in telecoms has been instrumental in reducing charges and improving services to users in Samoa, Tonga, Palau, and Fiji.</p> <p>The chief technical bottleneck to inter-island and international telecommunications in Cook Islands is limited satellite capacity. Cost makes cable infeasible for the present. Options to increase the satellite capacity available to the Cook Islands need to be addressed.</p>	<p>The sustainable raw water resource may soon be exhausted. Consumption of water is not presently mediated by price. A Water Policy is needed to address this; with metering of water and charging users.</p> <p>There is no significant outsourcing of water supply operation and maintenance functions. Training of technical staff is chronically below needs. Similar issues affect the water supply in the outer islands, but to an even greater degree.</p> <p>Oversight procedures are evidently not effective in improving the sectors' performance.</p>	<p>Outsourcing is not being vigorously pursued. The private sector has shown little apparent interest in investing in power through IPP services, likely because of market and regulatory uncertainties.</p> <p>In the outer islands, power services suffer severe institutional problems and the power supply there is not reliable.</p>	<p>Lack of high-level policy to deal with non-corporatized sectors including roads, water supply, and outer islands electrification. The government's ongoing review of the MOW is addressing corporatization options.</p> <p>The cost of maintaining the country's roads has not been adequately assessed, especially in the outer islands, and budget allocations are below needs. Low maintenance allocations allows only reactive maintenance.</p> <p>There is little or no outsourcing of roads maintenance functions.</p> <p>Road asset management is absent in the Cook Islands, inhibiting road planning and the prioritized scheduling of maintenance functions.</p>	<p>Investment is urgently required to expand the facilities of the international port to accommodate the larger ships now being used for container cargo and fuel deliveries. Inability to meet this investment need is likely to drive up cargo costs.</p> <p>Apart from stevedoring services at Avatiu (Rarotonga), none of CIPA's operations at present is outsourced.</p> <p>In the outer islands, the inability to date to repair cyclone damage, and the difficulties of maintaining many small remote ports has resulted in a large number of ports in very poor condition. However, ports facilities on most outer islands are not well developed in any case. Future development (e.g., through tourism) on the islands will require considerable investment to expand the capacity of these ports.</p>	<p>Vessel capacity, owned and operated by the private sector, is aged and limited. Passenger amenities are few.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> Telecoms regulation is absent in the Cook Islands; without it, it will not be possible to create conditions suitable for liberalizing the telecoms market and issuing competitive licenses, or to protect consumers. The government monopoly provider cannot be expected to make marked improvements in service delivery or lower charges without competition. Oversight of the TCI, as a State-Owned Enterprise, is formally provided by the CIIC, but the latter lacks capacity to fill this function effectively. 	<ul style="list-style-type: none"> There is no independent regulatory capacity for the water sector in the Cook Islands, but then there is scarcely an entity that exists to be regulated. A corporatization process in the sector should proceed, followed closely by the creation of regulatory capacity. As mentioned previously, the government is conducting a comprehensive review of the MOW, in which corporatization options will be addressed. 	<ul style="list-style-type: none"> Power sector regulation is absent in the Cook Islands. Building regulatory capacity will help to create conditions suitable for private sector participation. Oversight of SOE performance (including TAU) is formally provided by the CIIC but the latter is understaffed and under-resourced to fill this function effectively. 	<ul style="list-style-type: none"> Roads performance and quality standards monitoring is presently limited in scope and ad hoc (the tools of comprehensive asset management do not exist in the MOW or OMIA); There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing, the MOW should gradually assume mainly a contracting and performance monitoring role. 	<ul style="list-style-type: none"> The OMIA does not possess tools of port asset management; The OMIA does not have capacity to design a schedule of equitable ports fees. There is no defined Community Service Obligations Policy with respect to ports (or anything else). There is potential for outsourcing for ports O&M, both in Rarotonga and on the outer islands. If outsourcing were to increase, the CIPA could gradually assume mainly a contracting and performance monitoring role (also on behalf of the OMIA in the outer islands). 	<ul style="list-style-type: none"> As there is only one operator in the sector, it appears that current rates are not sufficient to entice additional private sector operators and vessel capacity into the market. Price regulation, route licensing, and a clear CSO policy for the sector could entice new entrants into the market as competitors and/or additional investment by the incumbent operator; in particular, more investment is needed to increase passenger comfort and convenience.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Implement, with appropriate legislation, effective telecom price regulation in the Cook Islands; the initial capacity (grow in stages to a multi-sector regulator); • Strengthen the capacity of the CIIC to provide essential performance oversight of SOEs; • Develop a sound policy regarding Community Service Obligations; • Increase the satellite capacity available to the Cook Islands. 	<p>With reference to outer islands services:</p> <ul style="list-style-type: none"> • A policy is needed to define (i) the level of infrastructure services that the government would like to support in the outer islands, (ii) the extent of new investment needed to support desired development in the outer islands, and (iii) a clear CSO policy for the outer islands. • Outsourcing of outer islands infrastructure administration and maintenance should be maximized in order to help close the capacity gaps under present arrangements. <p>With specific reference to the water supply:</p> <ul style="list-style-type: none"> • Improve the preparation of reporting of expenditures on water supply O&M, introduce metering, design an equitable tariff system, introduce water treatment, reduce, water losses; • Corporatize the water service provider. 	<ul style="list-style-type: none"> • Implement, with appropriate legislation, effective power sector price regulation in the context of multi-sector regulator capacity building; • Strengthen the capacity of the CIIC to provide essential performance oversight of SOEs; • Develop a sound policy regarding Community Service Obligations; • Strengthen the capacity of OMIA and island administrations to address needs of the power supply in the outer islands; • Encourage the private sector to participate in the power sector through outsourcing and considering IPP investment in generation. 	<ul style="list-style-type: none"> • Complete the government's review of MOW's services and institutional issues. • Realistically assess the requirement for roads maintenance in Rarotonga and the outer islands; raise awareness in government of the strategic importance of maintaining roads standards. • Establish an asset management system for roads throughout the country, operated and maintained by MOW for roads in Rarotonga and on behalf of OMIA for roads in the outer islands; • Increase outsourcing for roads maintenance on the Samoa model. 	<ul style="list-style-type: none"> • The international port faces an urgent near-term need to expand facilities in Rarotonga to accommodate larger ships, including fuel tankers. International container traffic is growing at 5%-7% per year. Additional container storage area is now needed to cope; • The OMIA needs to be strengthened (as discussed); • Outsourcing of outer islands infrastructure administration and maintenance should be maximized to help close the capacity gaps under present arrangements. 	<ul style="list-style-type: none"> • Entice additional investment to upgrade and increase vessel capacity serving the sector. A review of rates per route, route licensing, and subsidies per non-commercial route will greatly assist the private sector to determine new levels of investment.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Design and implement independent telecom price regulation capacity; • Build capacity in the Cook Islands Investment Corporation (CIIC) to monitor the performance of SOEs (including TCI); • Develop a sound policy regarding Community Service Obligations in the telecoms, ports, shipping, power, and water sectors; • Support the regulator's capacity building efforts and prepare to liberalize the telecom sector; • Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to increase satellite capacity over the Pacific. 	<ul style="list-style-type: none"> • Build capacity in OMIA to administer services in the outer islands • Increase annual allocations to water sector maintenance (upgrade financial reporting from the MOW to the MFEM); • Corporatize the water service provider; review sector demand and investment needs; design an appropriate tariff. 	<ul style="list-style-type: none"> • Build regulatory capacity for the power sector; • Build capacity of the CIIC; • Develop sound CSO policy for power; • Encourage private sector participation by advertising invitations to express interest and to bid on O&M services and IPP investment; • Conduct a review of electricity needs and affordability of electricity in the outer islands; implement a program that replaces the use of diesel generation with affordable non-diesel alternatives such as solar home systems. 	<ul style="list-style-type: none"> • Upgrade procedures for reporting expenditures on roads maintenance by the MOW to the MFEM; • Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; • Assess the aggregate annual maintenance requirement of all roads under public sector management in Rarotonga and in the outer islands; • Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision; • Identify gaps in job functions and skills in roads maintenance (including in relation to contracting and supervision), and identify ongoing training resources. 	<ul style="list-style-type: none"> • The CIPA to formulate a short-, medium-, and long-term investment plan to upgrade the international port facilities; • For approaches to strengthen service delivery through the OMIA, see section 3.9; • Encourage private sector participation in the sector by advertising invitations to express interest and to bid on O&M services. 	<ul style="list-style-type: none"> • Include shipping in the purview of the multi-sector regulator, when that capacity is developed (section 2.9); • For steps leading to sound CSO policy (covering shipping and other sectors) see section 3.9; • In light of the CSO policy, adjust tariffs sufficiently to entice increased investment in vessel capacity and amenities.

2 Telecoms

2.1 Sector Structure and Service Quality

Telecommunications services (landline and mobile phones, and all internet services) are provided by a single government-owned corporate monopoly, the Telecom Cook Islands Ltd (TCI). TCI has approximately 4,500 'effective' mobile phone subscribers (i.e., not including accounts held by transient visitors) and 6,500-7,000 landline subscribers countrywide (84 percent of occupied dwellings), so saturation is high given the resident population of 14,000. There are 405 ADSL (broadband internet) customers in Rarotonga, including about 25 percent of occupied households. However, international "roaming" service is not available in the Cook Islands.

2.2 Community Service Obligations

TCI is subject to stringent community service obligations (though they may not be defined as such): all islands have telephone access, even in the remote northern group. Each inhabited island – even those with population of less than 100 – has an earth station operated by TCI, feeding landlines. Mobile services have limited coverage in the southern group. Mobile phone signal coverage even in Rarotonga is spotty, despite having eight base stations in place around the island. The rates charged for mobile phone and internet services appear to be markedly higher than in Fiji, Tonga, and Samoa.

2.3 Regulatory Arrangements

As a government monopoly, TCI has been granted a Guarantee of Exclusivity in legislation that expires on 1 July 2007. TCI is aware of the government's interest in opening the sector to competition at that time, but argues that sound regulation has to be in place first. Presently no telecom regulation exists in the Cook Islands, and no legislation has yet been prepared to provide for it. TCI conducted an extensive benchmarking exercise in cooperation with PITA several years ago and now maintains the effort for a reduced set of (proprietary) indicators.

The Cook Islands Investment Corporation (CIIC) is required to provide oversight of the SOEs including the TCI, regulate tariffs, and monitor performance. The CIIC, however, lacks sufficient staff and budget to fill this function effectively, often little able to more than rubber stamp the respective entities' Board decisions. The CIIC has less than 20 staff (most of whom are working in repairs and maintenance in the Property Division), yet is responsible for the oversight of aviation, marine transport, telecommunications, and urban electricity in the Cook Islands. The CIIC needs to build capacity to work effectively with the SOEs, by increasing staff and arranging for on-the-job training; CIIC management is keen to pursue 'twinning' arrangements with counterpart organizations in the Pacific and Australia/New Zealand.

2.4 Maintenance Issues

There are no significant asset maintenance issues in the telecom sector.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

Telephone access appears to be available on every inhabited island, through an expensive investment in earth stations. In addition, TCI have introduced new broadband internet services in Rarotonga.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The effects of having an exclusive government monopoly service provider in the telecoms sector are apparent in the above-average rates being charged to users and a quality of service that doesn't meet world standards or standards available in other Pacific island countries (noticeable in mobile phone service in Rarotonga and the absence of roaming). Competition in telecoms has been instrumental in reducing charges and improving services to users in Samoa, Tonga, Palau, and Fiji.

Communications with the outer islands is entirely by satellite. The chief technical bottleneck to inter-island and international telecommunications in Cook Islands is limited satellite capacity. TCI report that undersea fiber optic cable options are too expensive for the Cook Islands (and would serve only Rarotonga) and so are not further considered. Options to increase the satellite capacity available to the Cook Islands need to be addressed. (At a meeting of the Pacific Islands Telecommunications Association (PITA) in 2006, TCI and other island telecom companies asked a group of satellite service providers: if the Pacific countries were to pool their demand for bandwidth and arrange a bulk contract under a sharing agreement, would more capacity be available at a better rate? The response was a guarded 'yes' but the margin of improvement was reportedly disappointing.)

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Telecoms regulation is absent in the Cook Islands; without it, it will not be possible to create conditions suitable for liberalizing the telecoms market and issuing competitive licenses, or to protect consumers. The government monopoly provider cannot be expected to make marked improvements in service delivery or lower charges without competition.
- Oversight of the TCI, as a State-Owned Enterprise, is formally provided by the CIIC, but the latter lacks capacity to fill this function effectively.

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Implement, with appropriate legislation, effective telecom price regulation in the Cook Islands; the initial capacity for telecoms regulation could be extended at a later stage to other sectors (grow to a multi-sector regulator)
- Adopt a clear and arm's length policy inviting international competition in mobile and internet services, with fair competitive access to the international gateway now controlled by TCI;
- Strengthen the capacity of the CIIC to provide essential performance oversight of SOEs;
- Develop a sound policy regarding Community Service Obligations for telecoms, ports, shipping, power, and water;
- Increase the satellite capacity available to the Cook Islands.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Design and implementation of independent telecom price regulation (TA probably required; implementation by end 2008)¹:
 - Under the auspices of the Ministry of Finance and Economic Planning, form a Steering Committee of key stakeholders to oversee the process of capacity building in regulation for the telecom sector;
 - Arrange stakeholder workshops to review the role and legislation of the similar organizations in the Pacific (e.g., the Office of the Regulator in Samoa, the ICCC in PNG);
 - Develop stakeholder consensus of the regulator's role, for review by higher authorities of the government as required;
 - Define the institutional structure and resource requirements and identify job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
 - Draft legislation for the creation and empowerment of telecom regulation in the Cook Islands, with explicit recognition of the efficacy of competition and the necessity of sound policy and enforcement of community service obligations, for consideration of the Cabinet and enactment by Parliament;
- Build capacity in the Cook Islands Investment Corporation (CIIC) to monitor the performance of SOEs (including TCI):
 - Form a Steering Committee of key stakeholders to oversee the strengthening of the CIIC's capacity to monitor the performance of public enterprises and support corporate governance;
 - Arrange stakeholder workshops to review the role and legislation of the CIIC in the supervision of the management and performance of public enterprises;
 - Develop stakeholder consensus of the CIIC role in this, for review by higher authorities of the government as required;
 - Define the institutional structure and resource requirements and identify gaps in job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
 - Prepare a manual of public enterprise monitoring procedures;

¹ Refer to the working paper on Regulation and Governance for further discussion of the concept and role of 'independent regulation'.

- Arrange periodic internal workshops to ensure that CIIC staff have a clear understanding of the CIIC's role and are properly applying the procedures of public enterprise supervision.
- Develop a sound policy regarding Community Service Obligations in the telecoms, ports, shipping, power, and water sectors: (TA required, completion by end 2008). For each sector,
 - Review business activities and identify activities or services that are not commercially sustainable as a separate business line or service.
 - Identify the amount of additional revenue each service provider would require (taking into account the benefits of shared overhead costs and scale and scope and factoring in an appropriate risk premium) to continue the non commercial business line or service. Specify the outputs and performance measures to be provided for the required additional revenue.
 - Prepare a report identifying the non-commercial activities and the cost to continue them, upon which the government will base decisions on which activities the government will continue to purchase or fund as CSOs.
 - The service providers in the affected sectors will negotiate with the CIIC the terms and conditions under which the service or business line would continue as CSOs.
 - Once the service providers and CIIC have agreed the details of the CSOs and costs/funding required, prepare a final report on the agreed position for government approval.
 - In implementing the CSO policy, the government will direct all SOEs not to undertake activities that are not funded under either as commercial activities or explicitly under a CSO.
- Once the telecom price regulator is established, support the regulator's capacity building efforts and prepare to liberalize the telecom sector (TA to assist if requested; implementation by end 2009):
 - Prepare a manual of public enterprise monitoring procedures, protection of service providers' and consumers' rights in competitive markets, and a manual of telecom price regulation;
 - Arrange periodic internal workshops to ensure that the regulator's staff have a clear understanding of their role and are properly applying the procedures of public enterprise regulation;
 - Determine what operating guidelines will be required to support competition and the development of the market, and commence drafting the guidelines. Finalization of the guidelines will require consultation with market participants, once drafted.
 - Invite tenders and prepare to issue competitive licenses for telecoms services throughout the Cook Islands (utilizing the experience and

possibly the assistance of neighboring countries that have successfully implemented market liberalization, e.g., Samoa and Fiji).

- Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to increase satellite capacity over the Pacific.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

The Ministry of Works (MOW) is responsible for government-operated infrastructure services that haven't been corporatized: water supply, outer islands electricity, solid waste, and roads.

The water supply in Rarotonga (and all other islands) is not treated, is not metered, and no charges for delivered water are levied. Lack of metering prevents any reliable estimate of water losses. Under present arrangements, the water supply is a cost 100% borne by government as a social obligation provided by a government department. Access to a public water supply is nearly universal throughout the Cook Islands, but the supply in the outer islands (administered by OMIA) is dysfunctional in many areas.

3.2 Community Service Obligations

There are no defined community service obligations in the water sector.

3.3 Regulatory Arrangements

There are no regulatory arrangements for the water sector. Technical monitoring of water quality is carried out by the provider (the MOW). The CIIC presently has no oversight responsibility for the water sector, as the service provider is not a corporatized entity; however, it would gain this responsibility once corporatization occurs.

The Ministry of Finance and Economic Management (MFEM) has adopted a proactive role in oversight of MOW's infrastructure line departments, including setting of key performance targets in each sector, making provision for adequate maintenance expenditures, and monitoring performance. Government procurement is also under MFEM administration. However, there appears to be a need for a high level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization, as existing mechanisms for regulation and performance monitoring do not operate effectively.

3.4 Maintenance Issues

In Rarotonga, the raw water supply is entirely from surface water sources collected through a large number of small intake structures around the island. The water supply managers are clearly doing a highly creditable job in keeping the supply system in Rarotonga operating, but funds are not adequate for proper maintenance of the intakes or piping systems; leakage is large (but immeasurable) and intake-blockages are common. Though there are increasing concerns over livestock-induced pollution of the catchment areas², none of the water is treated and delivered water has never been potable (though water quality in Rarotonga is monitored). Delivered water is commonly turbid during rainy periods. The water supply systems throughout the outer islands are reportedly in poor condition and receive only cursory maintenance.

² Health statistics reportedly do not yet show evidence of increased incidence of water-borne diseases.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

A government-sponsored comprehensive review of the MOW is underway, in which it is understood that institutional and maintenance issues are being addressed; as the study is not yet complete its outcomes are not known.

NZAID in concert with AusAID will fund improvements to the water supply services in the outer islands.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Though the supply of raw water in Rarotonga has not been a manifest problem in the past, continued growth and tourism development raise fears that the sustainable resource may soon be exhausted. Consumption of water is not presently mediated by price; it is generally not possible to satisfy the demand for free delivered water. A Water Policy is needed to address this; metering of water consumption and charging for it (imposed in gradual increments progressing to full cost recovery) will inevitably be components of the policy.

There is no significant outsourcing of water supply operation and maintenance functions. Training of technical staff is chronically below needs; water supply managers would like to secure arrangements for ‘twinning’ with other Pacific island water utilities for on-the-job training and troubleshooting. Similar issues affect the water supply in the outer islands, but to an even greater degree, since maintenance of remote systems is costly and difficult and much of the supply depends on the ingenuity of ill-equipped island administrations.

With the exception of solid waste (see the consultation report in the Annex), it is apparent that the water supply and other MOW services are underperforming or stagnating due, primarily, to a lack of clear high-level policy direction.

Though new procedures implemented by MFEM provide for close supervision of expenditures and performance monitoring, there is considerable dissatisfaction with them: the MOW sector managers maintain that they constitute interference and red-tape without supporting better performance, whereas MFEM maintains that government funds in these sectors are not effectively spent and accounted for.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- There is no independent regulatory capacity for the water sector in the Cook Islands. However, there is scarcely an entity that exists to be regulated; users are not metered and no charges are levied for water consumption. The initial focus in the Cook Islands should be on creating an autonomous water sector service provider with access to resources collected from users and subject to appropriate incentives to maintain high standards of service; i.e., a corporatization process in the sector should proceed, followed closely by the creation of regulatory capacity.

Corporatization of roads, water supply, and outer islands electricity services provides a compelling model to address poor service quality issues, by conferring on management higher degrees of autonomy, accountability, and incentives for improved performance. The concept of corporatization and its role in improving infrastructure services is discussed further in the working

paper on regulation and governance. As mentioned previously, the government is conducting a comprehensive review of the MOW, in which corporatization options will be addressed.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

With reference to outer islands services:

- The administration and maintenance of infrastructure in the outer islands, including water, electricity, ports, and roads, is institutionally inadequate and under-resourced. A policy is needed to define (i) the level of infrastructure services that the government would like to support in the outer islands, (ii) the extent of new investment needed to support desired development in the outer islands, and (iii) a clear CSO policy for the outer islands covering each of the above infrastructure sectors.
- Outsourcing of outer islands infrastructure administration and maintenance should be maximized in order to assist the government to close the capacity gaps under present arrangements (the joint responsibilities of the island administrations and the OMIA).

With specific reference to the water supply:

- Improve the preparation of reporting of expenditures on water supply O&M and of requested budgets for the maintenance of water supplies in Rarotonga and on the outer islands; prepare appropriate key performance indicators for the water supply sector and routinely report progress in meeting them;
- Introduce metering and prices to improve the efficiency of consumption (bring consumers' demand decisions in line with the costs of supply);
- Design an equitable tariff system that recovers the cost of supply from users while protecting the interests of low-income consumers;
- Introduce treatment of the public water supply to protect the public health;
- Improve the efficiency of delivery (measure, then reduce, water losses);
- Establish an autonomous water service provider with authority to collect and expend revenues collected from users, to recruit, train, and compensate needed technical and management skills to improve and maintain the physical water treatment and delivery system.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving delivery in the outer islands in water, electricity, ports, and roads services include the following, which could be accomplished over a two-year period, i.e., by the end of 2009. TA support required:

- Build capacity in the Office of the Minister for Island Administration (OMIA) to administer services in the outer islands:

- Under the auspices of the Ministry of Finance and Economic Planning, form a Steering Committee of key stakeholders from government, island administrations, the private sector, and community groups to oversee the strengthening of the OMIA's capacity to supply, administer, and maintain infrastructure services in the outer islands and oversee the process of developing policy for the outer islands;
- Arrange stakeholder workshops to (i) review the role and legislation of the OMIA in outer island administration and (ii) develop realistic objectives for the outer islands and targets for service quality standards for infrastructure (water, electricity, marine transport, and roads), for review by higher authorities of the government;
- Develop a sound CSO policy for such services based on the approach outlined above in section 2.9;
- Develop stakeholder consensus about the OMIA role in outer islands administration, the specific functions of the OMIA and a realistic estimate of the resources required by OMIA to fill this role, for review by higher authorities of the government as required;
- Define the institutional structure and resource requirements and identify job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
- Amend legislation as required for the empowerment of OMIA to fill the identified role and functions, for consideration of the Cabinet and enactment by Parliament.

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery in the water sector include the following, which could be accomplished over a two-year period, i.e., by the end of 2009. TA support required:

- Review, and upgrade as required, the procedures for reporting expenditures on water supply O&M by the MOW to the MFEM, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Conduct a comprehensive sector review with recommendations that meet the key reforms and transactions outlined above in section 3.8:
 - Design and cost an investment program to implement water treatment and bolster distribution as required, initially in Rarotonga with incremental extensions to the outer islands;
 - Implement demand metering on all consumers and collect consumption data over a one-year period;
 - Estimate water demand in Rarotonga and in the outer islands; identify consumers and classify them according to category (domestic, commercial, government) and quantify the current (unmetered) demand for water by each category; estimate post-tariff demand based on consumption patterns in neighboring countries;

- Taking into account the full costs of operating a commercial-oriented corporatized water utility in Rarotonga, design and implement a full cost recovery tariff, equitably apportioned to the identified consumer groups on the basis of cost of service, with adequate protections for low-income domestic consumers;
- Conduct a comprehensive cost of water supply study in the outer islands; design an appropriate tariff for the outer islands with reference to the CSO policy outlined above in section 2.9;
- Draft appropriate legislation (perhaps with reference to the PNG and Fiji models) and complete establishment of a corporatized water utility with responsibility for water supply services throughout the Cook Islands.

Following the design of the investment program for water treatment and upgrade of distribution systems as required (including customer metering), arrange for loan finance and undertake the works in parallel with the corporatization process.

4 Power

4.1 Sector Structure and Service Quality

Electricity in Rarotonga is provided by Te Aponga Uira (TAU), a 100% government-owned Corporation. Power is provided on Rarotonga on a 24 hr/day basis, with near-universal access.

On the outer islands, electricity supply is under the management of the island administrations (non-corporate entities). The Office of the Minister for Island Administration (OMIA) provide the islands with diesel generators and periodically provide maintenance services for them, but the distribution systems are under the islands' administration. Power is provided for 18 hrs/day on most islands; the percent of the islands' populations that have access to these supplies is not known.

4.2 Community Service Obligations

There are no defined community service obligations in the power sector.

4.3 Regulatory Arrangements

The power sector is unregulated, and this may be limiting the scope for private sector interest in generation and other power services (there is presently little outsourcing in the power sector and apparently little interest from IPPs, see below). The electricity tariff on Rarotonga is set by the TAU Board, and on the outer islands by the OMIA, and approved by Cabinet.

The Cook Islands Investment Corporation (CIIC) is required to provide oversight of the SOEs including the TAU. Issues related to CIIC are discussed above (with respect to telecom sector but apply equally to electricity and other sectors served by SOEs), section 2.3.

4.4 Maintenance Issues

There are no significant maintenance issues in the power sector in Rarotonga, and no significant skills or resource gaps exist in-house for diesel O&M. However, power interruptions are reportedly³ a persistent problem on the south coast of Rarotonga, apparently for technical reasons. The electricity tariff in Rarotonga averages about NZ\$0.60/kWh, or about US\$0.43/kWh, an extremely high rate by Pacific standards, even for all-diesel systems. TAU recovers all costs and pays a NZ\$1m dividend to the government (in recent years, this has been retained by TAU for re-investment).

On the outer islands, poor maintenance is a severe and persistent problem, due to lack of personnel, insufficient technical skills, and the remoteness of OMIA to carry out maintenance functions. This is exacerbated by the institutional weaknesses associated with village administration of services. The tariffs on the outer islands vary between NZ\$0.41-\$0.45/kWh, or in the vicinity of US\$0.30/kWh, and reportedly do not fully recover operating costs.

³ Ministry of Transport

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

The electricity tariff in Rarotonga is sufficient to cover TAU's costs and enable the utility to deliver reliable services.

The costs of generation, however, are high due to exclusive reliance on diesel capacity. TAU is keen to identify a reliable alternative to diesel, but maintains that diesel so far is still the best option. TAU intends to build a new power station in the next two years in Rarotonga to duplicate the existing power station and improve system reliability (although the feasibility/design study for this has not been completed). TAU seeks international expertise for advice on affordable and reliable generation options for Rarotonga.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There appear to be few technical issues affecting service quality in Rarotonga, apart from the high cost of generation. There may be opportunities to reduce costs and improve efficiency through private sector outsourcing, but at present these are not being vigorously pursued. Outsourcing is presently applied to trenching and pole erection work, and is being extended to disconnection and meter reading services, but there are currently no plans to outsource generation or distribution operations and maintenance. The private sector has shown little apparent interest in investing in power through IPP services, likely because of market and regulatory uncertainties.

In the outer islands, power services are beset by severe institutional problems, as the systems are essentially under island management with maintenance carried out remotely and only periodically by OMIA. As a result, power services in the outer islands are not reliable. Small diesel systems in remote locations are notoriously difficult to keep in operation even when logistics is easier than it is in the Cook Islands' outer islands.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Power sector regulation is absent in the Cook Islands. Building regulatory capacity will help to create conditions suitable for private sector participation, either through significantly increased outsourcing of O&M or through IPP investment.
- Oversight of SOE performance (including TAU) is formally provided by the CIIC but, as mentioned in section 2.7, the latter is under-staffed and under-resourced to fill this function effectively.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Implement, with appropriate legislation, effective power sector price regulation in the Cook Islands; in the context of the multi-sector regulator capacity building proposed in section 2.8 above;
- Strengthen the capacity of the CIIC to provide essential performance oversight of SOEs (see above sections 2.8 and 2.9);

- Develop a sound policy regarding Community Service Obligations for telecoms, ports, shipping, power, and water (see above sections 2.8 and 2.9);
- Strengthen the capacity of OMIA and island administrations to address needs and reduce costs of the power supply in the outer islands through assessment and aggressive development of non-diesel sources of electricity generation including solar home systems;
- Encourage the private sector to participate in the power sector through outsourcing and considering IPP investment in generation.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following.

- Under the initial impetus of meeting regulatory needs of the telecom sector (section 2.9), extend capacity to a multi-sector regulator to include the power sector;
- Capacity building in the CIIC outlined in section 2.9;
- Development of sound CSO policy outlined in section 2.9;
- Prepare to encourage private sector participation in the sector by advertising invitations to express interest and to bid on O&M services and IPP investment (utilizing the experience and possibly the assistance of neighboring countries that have successfully implemented power sector outsourcing and IPP investment, e.g., Fiji). No TA support required.
- Conduct a review of electricity needs and affordability of electricity in the outer islands and implement a program that replaces the use of diesel generation with affordable non-diesel alternatives such as solar home systems, in recognition that, due to logistical difficulties, a high standard of reliability in diesel generation in the outer islands is not feasible to achieve. (This approach could be modeled on the successful electrification of outer islands in Kiribati through the government-owned Solar Energy Company based in Tarawa.)

5 Roads

5.1 Sector Structure and Service Quality

Roads maintenance is a non-corporatized service of the Ministry of Works in Rarotonga. Roads in the outer islands are under the OMIA. Overall the sector shares many of the same institutional constraints and poor maintenance described above for the water sector and the outer islands electricity supplies.

There is near-universal access to primary and secondary roads in Rarotonga. Road access is highly variable in the outer islands (some islands have no roads).

5.2 Community Service Obligations

No CSOs have been defined for the roads sector.

5.3 Regulatory Arrangements

There are no regulatory arrangements for the roads sector.

5.4 Maintenance Issues

Funds are inadequate for maintenance of roads, affecting mainly secondary roads in Rarotonga and all roads in the outer islands. The quality of the primary roads in Rarotonga appears to be good, but many secondary roads are in poor shape. The quality of roads in the outer islands is reportedly poor.

There is little or no outsourcing of roads maintenance functions.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

As noted previously, there is a lack of high-level policy to deal with non-corporatized sectors including roads, water supply, and outer islands electrification. Corporatization of roads and other MOW services can address poor standards, low quality of service, and maintenance through higher management autonomy, accountability, and incentives. The government's ongoing review of the MOW is addressing corporatization options.

The cost of maintaining the country's roads has not been adequately assessed, especially with respect to the outer islands, and budget allocations are below needs. The MOW, responsible for roads in Rarotonga, that their maintenance budget allows them to maintain roads only reactively – i.e., repair damage but not upgrade quality or conduct preventative maintenance. There is no significant outsourcing of road maintenance functions. Poor roads maintenance is a more pressing problem in the outer islands, because of logistical problems and of under-resourced island administrations.

Road asset management – a detailed database of road assets throughout the country, categorized by type, recording the condition of the roads and routinely updated by efforts to monitor road conditions – is absent in the Cook Islands, inhibiting road planning and the prioritized scheduling of maintenance functions.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads performance and quality standards monitoring is presently limited in scope and ad hoc (the tools of comprehensive asset management do not exist in the MOW or OMIA);
- There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing, the MOW should gradually assume mainly a contracting and performance monitoring role.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Complete the government's review of MOW's services and institutional issues.
- Realistically assess the requirement for roads maintenance in Rarotonga and the outer islands; raise awareness in government of the strategic importance of maintaining roads standards.
- Establish an asset management system for roads throughout the country, to be operated and maintained by MOW for roads in Rarotonga and on behalf of OMIA for roads in the outer islands;
- Increase outsourcing for roads maintenance on the Samoa model.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following, to be accomplished by the end of 2008 (TA support required):

- Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the MOW to the MFEM, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; categorize roads by type and use; and prepare a manual for operation and maintenance of the asset register and roads maintenance management system; the asset management system for the outer islands would be operated and maintained by MOW on behalf of the OMIA;
- Identify annual maintenance requirements per km for each type of road;
- Assess the aggregate annual maintenance requirement of all roads under public sector management in Rarotonga and in the outer islands;

- Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision;
- Taking account of the institutional structure and resource requirements of the road maintenance entities within the MOW and OMIA, identify gaps in job functions and skills to fill their required roles (including in relation to contracting and supervision), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
- Arrange periodic internal workshops to ensure that MOW and OMIA staff have a clear understanding of their roles and are properly applying the procedures of asset management and contract supervision.

6 Ports

6.1 Sector Structure and Service Quality

The Cook Islands Ports Authority (CIPA) is the government-owned corporate body responsible for the country's international port in Rarotonga and for the port at nearby Aitutake. The CIPA does not operate any other port in the outer islands, which are the responsibility of the respective island administrations.

6.2 Community Service Obligations

There are no defined CSOs in the ports sector.

6.3 Regulatory Arrangements

The ports sector is not regulated; international ports fees are set by the CIPA Board. Like other SOEs, however, the CIPA is under the supervision of the Cook Islands Investment Corporation (CIIC), but the latter is under-staffed and under-resourced to carry out this function effectively.

No ports fees are charged for any port in the outer islands, apart from nearby Aitutake. As the outer islands ports are under island administration, their operations are not supervised by the CIIC.

6.4 Maintenance Issues

There are no significant maintenance issues reported for the ports under CIPA's control (Rarotonga and Aitutake).

Ports in the outer islands, however, are the responsibility of the respective island administrations, assisted by the OMIA. The outer islands ports suffered damage in the cyclones of 2005 and are poorly maintained. The OMIA does not receive sufficient funding from government to address the maintenance/ rehabilitation issues in the outer islands.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

No recent advances in ports service delivery have been reported.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Investment is urgently required to expand the facilities of the international port to accommodate the larger ships now being used for container cargo and fuel deliveries. Inability to meet this investment need is likely to drive up cargo costs.

Apart from stevedoring services at Avatiu (Rarotonga), none of CIPA's operations at present is outsourced.

The CIPA operates the Aitutake facility at a considerable loss, due to very high cargo handling costs. Aitutake has no wharf to handle container vessels directly; instead, vessels anchor outside the reef and a barge offloads containers to the port (the present barge can handle one container per trip, but this capacity will soon be increased to two containers per trip).

In the outer islands, the inability to date to repair cyclone damage, and the difficulties of maintaining many small remote ports has resulted in a large number of ports in very poor condition. However, ports facilities on most outer islands are not well developed in any case. According to the 2006 Infrastructure Master Plan,

“[t]he harbors in the Outer Islands typically comprise a channel cut through the reef flat to a small basin containing a dock area and small boat ramp. Some harbors have concrete seawalls to provide a measure of protection to the channel and basin. Typically the dock area comprises of a concrete paved quay and a small handstand area. Each island has one or more barges or large dinghies for transferring cargoes from the ship which are unloaded onto the quay by HIAB truck owned by the Island Administration. Pallets are then moved to a nearby storage shed....Penrhyn has the only harbor (Omoka) in the Outer Islands which is directly accessible by ship.”

Future development (e.g., through tourism) on the islands will, in many cases, require considerable investment to expand the capacity of these ports.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- For the outer islands, ports performance and quality standards monitoring is, for all intents and purposes, not present. The OMIA does not possess tools of port asset management;
- The OMIA does not appear to have capacity to design a schedule of equitable ports fees (none charged at present). There is no defined Community Service Obligations Policy with respect to ports (or anything else).
- There is potential for outsourcing for ports O&M, both in Rarotonga and on the outer islands. If outsourcing were to increase substantially, the CIPA could gradually assume mainly a contracting and performance monitoring role (and could fill this function also on behalf of the OMIA in the outer islands).

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- The international port faces an urgent near-term need to expand facilities in Rarotonga to accommodate larger ships, including fuel tankers. (Exxon/Mobil have informed that the present wharf and channel are not suitable to accommodate the larger tankers with deeper draft that will be serving the Cook Islands from now on. Failure to expand facilities will result in an increase in the landed cost of fuel of NZ\$0.20/litre, according to the fuel company, as smaller tankers will need to be allocated to supply the Cooks. Larger container ships for cargo are expected in the future as well.) International container traffic is growing at 5%-7% per year. Additional container storage area is now needed to cope.
- For key reforms needed to strengthen service delivery (including ports) to the outer islands through the OMIA, see above section 3.8;
- Outsourcing of outer islands infrastructure administration and maintenance should be maximized in order to assist the government to close the capacity

gaps under present arrangements (the joint responsibilities of the island administrations and the OMIA).

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The CIPA to formulate a short-, medium-, and long-term investment plan to upgrade the international port facilities to accommodate changing international vessel traffic and minimize import costs (TA support may be required, particularly for engineering and international shipping market expertise, with results by end 2008);
- For approaches to strengthen service delivery (including ports) to the outer islands through the OMIA, see above section 3.9;
- Prepare to encourage private sector participation in the sector by advertising invitations to express interest and to bid on O&M services (utilizing the experience and possibly the assistance of neighboring countries that have successfully implemented outsourcing (not necessarily in ports) e.g., Samoa). No TA support required.

7 Shipping

7.1 Sector Structure and Service Quality

The shipping sector is operated by a private company, Taio Shipping Ltd, which operates infrequent freight and passenger services to the outer islands with two vessels, though both are at the end of their useful lives and lack proper passenger accommodation.

7.2 Community Service Obligations

Outer island residents depend on domestic shipping services as air services to the outer islands are limited and costly. There are no defined CSOs in the shipping sector.

7.3 Regulatory Arrangements

The Maritime Cook Islands Ltd manages the shipping register under a management agreement with MOT, and is an example of the private sector successfully taking over the functions of a government entity in a critical sector. There are no other regulatory arrangements for the shipping sector, however.

7.4 Maintenance Issues

The maintenance status of the private vessels that serve the sector is not known, but the vessels themselves are reportedly at the end of their useful lives and are not well equipped for passenger traffic.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

None known.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Vessel capacity, owned and operated by the private sector, is aged and limited. Passenger amenities are few.

7.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The methods and procedures for rate setting for domestic shipping services in the Cook Islands are not known, but from the fact of only one operator in the sector, it may be surmised that current rates are not sufficient to entice additional private sector operators and vessel capacity into the market. Price regulation, route licensing, and a clear CSO policy for the sector could entice new entrants into the market as competitors and/or additional investment by the incumbent operator; in particular, more investment is needed to increase passenger comfort and convenience.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Entice additional investment to upgrade and increase vessel capacity serving the sector. A review of rates per route, route licensing, and subsidies available per non-commercial route will greatly assist the private sector to determine new levels of investment.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following (mid 2008, no TA support required):

- Include shipping in the purview of the multi-sector regulator, when that capacity is developed (section 2.9);
- For steps leading to sound CSO policy (covering shipping and other sectors) see above section 3.9;
- In light of the CSO policy, adjust tariffs sufficiently to entice increased investment in vessel capacity and amenities.

8 Annex: Country Consultation Report

COOK ISLANDS

The RETA Team visited Rarotonga from 12 through 16 March. Discussions were held with (not in order):

- Ministry of Finance and Economic Management (Aid Management Division)
- Cook Islands Investment Corporation (CIIC)
- Office of the Minister for Island Administration (OMIA)
- Telecom Cook Islands Ltd (TCI)
- Te Aponga Uira (TAU, government-owned electricity supply company operating in Rarotonga)
- New Zealand High Commission
- Ministry of Transport (MOT: land, air, and marine transport)
- Office of the Prime Minister
- Cook Islands Ports Authority (CIPA)
- Cook Islands Airport Authority (CIAA)
- Ministry of Works (MOW: water supply, roads, waste management, energy (electricity supply in the outer islands))
- Ministry of Environment (MOE)
- Cook Islands Tourism Corporation (CITC)

Highlights

The Cook Islands has a fulltime resident population of 12,000-14,000⁴ and an overseas population (mainly in New Zealand) of more than 70,000. In contrast with other Pacific island countries (e.g., Fiji, Samoa, and Tonga) the level of remittances from the overseas diaspora, despite its size, is quite low, reportedly because entire families migrate together and spend their whole working lives overseas. The country is increasingly importing labor, mainly from Fiji and the Philippines. The leading growth sector is tourism; tourist arrivals have been registering 6% growth in recent years and are approaching 100,000 per annum, 7 or 8 times the size of the resident population. The country has a vast and largely untapped tourism potential in the outer islands, especially in the northern group. Lack of investment in requisite infrastructure is a prime constraining factor; also, an oft-heard comment is that foreign investors are put off by frequently changing rules.

The ADB-funded draft Infrastructure Master Plan (IMP, November 2006) provides a comprehensive and up to date analysis of near- and long-term infrastructure requirements in the Cook Islands and is a widely-distributed planning tool that has promoted fruitful dialogue between the government and the development partner community. The IMP covers air, marine, and land transport, water supply, sanitation, solid waste, energy, and telecommunications in Rarotonga and the outer islands.

All infrastructure service providers in the Cook Islands have either been corporatized or are private companies, apart from water supply, solid waste, roads, and energy (electricity supply in the outer islands), which remain as Divisions of the Ministry of

⁴ Estimates vary, because the Census counts all persons in the country at the time of measurement, including tourists and other visitors.

Works. The Ministry of Finance and Economic Management (MFEM) has adopted a pro-active role in oversight of MOW's infrastructure line departments, including setting of key performance targets in each sector, making provision for adequate maintenance expenditures, and monitoring performance. Government procurement is also under MFEM administration. However, there appears to be a need for a high level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization, as existing mechanisms for regulation and performance monitoring do not operate effectively and corporatization of some critical sectors (e.g., water supply and roads) seems to be stalled (see below).

Corporatized service providers (SOEs) include the Airport Authority, Ports Authority, Telecom Cook Islands, and Te Aponga Uira. The Cook Islands Investment Corporation (CIIC) is required to provide oversight of the SOEs, regulate tariffs, and monitor performance. The CIIC, however, lacks sufficient staff and budget to fill this function effectively, often little able to more than rubber stamp the respective entities' Board decisions. The CIIC has less than 20 staff (most of whom are working in repairs and maintenance in the Property Division), yet is responsible for the oversight of aviation, marine transport, telecommunications, and urban electricity in the Cook Islands. The CIIC needs to build capacity to work effectively with the SOEs, by increasing staff and arranging for on-the-job training; CIIC management is keen to pursue 'twinning' arrangements with counterpart organizations in the Pacific and Australia/New Zealand.

There are no other regulatory arrangements for infrastructure in place. SOEs and non-corporatized services alike are suffering the effects of inadequate maintenance of assets, indicating a general dysfunction in financial management.

The main income generating activity in the outer islands at present is pearl farming, but tourism has a great potential for development, which is so far completely untapped in the northern group and underdeveloped in the southern group. The Office of the Minister for Island Administration (OMIA) is responsible for infrastructure services in the outer islands, including all water supply, electricity, ports, and roads (but excluding telecom services, which is the responsibility of TCI). In parallel with the CIIC, the OMIA is severely understaffed (12 staff, half of whom are administrative) and under-resourced in funding and equipment to carry out these functions effectively.

The cyclones in 2005 inflicted heavy damage in the outer islands and some NZ\$50m has been allocated for reconstruction work. Ports, roads, and water supply are reportedly in an advanced state of deterioration; notwithstanding OMIA's mandate, the islands community are essentially on their own in maintaining these services. For electricity supply, most islands have been supplied with diesel generators that are periodically maintained by OMIA, but the distribution systems are under the islands' administration. Diesel generators operate for at least 18 hours/day on most islands, but are expensive to fuel and maintain. To save costs, one island has had solar home systems (household solar panels and battery systems that provide mainly lighting and limited refrigeration) installed for the past 15 years but as households pay nothing for the service, maintenance has not been carried out, and most systems are no longer functioning. On one island a wind energy system has been trialed but has failed. Island residents reportedly prefer diesel generation in any case, as it is capable of providing reliable AC (230-volt) power for conventional appliances such as refrigerators and washing machines. The chief factor constraining infrastructure performance in the outer islands is lack of personnel for project management and to carry out the myriad maintenance tasks involved.

Telecommunications services (landline and mobile phones, and all internet services) are provided by a single government-owned monopoly, the Telecom Cook Islands Ltd (TCI). TCI has approximately 4,500 'effective' mobile phone subscribers (i.e., not including accounts held by transient visitors) and 6,500-7,000 landline subscribers (84 percent of occupied dwellings), so saturation is high given the resident population. Mobile phone signal coverage around Rarotonga, however, is spotty, despite having eight base stations in place around the island. TCI has trialed WiMax (wide-area wireless) for internet services in Rarotonga but finds that speeds are slow as loadings increase; hence ADSL (a wired technology) is preferred. There are 405 ADSL customers in Rarotonga, including about 25 percent of occupied households. The rates charged for mobile phone and internet services appear to be markedly higher than in Fiji, Tonga, and Samoa. TCI pays an annual dividend to government of about NZ\$2m.

Communications with the outer islands is entirely by satellite (each inhabited island – even those with population of less than 100 – has an earth station operated by TCI); the chief technical bottleneck to inter-island and international telecommunications in Cook Islands is limited satellite capacity. At a meeting of the Pacific Islands Telecommunications Association (PITA) in 2006, TCI and other island telecom companies asked a group of satellite service providers: if the Pacific countries were to pool their demand for bandwidth and arrange a bulk contract under a sharing agreement, would more capacity be available at a better rate? The response was a guarded 'yes' but the margin of improvement was reportedly disappointing. TCI report that undersea fiber optic cable options are too expensive for the Cook Islands (and would serve only Rarotonga) and so are not further considered. Domestically, landlines on Rarotonga are all connected by a fiber optic ring.

TCI's Guarantee of Exclusivity expires on 1 July 2007. TCI knows of government interest in opening the sector to competition at that time, but argues that sound regulation has to be in place first. Presently no telecom regulation exists in the Cook Islands; no legislation has yet been prepared to provide for it. TCI conducted an extensive benchmarking exercise in cooperation with PITA several years ago and now maintains the effort for a reduced set of (proprietary) indicators.

Electricity in Rarotonga is provided by Te Aponga Uira (TAU), a 100% government-owned Corporation. At present, generation is entirely by diesel, although wind power has been considered for Rarotonga in the past. TAU is keen to identify a reliable alternative to diesel, but maintains that diesel so far is still the best option. TAU intends to build a new power station in the next two years in Rarotonga to duplicate the existing power station and improve system reliability (although the feasibility/design study for this has not been completed). Power interruptions are reportedly⁵ a persistent problem on the south coast of Rarotonga.

Private sector outsourcing is limited, presently applied to trenching and pole erection work, but is being extended to disconnection and meter reading services. There are currently no plans to outsource generation or distribution operations and maintenance. No significant skills gap exists in-house for diesel O&M, and the private sector is thought not to be able to provide these services. TAU would seek international expertise for advice on affordable and reliable generation options for Rarotonga.

⁵ Ministry of Transport

The electricity tariff in Rarotonga averages about NZ\$0.60/kWh, or about US\$0.43/kWh, an extremely high rate by Pacific standards, even for all-diesel systems. TAU pays a NZ\$1m dividend to the government (in recent years, this has been retained by TAU for re-investment). On the outer islands, the tariffs vary between NZ\$0.41-\$0.45/kWh, or in the vicinity of US\$0.30/kWh, and reportedly do not fully recover operating costs.

The NZ High Commission administers NZAID and AUSAID programs in the Cook Islands. NZAID/AUSAID will undertake water sector projects in the outer islands, as proposed in the Infrastructure Master Plan. The IMP has been well received by the communities; the challenge for government is to achieve sufficient cross-sector coordination and joint accountability for implementing it. This will take a concerted push by the government from the top down to achieve.

A 10-year Cook Islands country strategy is being developed by NZAID, which will focus on poverty reduction and therefore on outer islands development. The outer islands should not be considered as a single group; the southern islands have considerably more economic potential than the northern islands, for which sustainable livelihoods is the priority. There are few constraints on the amount of development assistance available to the Cook Islands and the country is not critically dependent on aid; the challenge is to devise a strategy to apply the available assistance efficiently. According to the High Commission, the government wants to see much improved coordination in the development partner programs in the country in accordance with the Paris Declaration. The High Commission is encouraged that the Cook Islands government is working towards coherent policies for reform of the water, transport, and telecoms sectors, but these have not yet been fully articulated, and external assistance might be best applied in these areas.

The Cook Islands Ports Authority (CIPA) is under near-term strain to expand facilities in Rarotonga to accommodate larger ships. Exxon/Mobil have informed that the present wharf and channel are not suitable to accommodate the larger tankers with deeper draft that will be serving the Cook Islands from now on; the first arrival is expected in May. Failure to expand facilities will result in an increase in the landed cost of fuel of NZ\$0.20/litre, according to the fuel company, as smaller tankers will need to be allocated to supply the Cooks. Larger container ships for cargo are expected in the future as well. Rarotonga and Aitutake are the Cook Islands' only international ports. Only the Rarotonga port operations are profitable; the CIPA sets its own rates for international shippers. International container traffic is growing at 5%-7% per year, and virtually all of it is ultimately related to tourism. Additional container storage area is now needed to cope.

No ports fees are charged for any port in the outer islands, apart from nearby Aitutake. The CIPA operates the Aitutake facility at a considerable loss, due to very high cargo handling costs. Aitutake has no wharf to handle container vessels directly; instead, vessels anchor outside the reef and a barge offloads containers to the port (the present barge can handle one container per trip, but this capacity will soon be increased to two containers per trip). Apart from stevedoring services at Avatiu (Rarotonga), none of CIPA's operations at present is outsourced. The CIPA does not operate any other port in the outer islands, which are the responsibility of the respective island administrations.

According to the IMP⁶, Maritime Cook Islands Ltd manages the shipping register under a management agreement with MOT, and is an example of the private sector successfully taking over the operations of a government entity in a critical sector. The private Taio Shipping Ltd operates infrequent freight and passenger services to the outer islands with two vessels, though both are at the end of their useful lives and lack proper passenger accommodation. (Outer island residents depend on domestic shipping services as air services to the outer islands are limited and costly).

The Cook Islands Airport Authority (CIAA) operates the international airport at Rarotonga, but is not responsible for any of the airstrips in the outer islands. The government is applying considerable pressure of CIAA to take over the outer islands facilities, but CIAA management has insisted on a sufficient government allocation to cover the cost, to which the government has not yet committed.

Immediate investment needs at the international airport are for replacement of its aging nav aids system, and a new instrument landing system, at a total cost of over NZ\$2m. The new systems will be financed from a blend of internal funds and commercial loans at 10.4%.

The airport was built to take up to a 747-400, and is adequate for the long-range 767/777 aircraft which are increasingly serving the region. (Traffic from Australia still depends on 737s, which are shorter range, and must stop in Auckland. Introducing 767s/777s on this route could eliminate that stop and ease a current tourism bottleneck from the Australian market.) Larger aircraft – e.g., the new Airbus 380 – would require doubling the thickness of the runway, but need for this is not anticipated.

Longer term plans include a new terminal building at Rarotonga, expected to cost NZ\$14m. Designs for this, taking into account cyclones and the effects of climate change, have not been finalized; initial designs were rejected as not sound enough. Despite charging landing fees that are reported to be the 4th or 5th highest in the world (e.g., NZ\$8000 for a 747), the CIAA runs at a loss of about NZ\$0.7m/year. Airport maintenance is below needs and (as mentioned) reliance on an aging nav aids system continues. The departure tax was recently increased, but the revenue is shared with the Ministry of Works' solid waste program. Privatization of the CIAA was discussed in 1996, but the idea was stopped when the previous landowners demanded compensation (though the land occupied by the airport is ostensibly freehold).

In respect of land issues, the Cook Islands has managed to develop a policy similar to Samoa's, i.e., has institutionalized the process of leasing land to infrastructure and commercial interests such that the lease agreement can be used as an asset for financing purposes. Land policy appears to be working to stakeholders' general satisfaction.

The Ministry of Works (MOW) is responsible for government-operated infrastructure services that haven't been corporatized: water supply, outer islands electricity, solid waste, and roads. With the exception of solid waste (see below), it is apparent that all of these sectors are underperforming or stagnating due, primarily, to a lack of clear high-level policy direction. Though new procedures implemented by MFEM provide for close supervision of expenditures and performance monitoring, there is considerable dissatisfaction with them: the MOW sector managers maintain that they

⁶ Time did not permit the RETA team to meet with shipping companies.

constitute interference and red-tape without supporting better performance, whereas MFEM maintains that government funds in these sectors are not effectively spent and accounted for. Antagonism between the two Ministries is apparent.

The effects of the dissatisfaction are easiest to see in the water supply sector. In Rarotonga, the raw water supply is entirely from surface water sources collected through a large number of small intake structures around the island. The water supply managers are clearly doing a highly creditable job in keeping the supply system in Rarotonga operating, but funds are not adequate for proper maintenance of the intakes or piping systems; leakage is large (but immeasurable) and intake-blockages are common. Though there are increasing concerns over livestock-induced pollution of the catchment areas⁷, none of the water is treated and delivered water has never been potable (though water quality in Rarotonga is monitored). Delivered water is commonly turbid during rainy periods.

The water supply in Rarotonga (and all other islands) is not metered and no charges for delivered water are levied. Lack of metering prevents any reliable estimate of water losses. Under present arrangements, the water supply is a cost 100% borne by government as a social obligation. Though the supply of raw water in Rarotonga has not been a manifest problem in the past, continued growth and tourism development raise fears that the sustainable resource may soon be exhausted. A Water Policy is needed to address this; metering of water consumption and charging for it (imposed in gradual increments progressing to full cost recovery) will inevitably be components of the policy.

There is no significant outsourcing of water supply operation and maintenance functions. Training of technical staff is chronically below needs; water supply managers would like to secure arrangements for 'twinning' with other Pacific island water utilities for on-the-job training and troubleshooting. Similar issues affect the water supply in the outer islands, but to an even greater degree, since maintenance of remote systems is costly and difficult and much of the supply depends on the ingenuity of ill-equipped island administrations.

Roads maintenance and outer island electricity supplies face similar constraints in respect of funding for maintenance and standards of service.

Corporatization of roads, water supply, and outer islands electricity services provides a compelling model to address these issues, by conferring on management higher degrees of autonomy, accountability, and incentives for improved performance. The government is planning to conduct a comprehensive review of the MOW, in which corporatization options will be addressed.

Solid waste has made substantial strides in arranging for private sector participation and in minimizing waste volumes at the landfill by introducing recycling and overseas sale of metal scrap, with support from the Ministry of Environment (MOE). An ADB-funded waste management project has provided for a new landfill, which is operated by the MOW. Improvements in landfill management are needed, according to the MOE. A recycling facility has also been set up, which will shortly re-locate to the new landfill site, and has been operated by the private sector for the past three years. Additional infrastructure is needed, however, for full-scale separation and recycling operations to commence (especially for the handling of plastics). Municipal rubbish

⁷ Health statistics reportedly do not yet show evidence of increased incidence of water-borne diseases.

collection and landfill costs are partly funded by an allocation from the airport departure tax collections. Rubbish collection in Rarotonga is outsourced.

Summary of Key Findings

By far, the growth opportunity of the Cook Islands is tourism. The raw material needed for tourism is everywhere in evidence. Growth of tourism, particularly in the outer islands, could carry the country to unprecedented national income and employment opportunities. However, the impact of tourism on local resources, institutional capacities, and pressures to reform institutions (up to and including, for example, franchising the outer islands to develop tourism infrastructure and marketing of services), could transform governance of the country and would take considerable time to put into place. The team notes that reform of tax laws in concert with tourism development, particularly in the form of taxes on property and capital gains, could greatly strengthen the revenue base of the Cook Islands and provide the government finance necessary to address the resource and reform issues that will arise in the future.

The recent draft Infrastructure Master Plan is a powerful tool for coming to grips with needed infrastructure investments in the near and medium terms, an advantage not enjoyed by most other Pacific island countries at present.

The solid waste sector appears to be leading the region in awareness of solid waste issues in small island states. The introduction of waste recycling and selling of scrap metal overseas – essentially turning solid waste into a business – is far-sighted and provides a most useful example to other Pacific island countries to watch and emulate.

Overall, the regulatory system in the Cook Islands, while often well specified on paper, does not deliver the thoroughness, transparency, and efficiency required of it. There is a notable disconnect between government central agencies providing oversight and performance monitoring of infrastructure services and the line departments and SOEs charged with providing the services. In carrying out its monitoring role, MFEM's procedures have often been received as 'red tape' while failing to support improved performance. For SOEs, the CIIC lacks capacity to carry out its responsibilities effectively and provides little meaningful supervision or corrective impact on SOE operations.

There is an urgent need for a high-level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization of subsidized government services to supplement the Infrastructure Master Plan. The Government's imminent review of the MOW is a step towards this, but the scope needs to be considerably broadened to address the wider regulatory issues.

The capacity of outer islands administration needs a thorough re-examination, with realistic assessments of the costs of meeting the government's targets for provision of minimum services to the outer islands, and undertaking of practical steps either to (i) identify and provide the government resources necessary to deliver the services and fill the necessary gaps to ensure sustainability, or (ii) reduce the government's targets for the outer islands to something that the country can more easily afford.

Volume II Part 2b: National Strategy: Federated States of Micronesia

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in the Federated States of Micronesia (FSM), with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

The FSM with a population of about 100,000 comprises four island States: Pohnpei (home to 30% of the population and where the national capital resides, at Palikir), Kosrae (7% of the population), Chuuk (50%), and Yap (13%). The geographic spread of the islands across the north Pacific is enormous: Yap at the western end is separated from Kosrae in the east by several thousand miles. Inter-island passenger traffic is almost entirely by air; sea-borne cargoes are delivered direct to each State by international shippers. The States cohere in a loose federal structure, but public administration and decisions concerning infrastructure services are almost entirely taken at the State level. Telecoms is the only sector served by a truly national utility – all other sectors are served by State entities. Infrastructure services are subject to marked differences across the States.

Infrastructure development in the FSM since Independence in 1986 has been supported by funding from the Compact agreements with the United States. The first Compact Agreement (1986-2001) largely failed in its aims of capacity building (though Pohnpei and Yap appear to have done better in power, water, and sanitation services during that period than the other two States). The second Compact Agreement (2004-2023) is better designed to support infrastructure capacity building than the first, with long term strategic planning and explicit criteria for infrastructure investment and maintenance. Initial disbursements under the second Agreement have been slow as the FSM national and state governments adjust to the new requirements. However, there are encouraging signs that the new requirements are having a desirable effect, combined with a perceptibly higher government priority for improving infrastructure services. The greatest degree of improvement can be seen in Chuuk, where new management of the State power and water utility, with support from the Compact, is coming to grips with chronic deficiencies in asset maintenance, metering and customer relations, land issues, and internal cash flow. In concert with generally heightened awareness of critical infrastructure issues in the country, the ADB Omnibus loan will provide financing for asset extension and renewal in water supply, sanitation, and power projects throughout the country.

However, infrastructure services in FSM still face some fundamental constraints. Firstly, regulatory capacity is largely undeveloped. Environmental regulatory agencies exist at the State level but all are under-funded and under-staffed in comparison to needs. (The exception in this area is Kosrae, where environmental regulation appears to be pro-active and well managed, despite insufficient funding.) There is little or no formal tariff regulation in the FSM, except in Pohnpei.

Maintenance of infrastructure assets in the FSM, a critical issue of long standing, remains a critical factor. Mechanisms are in place under the second Compact agreement to begin to address it, including mandated allocations to maintenance from approved infrastructure project budgets. However, poor maintenance will

continue to be a severe constraint on service delivery until gaps in skills (e.g., project preparation including engineering, cost estimation, financial control and budgeting, budget submission, and technical operations) are filled through training and institutional reform, and higher allocations to maintenance are made by government decision makers.

Infrastructure planning and project implementation is under the control of the national Infrastructure Plan Implementation Committee and its subsidiary State IPICs, though it does not appear that this arrangement has to date been effective in overcoming chronic constraints in planning, project preparation, and project supervision capacity. There is a lack of local skills in engineering and project supervision. This constrains also the country's ability to harness the private sector competitively in infrastructure investment or O&M services (the private sector commonly traditionally operates ports and stevedoring services in FSM, but not competitively).

Rigid national government or foreign private sector monopolies are in control of the strategic aviation and telecommunications sectors. In comparison with other countries in the Pacific, the FSM is severely lagging in terms of competitive market development in these sectors, and this limits access and raises the cost of such services to consumers in the FSM. Inter-island marine transport is extremely limited with one domestic passenger vessel (Yap does a notable job in providing State-supported domestic shipping services, but only within the State). Though there is considerable potential for tourism in the FSM, development is restricted due to the monopolies in the communications and transport markets, and a low government priority to marketing tourism overseas. Opening of these markets and advancement of tourism would likely have a considerable positive impact on the local economies of the FSM.

In sum, though infrastructure is well supported with external finance, service delivery improvement depends on further policy development, particularly in the areas of regulation and market liberalization, and capacity building in project planning and implementation.

1.1 Note on the Second Compact Agreement

For several decades after WWII, the FSM was a UN Trust Territory administered by the United States. The first US-FSM Compact agreement, designed to support the country to achieve economic and fiscal self-sufficiency upon independence in 1986, was in effect for 15 years to 2001. It provided open-ended budgetary support and a high degree of local discretion in allocation of funds. A second 20-year Compact agreement came into effect in 2004 and is administered by a 5 member Joint Economic Management Committee (JEMCO), with 3 members appointed by the US and 2 by the FSM. 30 percent of all expenditures under the second Compact must be allocated to infrastructure (including health and education as well as electricity, water supply, sanitation, and transport facilities). Further, each infrastructure project must provide 10 percent of total project costs to be set aside in a maintenance fund, half to be paid in from the Compact and half from FSM national and State government internal resources.

An Infrastructure Development Plan (IDP) was developed and adopted by the national government and the US Department of Interior in 2004 and is designed to guide infrastructure investments in the FSM. In particular, the IDP must ensure that Compact-funded infrastructure investments meet US requirements and meld efficiently with infrastructure investments funded from internal or other external sources. To oversee this process, a national Infrastructure Plan Implementation

Committee (IPIC) has been formed, with a subsidiary IPIC in each State. The Department of Transportation, Communications & Infrastructure (DTC&I) functions as the national IPIC secretariat. The national and State IPICs recommend government expenditures for infrastructure projects and address difficulties in project implementation, conduct public awareness activities, forward recommendations for Compact-funded investments in infrastructure to the JEMCO, prepare progress reports to the five governments on IDP implementation, and annually review the IDP and make adjustments as necessary.

Projects funded by the Compact are to be designed and administered by a Project Management Unit (PMU) reporting to the national government. In 2005, a Hawaii-based company was appointed to operate the PMU under a 2-year contract. Projects so far designed and submitted to national government by the PMU, however, have reportedly not conformed to priority requirements of the Agreement, particularly with respect to health and education sector developments, and the release of Compact funds has been severely held up. The company's 2-year contract has now expired, and it has reportedly applied for a 3 year extension which has to date not been approved. There is mounting frustration in the FSM with regard to the slow pace of implementation of the second Compact agreement.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>The telecom sector in all States is supplied by the national government monopoly, the FSM Telecom Corporation (FSMTC), which provides the sole land line, mobile (the majority of telephone connections are mobile), internet services and cable TV in the country.</p> <p>Mobile phone coverage is far from complete, even in the main islands. The number of cellphone customers is around 20,000 nationwide.</p>	<p>In Pohnpei, the power, water, and sanitation sectors are under the Pohnpei Utilities Corporation (PUC), a corporatized State-owned utility. Services are mainly limited to the urban area.</p> <p>In Kosrae, the water supply is managed by 5 non-corporatized entities. Few consumers are metered and none pays for water.</p> <p>In Chuuk, the water and sanitation sector is under the Chuuk Public Utility Corporation (CPUC), a corporatized State-owned utility, limited to the main island. A tariff for water supply and sewerage services was introduced in August 2007.</p> <p>In Yap, the urban water supply/sanitation sectors are under the Yap State Public Service Corporation (YSPSC). A second company serves a limited rural population on the main island.</p>	<p>In Pohnpei, the power sector is under the Pohnpei Utilities Corporation (PUC). Virtually all households in Pohnpei have access to electricity.</p> <p>In Kosrae, the power sector is under the Kosrae Utilities Authority (KUA), a fully corporatized and commercially-operated power utility. Access to electricity in Kosrae is nearly universal.</p> <p>In Chuuk, the power sector provider is the corporatized CPUC. Power is provided on the main island of Moen only.</p> <p>In Yap, the power sector is under the Yap State Public Service Corporation (YSPSC), a State-owned corporatized utility. Access to electricity in the main island of Yap is nearly 100%.</p>	<p>In Pohnpei, the roads sector is under the Pohnpei Transport Authority (PTA) under the Governor's Office. There is a 60-mile (96 km) circumferential coastal road, suffering moderate to severe degradation. Urban roads in Pohnpei are in poor condition.</p> <p>In Kosrae, roads are under the (non-corporatized) State Department of Transportation and Public Works. For some years, a circumferential road has been under construction, but is not yet complete. Japan has agreed to fund the remaining sections.</p> <p>In Chuuk, roads are under the (non-corporatized) State Division of Planning; there are no significant roads on the outer islands of Chuuk State. Maintenance work is carried out by Public Works.</p> <p>In Yap, the road sector is under the (non-corporatized) State Public Works Department (PWD)</p>	<p>Throughout FSM, the ports are operated by the respective States as international ports; only one government-operated port in each State.</p> <p>In Pohnpei, air and sea ports are under corporatized Pohnpei Ports Authority (PPA), 100% financially self-sufficient from ports fees. The PPA is the only such autonomous State authority in the FSM.</p> <p>In Kosrae, ports are under non-corporatized Kosrae Ports Authority (KPA) The KPA is financed by an annual government budget allocation; some ports fees are collected but do not cover costs.</p> <p>In Chuuk, the (non-corporatized) State Division of Planning does ports project development and supervision. Maintenance carried out by Public Works.</p> <p>In Yap, the (non-corporatized) State PWD does maintenance of the marine and airports.</p>	<p>The domestic shipping sector is very limited in the FSM. There is a passenger vessel owned and operated by the national government but it appears to be mainly for charter and does not undertake regular inter-State voyages. Cargo is delivered to each State direct from overseas exporting countries or by international shippers (Kwoya and Matsons) traveling State to State. There is no privately-held domestic commercial shipping capacity for inter-State voyages; inter-State passenger traffic is overwhelmingly by air. There is small intra-State marine traffic in Yap and Chuuk, between the main island and nearby outer islands, but this is generally not served commercially.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Community Service Obligations	There are no defined community service obligations in the telecoms sector.	There are no defined community service obligations in the water sector in any State.	There are no defined community service obligations in the power sector in any State.	There are no defined community service obligations in the roads sector in any State.	There are no defined community service obligations in the ports sector in any State.	There are no defined community service obligations in the domestic shipping sector in any State.
Regulatory Arrangements	There is no independent regulation of the telecoms sector in FSM. Exclusivity for FSMTC is protected in legislation; the prospects for liberalizing the telecom market in FSM with the competition that has so improved services in, say, Samoa seem remote.	<p>In Pohnpei, the Resident Properties and Public Utilities (RPPU) Commission regulates the tariffs of water, sanitation, and electricity.</p> <p>The Pohnpei Environmental Protection Agency (EPA) monitors water supply and effluent quality standards.</p> <p>In Kosrae, no water tariffs are charged and there is no economic regulation of the sector. The Kosrae Island Resource Management Authority (KIRMA) functions as the State's EPA.</p> <p>In Chuuk, water tariffs, are not regulated. Water quality monitoring is the responsibility of the State EPA.</p> <p>In Yap, water tariffs are not regulated. Water supply and effluent quality are monitored by the EPA.</p>	<p>In Pohnpei, the electricity tariff is regulated by the State-level Resident Properties and Public Utilities (RPPU) Commission.</p> <p>There is no regulation of the power sector in the other States. In Yap, Kosrae, and Chuuk, the electricity tariff is set by the respective utility Boards and approved by the State Legislatures.</p>	There are no regulatory arrangements for the roads sector in any State.	Ports fees are approved by the respective State Legislatures, and may only be changed by them. The ports sector is not otherwise regulated in any State.	There are no regulatory arrangements for the domestic shipping sector in any State.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	<p>There are no significant maintenance issues in the telecoms sector.</p>	<p>Low tariffs undercut PUC's ability to meet water supply and effluent quality standards.</p> <p>Sewage treatment plants are not well maintained and are not effective.</p> <p>Kosrae is in a severe fiscal crisis, causing a scaling back of State expenditures, including infrastructure maintenance. Water sector assets are poorly maintained and are in need of general overhaul (to be provided under the OIDP loan).</p> <p>In Chuuk, there are serious borehole issues. In addition, the distribution system is poorly maintained.</p>	<p>In Kosrae, there is considerable refurbishment work needed on the distribution feeders and on the main substation.</p> <p>In Chuuk, the present power system has been in an advanced state of disrepair for many years, due to insufficient cash flow and funding for maintenance.</p> <p>Power generation assets were installed in Yap (medium-speed Deutz machines) in the last 10 years. There do not appear to be significant maintenance issues.</p>	<p>In Pohnpei, resources for maintenance are allocated infrequently and only on an emergency basis. The PTA estimates that a steady core budget of \$200,000 per year would be required to maintain the primary and secondary roads properly.</p> <p>In Kosrae, roads maintenance attracts no steady support from the State. The roads department estimates that the core annual budget required to maintain the roads in Kosrae properly is about \$200,000 In Kosrae as in other States, roads maintenance has chronically been of low priority in State budget allocations.</p> <p>In Chuuk, engineering and maintenance supervision manpower is in short supply. Current annual budget of \$130,000 covers about 10 percent of needs</p> <p>In Yap, maintenance of the roads is adequately funded and the roads are adequately maintained.</p>	<p>In Pohnpei, there are no significant maintenance issues.</p> <p>In Kosrae, the State's budget allocation to ports is inadequate to cover even routine maintenance functions. There is no finance available for improvements, and the port is deteriorating. KPA does not retain fees collected at the marine port.</p> <p>There are no significant maintenance issues in regard to the port in Yap.</p>	<p>None identified.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	None identified.	<p>The ADB's Omnibus Infrastructure Development Project (OIDP) Loan includes a new STP for Pohnpei.</p> <p>In Kosrae, the OIDP loan will install water treatment facilities in all Municipal systems provided that they are transferred to the Kosrae Utilities Authority (KUA). All water consumers in Kosrae will be metered and pay a water tariff.</p> <p>In Chuuk, water metering has been completed and a tariff has recently been implemented. This will generate revenues for the CPUC which will allow funding of service improvements.</p> <p>In Yap, the OIDP loan will fund a major extension of the rural water supply, providing nearly 100% coverage in the main island.</p>	<p>In Pohnpei and Kosrae, electricity tariffs include an element that varies with fuel price, providing some protection to utilities from high imported fuel costs.</p> <p>In Kosrae, there is a substantial generating capacity reserve. 70 percent of KUA's customers are on pre-paid ('CashPower') meters.</p> <p>In Chuuk, some 1,360 pre-payment 'CashPower' meters have been installed (of a total customer base of about 2,300). Cash flow is greatly improved as a result.</p> <p>A series of containerized emergency generators have been procured and sited at the old power station under Emergency Rehabilitation funds.</p> <p>Management and technical support to CPUC will be funded by the Compact's Emergency Rehabilitation funds.</p>	<p>Roads maintenance in Chuuk is reportedly receiving more government attention and funding, though skilled personnel are in short supply.</p> <p>Roads maintenance appears to be adequate in Yap.</p>	<p>Port operations in Pohnpei are fully corporatized, costs are fully recovered from fees set by the Pohnpei Ports Authority, and the port is maintained to a good standard.</p> <p>In Kosrae, cargo traffic has fallen in the last 6 years, consistent with the drop-off in demand seen in the power sector (see section 4). However, the port authority is hopeful that a new emerging market in scrap metal and a potential new bottled water factory in Kosrae will lift the cargo traffic and make the port more commercially viable.</p>	None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>A national government monopoly throughout FSM has kept rates among the highest in the Pacific and service coverage low in comparison with Pacific countries that have introduced market liberalization and competition.</p> <p>Inter-State and international traffic is by satellite and capacity is critically limited.</p>	<p>In Pohnpei, water supply and sewerage charges are currently below cost, placing the utility under financial strain.</p> <p>In Kosrae, there is strong popular and political opposition to metering and paying a tariff for water, despite official awareness of the serious health issues.</p> <p>In Chuuk, the water supply is severely constrained by the failure of the borehole development project of the late 1990s. An ADB-financed consultant produced a report in March 2007 with recommendations for addressing this. The CPUC management is very keen to pursue resolution of these issues through the State and the ADB, particularly as the water supply is intended to become an increasing portion of total revenue.</p>	<p>In Kosrae, power sector assets are becoming run-down and in need of refurbishment.</p> <p>In Chuuk, there is a host of technical, financial, and management problems which have severely undermined power service delivery for many years, as described above in section 4.5. The most fundamental of the problems (poor cash flow, asset refurbishment, management issues) are now being addressed. The ODP loan, project, however, is not yet operational, but it is understood that the way is now clear for the project to commence.</p>	<p>In Pohnpei, a law was enacted to set up the PTA as an autonomous agency in 1999, with authority to collect road user fees (State fuel taxes and vehicle registration fees) into a road maintenance fund. The law, however, has not been implemented to date, apparently awaiting an Executive decision.</p> <p>In Pohnpei, Chuuk, and Kosrae, the roads sector appears to suffer most from limited awareness at top political levels of the strategic importance of good roads for the development of markets, support to private sector investment, and the creation of jobs.</p>	<p>Though stevedoring services are outsourced in Pohnpei, Kosrae, and Yap, there is effectively no competition for contracts, and performance could be improved.</p> <p>In Pohnpei, operational efficiency in the sea port is currently low.</p> <p>In Kosrae, there is no competition in the provision of stevedoring services. KTSC is profitable and is 100% Kosraean owned; ships offloading in Kosrae are required to have adequate cranes on board.</p>	<p>It appears that market conditions are not suitable to support a viable domestic shipping industry in the FSM.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> • Legislation protecting the national government utility's exclusivity as a service provider should be repealed; • Independent telecoms sector regulation (on the Samoa model) needs to be introduced; this will enable the issuance of competitive licenses for telecoms services in FSM to spur investment in the sector, broaden coverage, and reduce rates. 	<ul style="list-style-type: none"> • In Pohnpei, EPA capacity to monitor and enforce water supply and effluent quality standards needs to be strengthened. A CSO policy for the water supply is needed. • In Kosrae, there is to date no water supply entity to regulate. However, under KUA management, customers will be metered and tariffs on all users will be imposed. At that time, it will be necessary to regulate the water tariff and implement an appropriate CSO policy for the sector. • In Chuuk and Yap, there is no economic regulation of the water sector. Quality monitoring needs to be strengthened in both States. 	<ul style="list-style-type: none"> • In Yap, Chuuk, and Kosrae there is no regulatory capacity for the power sector. • There is no defined CSO policy for power in any State. 	<ul style="list-style-type: none"> • Roads maintenance budget preparation is poor or absent in Chuuk, Pohnpei, and Kosrae; there is essentially no budget in these States for routine (non-reactive) maintenance; • Roads performance and quality standards monitoring is presently absent and this will inhibit government confidence in any proposed roads maintenance budget; • There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing. 	<ul style="list-style-type: none"> • The ports authorities in Kosrae, Chuuk, and Yap are non-corporatized and subject to State budget allocations which are generally inadequate to ensure good maintenance; • The ports sector is not independently regulated in any State; • Contracts for ports services are non-competitive. Supervision of ports services contracts by the respective Ports Authorities (including Pohnpei) is evidently not adequate to ensure good performance, as there is evidence of operational inefficiency in all States. 	<ul style="list-style-type: none"> • None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Implement, with appropriate legislation, effective telecom price regulation in the FSM; the initial capacity for telecoms regulation could be extended at a later stage to other national sectors or could be replicated at the State level for regulation of other sectors (power, ports, water); • Invite international competition in mobile and internet services, with fair competitive access to the international gateway now controlled by FSMTC; • Develop a sound policy regarding Community Service Obligations for telecoms, for replication at the State level for ports, power, and water; • Increase the satellite capacity available to the FSM, and explore affordable options for connection to undersea cable capacity. 	<ul style="list-style-type: none"> • Design and implement sound CSO policy in all States; • Adjust the water sector tariff in Pohnpei (now underway via submission now before the RPPU); • Design and implement a tariff for water supply in Kosrae once transfer of sector management responsibility to the KUA is complete (provided under the ODP loan project); • Introduce State-level water sector economic regulation in Kosrae, Chuuk and Yap; • Address the raw water supply (borehole) problem in Chuuk (underway with ADB assistance). 	<ul style="list-style-type: none"> • Design and implement sound CSO policy in all States (for CSO policy reforms, see, section 2.8); • Improve power sector asset performance and efficiency in Kosrae; • Complete asset renewal and rehabilitation and institutional strengthening of the CPUC in Chuuk (underway under the ODP and Compact Rehabilitation programs) • Introduce State-level power sector economic regulation in Kosrae, Chuuk and Yap (for regulatory reform, see section 2.8); 	<ul style="list-style-type: none"> • Raise awareness in the Chuuk, Pohnpei, and Kosrae State governments of the strategic importance of maintaining roads standards; establish targets for roads standards that each of the States will agree to meet; • Establish an asset management system for roads in each State, to be operated and maintained by the respective roads authorities for all State roads including in the urban areas; • Increase outsourcing for roads maintenance in all States, on the Samoa model. 	<ul style="list-style-type: none"> • Corporatize ports operations in Kosrae, Chuuk, and Yap (legislation to this end has already been enacted in Kosrae but needs to be implemented); • Implement autonomous capacity to regulate the ports sector in all States to ensure equitability, fairness to investors, and full recovery of costs (for regulatory reform, see section 2.8); 	<ul style="list-style-type: none"> • None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Repeal the exclusivity protection of FSMTC currently in legislation; • Design and implement independent telecom price regulation; • Support the regulator's capacity building efforts and prepare to liberalize the telecom sector • Develop a sound policy regarding Community Service Obligations (CSOs). Note: ports, power, and water also need a CSO policy, but developed and implemented at the State level; • Explore options and costs at the regional level to increase satellite capacity over the north Pacific. 	<ul style="list-style-type: none"> • For steps leading to the development of CSO policy and regulatory reform, see section 2.9; • Other key reforms are being addressed. 	<ul style="list-style-type: none"> • For steps leading to the development of CSO policy and regulatory reform, see section 2.9; • Undertake a comprehensive review of the power sector in Kosrae (engineering and management) and prepare a project to lower costs and increase reliability through high-efficiency equipment replacements and substation refurbishment. • Other key reforms are being addressed. 	<ul style="list-style-type: none"> • Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the roads authorities in Chuuk, Pohnpei, and Kosrae to the respective State Legislatures; • Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; • Assess, with periodic updates, the assessment of the aggregate annual maintenance requirement of all roads under State responsibility; • Identify gaps in job functions and skills to fill required roles in road maintenance (including contracting and supervision) in each entity, and identify ongoing training resources. 	<ul style="list-style-type: none"> • Corporatization of the ports sector to proceed in Chuuk and Yap based on Pohnpei legislation; implementation of enacted legislation in Kosrae; • For steps leading to regulatory reform, see section 2.9. 	<ul style="list-style-type: none"> • None identified.

2 Telecoms

2.1 Sector Structure and Service Quality

The telecom sector in all States is supplied by the national government monopoly, the FSM Telecom Corporation (FSMTC), which provides the sole land line, mobile (the majority of telephone connections are mobile), and internet services in the country. The FSMTC also owns and operates nearly 100% of the cable TV services in FSM (though there is presently no cable TV service operating in Chuuk). The FSMTC Board comprises 5 members, one appointed by each of the 5 governments.

Mobile phone coverage is far from complete, even in the main islands. With four base stations in Chuuk, for example, FSMTC claims 65% coverage in Weno (the capital town), and 40% coverage on each of the nearby outer islands of Tonoas and Fefan. The number of cellphone customers is around 5,000 in Chuuk and around 20,000 nationwide. FSMTC is reportedly buying new equipment from China that will increase capacity to 50,000 cellphone subscribers. Wireless internet is provided only in Pohnpei so far, because the billing system there is more advanced than elsewhere. FSMTC plans to upgrade the billing systems in the other States to match, but the timing of this is uncertain.

2.2 Community Service Obligations

There are no defined community service obligations in the telecoms sector.

2.3 Regulatory Arrangements

There is no independent regulation of the telecoms sector in FSM. Exclusivity for FSMTC is protected in legislation; the prospects for liberalizing the telecom market in FSM with the competition that has so improved services in, say, Samoa seem remote.

2.4 Maintenance Issues

There are no significant maintenance issues in the telecoms sector.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

A national government monopoly throughout FSM in nearly all electronic communications services (landlines, mobile phones, internet services, and cable TV) protected by law has kept rates among the highest in the Pacific and service coverage low in comparison with Pacific countries that have introduced market liberalization and competition.

Inter-State and international traffic is by satellite and capacity is critically limited. The US Army is building an undersea fiber cable that will connect Kwajalein Atoll (a military base in the Marshall Islands) with Guam, via Pohnpei. FSMTC reports that the cost of connecting all four States to this cable will be of the order of \$100 million, cost to be borne by FSM. No decision on this investment has been made.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Legislation protecting the national government utility's exclusivity as a service provider should be repealed;
- Independent telecoms sector regulation (on the Samoa model) needs to be introduced; this will enable the issuance of competitive licenses for telecoms services in FSM. Based on experience in neighboring countries, this will spur investment in the sector, broaden coverage, and reduce rates.

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Implement, with appropriate legislation, effective telecom price regulation in the FSM; the initial capacity for telecoms regulation could be extended at a later stage to other national sectors (grow to a national multi-sector regulator for, e.g., domestic shipping) or, alternatively could be replicated at the State level for regulation of other sectors (power, ports, water);
- Adopt a clear and arm's length policy inviting international competition in mobile and internet services, with fair competitive access to the international gateway now controlled by FSMTC;
- Develop a sound policy regarding Community Service Obligations for telecoms, for replication at the State level for ports, power, and water;
- Increase the satellite capacity available to the FSM, and explore affordable options for connection to undersea cable capacity.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Repeal the exclusivity protection of FSMTC currently in legislation;
- Design and implement independent telecom price regulation (TA probably required; implementation by end 2008)¹:
 - Under the auspices of the FSM Department of Transport, Communications, and Infrastructure (DTCI), form a Steering Committee of key stakeholders to oversee the process of capacity building in regulation for the telecom sector;
 - Arrange stakeholder workshops to review the role and legislation of similar organizations in the Pacific (e.g., the Office of the Regulator in Samoa, the ICCC in PNG);

¹ Refer to the working paper on Regulation and Governance for further discussion of the concept and role of 'independent regulation'.

- Develop stakeholder consensus of the regulator's role, for review by higher authorities of the government as required;
- Define the institutional structure and resource requirements and identify job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
- Draft legislation for the creation and empowerment of telecom regulation in the FSM, with explicit recognition of the efficacy of competition and the necessity of sound policy and enforcement of community service obligations, for consideration of the Cabinet and enactment by the national Legislature;
- Once the telecom price regulator is established, support the regulator's capacity building efforts and prepare to liberalize the telecom sector (TA to assist if requested; implementation by end 2009):
 - Prepare a manual of public enterprise monitoring procedures, protection of service providers' and consumers' rights in competitive markets, and a manual of telecom price regulation;
 - Arrange periodic internal workshops to ensure that the regulator's staff have a clear understanding of their role and are properly applying the procedures of public enterprise regulation;
 - Determine what operating guidelines will be required to support competition and the development of the market, and commence drafting the guidelines. Finalization of the guidelines will require consultation with market participants, once drafted.
 - Invite tenders and prepare to issue competitive licenses for telecoms services throughout the FSM (utilizing the experience and possibly the assistance of neighboring countries that have successfully implemented market liberalization, e.g., Samoa and Fiji).
- Under the auspices of the DTCL, develop a sound policy regarding Community Service Obligations (CSO) in the telecoms sector. (TA required, completion by end 2008). **Note:** other services, including ports, power, and water also need a CSO policy, but since they are all State services, this would be developed and implemented at the State level, possibly with DTCL assistance. The respective State CSO policies can be based on the CSO policy for telecoms developed hereunder²:
 - Review business activities and identify activities or services in the sector that are not commercially sustainable as a separate business line or service.
 - Identify the amount of additional revenue each service provider would require (taking into account the benefits of shared overhead costs and scale and scope and factoring in an appropriate risk premium) to

² Under regulation and market liberalisation, it is assumed that there will be more than one telecoms service provider operating in FSM.

- continue the non commercial business line or service. Specify the outputs and performance measures to be provided for the required additional revenue;
- Prepare a report identifying the non-commercial activities and the cost to continue them, upon which the government will base decisions on which activities the government will continue to purchase or fund as CSOs;
 - The service providers will negotiate with the DTCl the terms and conditions under which the service or business line would continue as CSOs;
 - Once the service providers and DTCl have agreed the details of the CSOs and costs/funding required, prepare a final report on the agreed position for government approval;
 - In implementing the CSO policy, the government will direct the state owned enterprise operating in the sector not to undertake activities that are not funded under either as commercial activities or explicitly under a CSO.
- Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to increase satellite capacity over the north Pacific.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

In Pohnpei, the power, water, and sanitation sectors are under the Pohnpei Utilities Corporation (PUC), a corporatized State-owned utility. Apart from six outer islands with very small populations, the entire State population resides on the main island of Pohnpei. The reticulated water supply mainly serves the urban area but is gradually being extended to communities along the coast. Raw water is taken from a combination of borehole and surface water sources. Sewage collection and treatment facilities are currently limited to the urban area. There are three sewage treatment plants (including one for the national capital complex at Palikir), all operated and maintained by the PUC.

In Kosrae, the water supply is managed by five entities (all non-corporatized): the State PWD (operating a number of treated boreholes in Tafunsak) and the Municipalities of Lelu, Utwe, Malem, and Walung. The Municipalities all operate surface water gravity-fed distribution systems. Few consumers are metered and none pays for water. Apart for the borehole supplies operated by the PWD, none of the water supply is treated. Water supply contamination and water borne diseases are serious health issues in Kosrae.

In Chuuk, the water and sanitation sector is under the management of the Chuuk Public Utility Corporation (CPUC), a corporatized State-owned utility which is also responsible for power. The sewage treatment plant in the urban centre in Chuuk (Weno) is derelict and does not operate at present, but is to be rehabilitated with US Compact funding. Water users in Chuuk are now metered (main island only) but traditionally have paid flat rates, with many users not charged at all. The CPUC began to charge a tariff for water supply and sewerage services to 5,000 customers in August 2007. The tariff is modeled on that currently charged by the Pohnpei PUC. The water supply in Weno is untreated and is not potable.

In Yap, the power and urban water supply/sanitation sectors are under one utility, the Yap State Public Service Corporation (YSPSC). There is a second water supply company that provides water service to a limited rural population on the main island. As in Pohnpei, the water and sewerage tariff is not sufficient to cover costs, and these services are cross-subsidized by power revenues.

3.2 Community Service Obligations

There are no defined community service obligations in the water sector in any State.

3.3 Regulatory Arrangements

In Pohnpei, the Resident Properties and Public Utilities (RPPU) Commission, a State regulatory agency appointed by the Governor, regulates the tariffs of public infrastructure services, including water, sanitation, and electricity. A PUC-sponsored tariff review in 2005 recommended an approximately 200% increase in the combined water and sewerage tariff, including a 30% increase in the water supply tariff. The PUC Board of Directors has proposed to the RPPU that the tariff for water supply and for sewerage be separated (i.e., the sewerage charge applied only to those connected to the sewer system) and set to recover operations, maintenance, and management (OMM) costs only, with recovery of depreciation or capital finance charges to be subsidized by the State. The applicable OMM-only tariff levels are

currently being calculated by the PUC. The timing for tariff consideration by the RPPU is not known.

The Pohnpei Environmental Protection Agency (EPA) is under-financed and understaffed to meet its mandate to enforce water supply and effluent quality standards, according to EPA management. The Agency has the responsibility to inspect household septic tank installations and enforce standards, but has not been able to keep up with this. Water supply and wastewater effluent quality standards have not met regulations for a considerable time; the PUC has the responsibility to carry out periodic quality tests and report the results to the EPA but do not. The EPA is authorized to levy fines on PUC for non-compliance but have not to date done so, in recognition that the PUC is struggling financially. The State government has not intervened in the issue to date. Quality standards enforcement thus appears to be continuing in a longstanding stalemate. A stronger signal from the EPA of determination to enforce regulations would likely get things moving.

In Kosrae, no water tariffs are charged and there is no economic regulation of the sector. The Kosrae Island Resource Management Authority (KIRMA) functions as the State's EPA and land and resource conservation agency. KIRMA is responsible for all environmental permitting for public and private sector investment projects in the State. KIRMA is responsible for raw water and delivered water quality testing, but presently has no equipment to carry this out. The RUS has provided a building for a testing lab but funding for equipment has so far not been secured. There is as yet no baseline data on water quality in Kosrae.

KIRMA collects no fees for services but is supported by allocations from the State budget. According to management, the allocations are not adequate to fulfill KIRMA's environmental mandate, and there is a shortage of skilled staff. KIRMA clearly has the management capacity and motivation to carry out its environmental functions but is constrained by a restrictive budget. Greater autonomy for KIRMA and authority to collect and manage its own fees for services would ease this constraint, to the benefit of the environment, land use planning, and investment in the State.

In Chuuk, water tariffs, which have only very recently been introduced, are not regulated. Water quality monitoring is the responsibility of the State EPA. Sewage effluent is presently not treated before discharge to the ocean, and is not monitored.

In Yap, water tariffs are not regulated. Water supply and effluent quality are not well monitored as the State EPA is under-funded and understaffed to carry out this function effectively.

3.4 Maintenance Issues

In Pohnpei, according to PUC management, the present tariffs for water/sanitation and for power are not sufficient to cover the full costs of asset maintenance, and undercut PUC's ability to meet water supply and effluent quality standards.

There is one sewage treatment plant (STP) in town, heavily overloaded due to high levels of storm water inflow and infiltration. Pump station overflows in town are frequent. Ultimate discharge is through an ocean outfall, and according to the EPA, it is likely that effluent quality does not meet standards (though only limited testing is done). There is a second STP serving the national capital complex at Palikir; this too is under the control of the PUC, but is not operating effectively. A third STP serves the Pohnpei Fisheries Corporation and portion of the seaport area and is under the control of the PUC, but is again not operating effectively.

The State Government of Kosrae is in a severe fiscal crisis, with a deficit of about \$1.5 million inherited from the previous administration. A new Governor took office in February 2007. The deficit is causing a scaling back of State expenditures across the board, including support to infrastructure and maintenance. Water sector assets are poorly maintained and are in need of general overhaul (to be provided under the ODP loan).

In Chuuk, which is entirely dependent on groundwater sources, there are serious borehole issues (see below). In addition, the distribution system is poorly maintained and water losses are likely to be high (the actual rate of water loss is not yet known, as consumption meters have only very recently begun to be read).

In Yap, the status of water asset maintenance is not known.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

The ADB's Omnibus Infrastructure Development Project (ODP) Loan to the national government includes a new STP for the urban area of Pohnpei, to be located near the airport. Though the loan was approved in 2004, disbursements have not begun, due to delays in the appointment of a Project Implementation Unit (PIU). It has been difficult for the national Implementing Agency, the Department of Transport, Communications and Infrastructure, to recruit suitable skills in project management and engineering.

In **Kosrae**, the ADB-financed ODP loan is designed to install water treatment facilities in all of the Municipal systems (except for Lelu, which was to be developed under a separate project funded by the Rural Utility Service (RUS) of the US Department of Agriculture) provided that the systems are transferred to the management of the Kosrae Utilities Authority (KUA). Under the plan approved by the Kosrae and National governments in 2004, all water consumers in Kosrae would be metered and would pay a water tariff that would be gradually raised to achieve full cost recovery over an agreed period. To date, however, the water supply systems have not been transferred to the KUA, and hence neither the ODP nor the RUS water treatment projects have begun implementation.

In Chuuk, water metering has been completed and a tariff has recently been implemented. This will generate revenues for the CPUC which will allow funding of service improvements.

In Yap, the ODP loan will fund a major extension of the rural water supply, providing nearly 100% coverage in the main island.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

In Pohnpei, water supply and sewerage charges are currently below cost, placing the utility under financial strain and limiting expenditures on maintenance and asset renewal; performance is suffering, particularly in the sanitation sector.

In Kosrae, there is strong popular and political opposition to the concept of metering and paying a tariff for water, which has traditionally been provided free. The opposition remains despite awareness at the State level of the serious health issues. When the ODP was being developed in 2003, the need for a concerted public relations and awareness campaign on health and sanitation issues and on the costs of supplying and delivering treated water (and hence the need for metering and a tariff) was recognized and was part of the proposed implementation program, to be

carried out by the State as the transfer to KUA went into effect. The need for such a campaign now appears to be even more urgent and should be started as soon as possible.

In Chuuk, the water supply in Weno has been severely constrained by the failure of the ADB-financed borehole development project of the late 1990s, which produces little more than 30 percent of its intended output, much of it contaminated. The majority of new boreholes, it seems, are poorly sited (e.g., in populated areas where local groundwater is contaminated or in seafront areas where salt intrusion is high). An ADB-financed consultant visited Chuuk in November 2006 to investigate the problems with this project, and produced a report in March 2007 with options and recommendations for addressing them. The CPUC management is very keen to pursue resolution of these issues through the State and the ADB, particularly as the water supply is intended to become an increasing portion of total revenue.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- In Pohnpei, the capacity of the EPA to monitor and enforce water supply and effluent quality standards needs to be strengthened. A CSO policy for the water supply is needed.
- In Kosrae, there is to date no water supply entity to regulate. Once the ODP loan water supply project is completed, however, the water sector will be under the Kosrae Utilities Authority, customers will be metered, and tariffs on all users will be imposed. At that time, it will be necessary to regulate the water tariff and implement an appropriate CSO policy for the sector.
- In Chuuk and Yap, there is no economic regulation of the water sector. Quality monitoring needs to be strengthened in both States.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Design and implement sound CSO policy in all States (for CSO policy reforms, see above, section 2.8);
- Adjust the water sector tariff in Pohnpei (now underway via submission now before the RPPU);
- Design and implement a tariff for water supply in Kosrae once transfer of sector management responsibility to the KUA is complete (provided under the ODP loan project);
- Introduce State-level water sector economic regulation in Kosrae, Chuuk and Yap (for regulatory reform, see above, section 2.8);
- Address the raw water supply (borehole) problem in Chuuk (underway with ADB assistance).

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For steps leading to the development of CSO policy and regulatory reform, see above, section 2.9;
- Other key reforms are being addressed.

4 Power

4.1 Sector Structure and Service Quality

In Pohnpei, the power sector is under the Pohnpei Utilities Corporation (PUC). A sealed coastal road around the main island connects all communities with the State capital, Kolonia. A 13.8 kV electricity distribution line follows the ring road; virtually all households in Pohnpei have access to electricity. The current power tariff averages \$0.36/kWh, including a component that varies with international fuel prices. (Revenues from electricity cross-subsidize the PUC's water supply and sanitation operations.)

In Kosrae, the power sector is under the Kosrae Utilities Authority (KUA), a fully corporatized and commercially-operated power utility. When established in the mid-1990s, the KUA was intended also to take over water supply services, but as mentioned above, this has not yet happened. Access to electricity in Kosrae is nearly universal: there are two main feeders extending as far as possible in each direction along the circumferential coast road and reach almost all households. Only the village of Walung is not served, because the road has not been completed along that section of the coast. The average electricity tariff, which has a component that varies with international fuel prices, is currently about \$0.29/kWh, considerably lower than the tariff in Pohnpei. Despite the fuel adjustment component, KUA operates at a loss.

In Chuuk, the power sector provider is the corporatized CPUC. Power is provided on the main island of Moen only. The Corporation has long been suffering from severe metering, billing, and revenue collection problems, very poor cash flow, and poor maintenance of assets which at times have become dysfunctional. The ODP loan component for Chuuk is focused on the power sector and provides a new power station, distribution system refurbishment, metering, and institutional strengthening of the CPUC.

In Yap, the power sector is under the Yap State Public Service Corporation (YSPSC), a State-owned corporatized utility. Access to electricity in the main island of Yap is nearly 100%.

4.2 Community Service Obligations

There are no defined community service obligations in the power sector in any State.

4.3 Regulatory Arrangements

In Pohnpei, the electricity tariff is regulated by the State-level Resident Properties and Public Utilities (RPPU) Commission.

There is no regulation of the power sector in the other States. In Yap, Kosrae, and Chuuk, the electricity tariff is set by the respective utility Boards and approved by the State Legislatures.

4.4 Maintenance Issues

In Kosrae, there is considerable refurbishment work needed on the distribution feeders and on the main substation (built on wooden poles and has now begun to teeter), but no funding has been identified for this.

In Chuuk, the present power system has been in an advanced state of disrepair for many years, due to insufficient cash flow and funding for maintenance. Cash flow is now improving due to prepayment metering (see below) and emergency rehabilitation works are underway. The OIDP loan also addresses asset replacement and refurbishment, and institutional strengthening of the CPUC, which will improve maintenance and sustainability of the sector.

Power generation assets were installed in Yap (medium-speed Deutz machines) in the last 10 years. There are no significant maintenance issues.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

In Pohnpei and Kosrae, electricity tariffs have recently been re-formulated to include an element that varies with fuel price, providing some protection to utilities from high imported fuel costs.

In Kosrae, there is a substantial generating capacity reserve: total installed capacity (7 engines) of 5.6 MW against a peak demand of 1.2 MW, though most of the engines are old and inefficient. Demand has been declining steadily over the past six years; in 2001, peak demand stood at over 2.0 MW. During the period, a large US Army Corp of Engineers camp, the CAT team, departed Kosrae, and economic growth has been otherwise stagnant. 70 percent of KUA's customers are on pre-paid ('CashPower') meters. According to management, the introduction of pre-paid metering in itself contributed to a reduction in demand.

Despite the declining demand, in 2005 KUA purchased and installed a new 1 MW engine because of its much higher fuel efficiency (about 15.5 kWh/gallon vs. about 12.5 kWh/gal typical of the older engines). KUA supplies nearly the entire load with the new engine and estimates that about \$100,000 is saved annually in fuel costs. The KUA have also fitted new radiators on all engines that will improve efficiency when the older engines are called back into service, and will install a solar-powered generation system on the sides of large buildings, with funding from the EU, that will feed into the grid. There is hydro potential in Kosrae, but development of this has reportedly been blocked due to environmental concerns.

In Chuuk, some 1,360 pre-payment 'CashPower' meters have been installed (of a total customer base of about 2,300) and enough CashPower meters have since been purchased to complete the job. Nearly 100% prepayment metering is now expected to be completed by the end of 2007, except for about 50 3-phase customers (which, due to the high cost of 3-phase CashPower meters, will take a number of years to accomplish). Present arrears to the CPUC (mainly from the government and households) stand at approximately \$1.5 million. The arrears are being gradually reduced by imposition of a CPUC surcharge to customers with arrears (e.g., \$20 paid by a CashPower customer will purchase \$10 of electricity, until the arrears are paid off).

A series of containerized emergency generators have been procured and sited at the old power station under Emergency Rehabilitation funds authorized under the Compact, and are now providing power to Weno. The engines, however, are second-hand and are fuel inefficient. Though cash flow has improved due to the new meters, the CPUC has had difficulty in procuring enough fuel and supply interruptions have been frequent. The engines to be procured for the new power station under the OIDP loan are expected to be approximately 30 percent more fuel efficient and will reduce operating costs.

In conjunction with ODP, a multi-year contract to provide external professional management and technical support to CPUC focusing on Operations, Maintenance, and Management (OMM) will be pursued for (probably) 5 years by the CPUC with State assistance (2 years of the contract (\$700,000) will be funded by the Compact's Emergency Rehabilitation funds).

The original site proposed for the new power station financed by the ADB loan was an area on the main dock in Weno. For reasons that remain unclear, this site had been thrown into doubt by the State government, but it has now been re-selected as the site, thus resolving what had been a serious obstacle to implementation of the loan.

CPUC management claim that they have come to grips with longstanding land issues, which in the past prevented line maintenance (especially tree trimming) and even CPUC access to premises to read meters and maintain assets. From a concerted CPUC effort to meet with landowners, these issues have become far less serious than they were as recently as 2004. CPUC expect to receive about \$650,000 worth of distribution system rehabilitation equipment which will reduce losses and improve line reliability. Present technical losses in the distribution system are estimated at 20% of gross generation, due largely to a prevalence of under- and over-loaded transformers, foliage obstruction, and loose connections.

There is a certain number of large-consumer households (landowners) who have traditionally received free power from the CPUC. Though little progress has been made in getting these landowners to pay for power, the CPUC claims that they are closer to an agreement with government to transfer the cost of these accounts to the State. A more permanent solution to this festering problem, however, will involve a policy of gradually (with appropriate public awareness efforts) transforming free-power connections to paying customers.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

In Kosrae, power sector assets are becoming run-down and in need of refurbishment.

In Chuuk, there is a host of technical, financial, and management problems which have severely undermined power service delivery for many years, as described above in section 4.5. The most fundamental of the problems (poor cash flow, asset refurbishment, management issues) are now being addressed. The ODP loan, project, however, is not yet operational, but it is understood that the way is now clear for the project to commence.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- In Yap, Chuuk, and Kosrae there is no regulatory capacity for the power sector.
- There is no defined CSO policy for power in any State.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Design and implement sound CSO policy in all States (for CSO policy reforms, see above, section 2.8);
- Improve power sector asset performance and efficiency in Kosrae
- Complete asset renewal and rehabilitation and institutional strengthening of the CPUC in Chuuk (underway under the ODP and Compact Rehabilitation programs)
- Introduce State-level power sector economic regulation in Kosrae, Chuuk and Yap (for regulatory reform, see above, section 2.8);

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For steps leading to the development of CSO policy and regulatory reform, see above, section 2.9;
- Undertake a comprehensive review of the power sector in Kosrae (engineering and management) and prepare a project to lower costs and increase reliability through high-efficiency equipment replacements and substation refurbishment. (TA support required. Project preparation by end 2008).
- Other key reforms are being addressed.

5 Roads

5.1 Sector Structure and Service Quality

In Pohnpei, the roads sector is under the Pohnpei Transport Authority (PTA) under the Governor's Office. Roads maintenance receives no routine State budget allocation at all, apart from personnel salaries (there are 60 people presently on the payroll of the PTA). There is a 60-mile (96 km) circumferential coastal road that is sealed along its entire length, but is suffering moderate to severe degradation. Urban roads in Pohnpei are in poor condition; in common with other States, the priority of roads maintenance in Pohnpei has been chronically low. Drains exist in the urban road network but are blocked up and road flooding during rains is frequent.

In Kosrae, the roads sector is under the (non-corporatized) State Department of Transportation and Public Works. There has been to date no consideration of establishing an autonomous or semi-autonomous roads authority in Kosrae, though the idea has been enacted (if not implemented) in Pohnpei. For some years, a circumferential road has been under construction, but is not yet complete. Japan has agreed to fund the remaining sections; design work is presently underway. A Japanese grant of \$16 million will fund the road construction and will also provide heavy maintenance equipment to the State.

In Chuuk, the roads sector is under the (non-corporatized) State Division of Planning which has responsibility for project development and supervision for roads and ports on Moen; there are no significant roads on the outer islands of Chuuk State. Maintenance work is carried out by Public Works. In common with Pohnpei and Kosrae, routine road maintenance funding is essentially nil; the roads in the urban centre and throughout outlying areas on the island of Moen have been in very poor shape. However, roads rehabilitation has lately received more attention and funding and there is some promise that at least the urban road system will shortly be improved.

In Yap, the road sector is under the (non-corporatized) State Public Works Department (PWD) and receives adequate maintenance (funded at \$150,000/year), unlike any of the other States in the FSM.

5.2 Community Service Obligations

There are no defined community service obligations in the roads sector in any State.

5.3 Regulatory Arrangements

There are no regulatory arrangements for the roads sector in any State.

5.4 Maintenance Issues

In Pohnpei, resources for maintenance are allocated infrequently and only on an emergency basis. Each maintenance operation must be funded against a specific request from the PTA, and there are often delays of a year or more between the request and the allocation. The PTA estimates that a steady core budget of \$200,000 per year would be required to maintain the primary and secondary roads properly.

In Kosrae, roads maintenance attracts no steady support from the State; the most recent roads maintenance funds were allocated in 2005. The roads department estimates that the core annual budget required to maintain the roads in Kosrae

properly is about \$200,000 (coincidentally the same as the amount estimated by the PTA for Pohnpei). A factor that makes roads maintenance more expensive than elsewhere is that due to inadequate local geological conditions, aggregate for major operations (including new construction) is imported from overseas. Nevertheless, in Kosrae as in other States, roads maintenance has chronically been of low priority in State budget allocations.

In Chuuk, engineering and maintenance supervision manpower is in short supply. Because of the rehabilitation work going on with Compact support, demands on the Planning Division have increased many fold (from “small scale projects” to “multi-million dollar projects” overnight) but staffing and capacity have not increased commensurately. With only 6 project inspectors and 1 technical consultant, there is a crippling local capacity shortfall in State-level project management. The Division’s budget depends on allocations from the State Legislature. Its current annual budget of \$130,000 covers about 10 percent of needs, according to management; there is an urgent need for higher skills, particularly in engineering. Anticipated funded projects which the Planning Division will be required to support include a \$1.7 million project to repair cyclone damage to the port financed by the US federal relief agency, FEMA, \$4 million in port improvements financed by Japan, and 2 miles of urban roads rehabilitation financed by the Compact.

In Yap, maintenance of the roads is adequately funded and the roads are adequately maintained.

Maintenance work is not outsourced in any State.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

Roads maintenance in Chuuk is reportedly receiving more government attention and funding, though skilled personnel are in short supply.

Roads maintenance appears to be adequate in Yap.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

In Pohnpei, a law was enacted to set up the PTA as an autonomous agency in 1999, with authority to collect road user fees (State fuel taxes and vehicle registration fees) into a road maintenance fund. The law, however, has not been implemented to date, apparently awaiting an Executive decision.

In Pohnpei, Chuuk, and Kosrae, the roads sector appears to suffer most from limited awareness at top political levels of the strategic importance of good roads for the development of markets, support to private sector investment, and the creation of jobs.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads maintenance budget preparation is poor or absent in Chuuk, Pohnpei, and Kosrae; there is essentially no budget in these States for routine (non-reactive) maintenance;

- Roads performance and quality standards monitoring is presently absent (the tools of asset management do not exist in the States), and this will inhibit government confidence in any proposed roads maintenance budget;
- There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing; the respective roads authorities (in Chuuk, the Planning Division) should gradually assume mainly a contracting and performance monitoring role.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Raise awareness in the Chuuk, Pohnpei, and Kosrae State governments of the strategic importance of maintaining roads standards; establish targets for roads standards that each of the States will agree to meet;
- Establish an asset management system for roads in each State, to be operated and maintained by the respective roads authorities for all State roads including in the urban areas;
- Increase outsourcing for roads maintenance in all States, on the Samoa model.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following. (TA support to all States through the office of the national DTCl required. Steps to be accomplished by mid-2009 in all States):

- Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the roads authorities in Chuuk, Pohnpei, and Kosrae to the respective State Legislatures, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; categorize roads by type and use; and prepare a manual for operation and maintenance of the asset register and roads maintenance management system; the asset management system would be operated and maintained by the respective State roads authorities;
- Identify annual maintenance requirements per km for each type of road under State responsibility;
- Assess, with periodic updates, the aggregate annual maintenance requirement of all roads under State responsibility;
- Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision;

- Taking account of the institutional structure and resource requirements of the road maintenance entities within the States, identify gaps in job functions and skills to fill their required roles (including in relation to contracting and supervision) in each entity, and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
- Arrange periodic internal workshops to ensure that road authority staff in all States have a clear understanding of their roles and are properly applying the procedures of asset management and contract supervision.

6 Ports

6.1 Sector Structure and Service Quality

Throughout FSM, the ports are operated by the respective States as international ports; there is effectively no domestic (inter-State) shipping service (see section 7). There is only one government-operated port in each State.

In Pohnpei, air and sea ports are under the management of the corporatized Pohnpei Ports Authority (PPA), which is 100% financially self-sufficient from ports fees. The PPA is the only such autonomous State authority in the FSM – ports in the other States are departments under the respective public works departments or government infrastructure offices.

In Kosrae, the ports sector is under the non-corporatized Kosrae Ports Authority (KPA) which, as in Pohnpei, controls both the marine port and the airport. The KPA is principally financed by an annual government budget allocation; ports fees are collected but, being the lowest in FSM, they do not cover costs. Legislation has been enacted to corporatize the KPA but (similar to the Pohnpei Transport Authority), the legislation has not been implemented. Recently, however, a Board of Directors for the KPA has been appointed by the State. The State sets ports fees and these have not been changed for many years.

In Chuuk, the (non-corporatized) State Division of Planning has responsibility for ports sector project development and supervision (together with roads). Maintenance and operations are carried out by Public Works.

In Yap, the (non-corporatized) State PWD is responsible for maintenance of the marine and airports in the State.

6.2 Community Service Obligations

There are no defined community service obligations in the ports sector in any State.

6.3 Regulatory Arrangements

Ports fees are approved by the respective State Legislatures, and may only be changed by them. The ports sector is not otherwise regulated in any State.

6.4 Maintenance Issues

In Pohnpei, for the air and sea ports, any maintenance operation that exceeds \$5,000 in value is outsourced to private companies. There are no significant maintenance issues in regard to the port in Pohnpei.

In Kosrae, the State's budget allocation to ports is intended to cover operational expenses (mainly personnel) but is inadequate to cover even routine maintenance functions. There is no finance available for improvements or extensions to either the marine port or the airport, and both are deteriorating. Though the KPA collects and retains airport fees (landing fees and departure taxes), it does not retain fees collected at the marine port, which are paid directly into the State's consolidated revenue fund.

The maintenance status of the port in Chuuk is not known.

There are no significant maintenance issues in regard to the port in Yap. Stevedoring services are provided by the private WAAB Transportation Co., which with about 100 personnel also engages in contract construction and sand dredging activities. WAAB Transportation owns and maintains its own equipment, but leases the main wharf from the State (the wharf itself is maintained by the PWD).

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

Port operations in Pohnpei are fully corporatized, costs are fully recovered from fees set by the Pohnpei Ports Authority, and the port is maintained to a good standard. The PPA is planning an (as yet unfunded) project to deepen and widen the Pohnpei sea port basin to improve ship movement efficiency.

In Kosrae, cargo traffic has fallen considerably in the last 6 years: whereas 50-60 containers were handled per landing through the 1990s, currently throughput per voyage is 16-17 containers. This is consistent with the drop-off in demand seen in the power sector (see above section 4). However, KTSC is hopeful that a new emerging market in scrap metal (see related discussion under KIRMA above) and a potential new bottled water factory in Kosrae will lift the cargo traffic.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Though stevedoring services are outsourced in Pohnpei, Kosrae, and Yap, there is effectively no competition for contracts, and performance could be improved.

In Pohnpei, operational efficiency in the sea port is currently low. Ports facilities and equipment are leased by the private stevedoring company from the PPA. Stevedoring rates are not regulated, but are approved by the PPA Board.

In Kosrae, stevedoring functions at the marine port are likewise carried out by a private company, the Kosrae Terminal Stevedoring Co. (KTSC), which leases the port, storage facilities, and lifting equipment from the State. As in other States, there is no competition in the provision of stevedoring services. KTSC is profitable and is 100% Kosraean owned, with shares held by 545 individuals (no direct government ownership). The company sets the fees charged for ports services, but these must be approved by the State government. KTSC is not responsible for maintenance of the port, which is borne by the KPA, apart from the storage facility. Most of the lifting capacity consists of a 25-tonne forklift which was donated by Japan; ships offloading in Kosrae are required to have adequate cranes on board.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the ports sector include the following:

- The ports authorities in Kosrae, Chuuk, and Yap are non-corporatized and subject to State budget allocations which are generally inadequate to ensure good maintenance;
- The ports sector is not independently regulated in any State;
- Contracts for ports services are non-competitive. Supervision of ports services contracts by the respective Ports Authorities (including Pohnpei) is evidently not adequate to ensure good performance, as there is evidence of operational inefficiency in all States.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Corporatize ports operations in Kosrae, Chuuk, and Yap (legislation to this end has already been enacted in Kosrae but needs to be implemented);
- Implement autonomous capacity to regulate the ports sector (fees charged to shippers by ports authorities and fees charged by stevedoring service providers to ports authorities), in all States to ensure equitability, fairness to investors, and full recovery of costs (for regulatory reform, see above, section 2.8);

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following (no TA support required):

- Corporatization of the ports sector to proceed in Chuuk and Yap based on legislation enacted Pohnpei; implementation of enacted legislation in Kosrae;
- For steps leading to regulatory reform, see above, section 2.9.

7 Shipping

7.1 Sector Structure and Service Quality

The domestic shipping sector is very limited in the FSM. There is a passenger vessel owned and operated by the national government, the *FSM Voyager*, but it appears to be mainly for charter and does not undertake regular inter-State voyages. Cargo is delivered to each State direct from overseas exporting countries or by international shippers (Kwoya and Matsons) traveling State to State. There is no privately-held domestic commercial shipping capacity for inter-State voyages; inter-State passenger traffic is overwhelmingly by air. There is small intra-State marine traffic in Yap and Chuuk, between the main island and nearby outer islands, but this is generally not served commercially.

7.2 Community Service Obligations

There are no defined community service obligations in the domestic shipping sector.

7.3 Regulatory Arrangements

There are no regulatory arrangements for the domestic shipping sector in any State.

7.4 Maintenance Issues

None identified.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

It appears that market conditions are not suitable to support a viable domestic shipping industry in the FSM.

7.7 Key Regulatory Challenges

None identified.

7.8 Priorities for Improving Service Delivery

None identified.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

None identified.

8 Annex: Country Consultation Report

FEDERATED STATES OF MICRONESIA

The RETA Team visited the State capitals of Pohnpei, Kosrae, Chuuk and Yap from 2 through 13 July. Discussions were held with (not in order):

- **FSM National Government**
 - FSM Department of Transportation, Communications and Infrastructure
 - FSM Development Bank
 - FSM Department of Economic Affairs
 - FSM Department of Finance and Administration
 - FSM Office of Compact Management
 - FSM Department of Health, Education and Social Affairs
 - FSM Department of Foreign Affairs
 - FSM Telecommunication
- **Pohnpei State Government**
 - Pohnpei Environment Protection Agency
 - Economic Development Authority
 - Pohnpei Port Authority
 - Office of Transportation & Infrastructure
 - Office of the Governor
 - Department of Land
 - Tourism Office & Visitor Bureau
 - Pohnpei Transportation Authority
- **Kosrae State Government**
 - Governors Office
 - Department of Transportation and Infrastructure
 - Department of Education
 - Department of Health
 - Department of Administration and Finance
 - Lelu Municipal Government
 - Kosrae Utilities Corporation
 - Kosrae Island Resource Management Authority
 - Bank of the FSM- Kosrae Branch
 - Kosrae Visitors Bureau
 - Kosrae Port Authority
 - Kosrae Stevedoring Company
- **Yap State Government**
 - Governors Office
 - Department of Health Services
 - Department of Public Works
 - Department of Budget and Planning
 - State Legislature
 - Yap State Public Service Corporation
 - WAAB Transportation Company Inc
- **Chuuk State Government**
 - Governors Office
 - Office of the Attorney General
 - Chuuk Environmental Protection Agency
 - Department of Planning
 - Department of Transportation & Public Works
 - Transportation (Dock)
 - Chuuk Public Utilities Corporation
 - FSM Telecom Corporation (Chuuk)

Highlights

- The Second Compact Agreement

The first 15-year US-FSM Compact agreement, designed to support the country to achieve economic and fiscal self-sufficiency upon independence, was in effect from 1986 to 2001. It provided open-ended budgetary support and a high degree of local discretion in allocation of funds. A second 20-year Compact agreement came into effect in 2004 and is administered by a 5 member Joint Economic Management Committee (JEMCO), with 3 members appointed by the US and 2 by the FSM. 30 percent of all expenditures under the second Compact must be allocated to infrastructure (including health and education as well as electricity, water supply, sanitation, and transport facilities). Further, each infrastructure project must provide 10 percent of total project costs to be set aside in a maintenance fund, half to be paid in from the Compact and half from FSM national and State government internal resources.

An Infrastructure Development Plan (IDP) was developed and adopted by the national government and the US Department of Interior in 2004 and is designed to guide infrastructure investments in the FSM. In particular, the IDP must ensure that Compact-funded infrastructure investments meet US requirements and meld efficiently with infrastructure investments funded from internal or other external sources. To oversee this process, a national Infrastructure Plan Implementation Committee (IPIC) has been formed, with a subsidiary IPIC in each State. The Department of Transportation, Communications & Infrastructure (DTC&I) functions as the national IPIC secretariat. The national and State IPICs recommend government expenditures for infrastructure projects and address difficulties in project implementation, conduct public awareness activities, forward recommendations for Compact-funded investments in infrastructure to the JEMCO, prepare progress reports to the five governments on IDP implementation, and annually review the IDP and make adjustments as necessary.

Projects funded by the Compact are to be designed and administered by a Project Management Unit (PMU) reporting to the national government. In 2005, a Hawaii-based company was appointed to operate the PMU under a 2-year contract. Projects so far designed and submitted to national government by the PMU, however, have reportedly not conformed to priority requirements of the Agreement, particularly with respect to health and education sector developments, and the release of Compact funds has been severely held up. The company's 2-year contract has now expired, and it has reportedly applied for a 3 year extension which has to date not been approved. There is mounting frustration in the FSM with regard to the slow pace of implementation of the second Compact agreement.

- Pohnpei

In Pohnpei, the power, water, and sanitation sectors are under the Pohnpei Utilities Corporation (PUC). Apart from six outer islands with very small populations, the entire State population resides on the main island of Pohnpei. A sealed coastal road around the island connects all communities with the State capital, Kolonia. A 13.8 kV electricity distribution line follows the ring road; virtually all households in Pohnpei have access to electricity. The reticulated water supply, however, mainly serves the urban area but is gradually being extended to communities along the coast. Raw water is taken from a combination of borehole and surface water sources.

Sewage collection and treatment facilities are currently limited to the urban area. There is one sewage treatment plant (STP) in town, heavily overloaded due to high levels of storm water inflow and infiltration. Pump station overflows in town are frequent. Ultimate discharge is through an ocean outfall, and according to the Pohnpei Environmental

Protection Agency (EPA), it is likely that effluent quality does not meet standards (though only limited testing is done). There is a second STP serving the national capital complex at Palikir; this too is under the control of the PUC, but is not operating effectively. There is a third STP serving the Pohnpei Fisheries Corporation and portion of the seaport area under the control of the PUC, but this is again not operating effectively.

The ADB's Omnibus Infrastructure Development Loan to the national government includes a new STP for the urban area of Pohnpei, to be located near the airport. Though the loan was approved in 2004, disbursements have not begun, due to delays in the appointment of a Project Implementation Unit (PIU). It has been difficult for the national Implementing Agency, the Department of Transport, Communications and Infrastructure, to recruit suitable skills in project management and engineering.

The present water tariff, which includes a component for partial recovery of sewerage costs, is \$1.80 per thousand US gallons (approximately 3.8 cubic meters (m³)³). This tariff applies to all water supply consumers, whether connected to the sewer system or not. A tariff review for PUC was conducted in 2005 and recommended an increase to \$2.37/thousand gallons for water supply, plus \$1.50/thousand gallons of water consumed as a sewerage charge, resulting in a combined tariff of \$3.87/thousand gallons⁴ for consumers connected to the sewer system. The current power tariff averages \$0.36/kWh, including a component that varies with international fuel prices. According to management, the present tariffs for water/sanitation and for power are not sufficient to cover the full costs of asset maintenance, and undercut PUC's ability to water supply and effluent quality standards.

The Resident Properties and Public Utilities (RPPU) Commission, a State regulatory agency appointed by the Governor, regulates the tariffs of public infrastructure services in Pohnpei, including water, sanitation, and electricity. The PUC Board of Directors has proposed to the RPPU that the tariff for water supply and for sewerage be separated (i.e., the sewerage charge applied only to those connected to the sewer system) and set to recover operations, maintenance, and management (OMM) costs only, with recovery of depreciation or capital finance charges to be subsidized by the State. The applicable OMM-only tariff levels are currently being calculated by the PUC. The timing for tariff consideration and approval by the RPPU is not known.

The EPA is under-financed and under-staffed to meet its mandate, according to management. The EPA has the responsibility to inspect household septic tank installations and enforce standards, but has not been able to keep up with this. Water supply and wastewater effluent quality standards have not met regulations for a considerable time; the PUC has the responsibility to carry out periodic quality tests and report the results to the EPA but do not, according to the EPA. The EPA is authorized to levy fines on PUC for non-compliance but have not to date done so, in recognition that the PUC is struggling financially. The State government has not intervened in the issue to date; there is reportedly significant antagonism between the Governor's office and PUC management (having to do with other issues) which the EPA is reluctant to exacerbate. Quality standards enforcement thus appears to be continuing in a longstanding stalemate. A stronger signal from the EPA of determination to enforce regulations would likely get things moving.

Tourism in FSM attracts about 20,000 visitors per year (compared to about 50,000/year in the Cook Islands, 80,000/year in the Republic of Palau, and 1.2 million/year in Guam). There is no national Tourism Authority but there is one in each State with the

³ I.e., the tariff is equivalent to approximately US\$0.47/m³.

⁴ Approximately \$1.02/m³. Under the new tariff, the sewer charge would apply only to those connected to the sewer system.

responsibility for marketing tourism at the State level. Tourism marketing budgets vary markedly across the States, with about \$0.5 million spent annually in Yap, \$60,000 in Kosrae, and only \$30,000 in Pohnpei. Tourism facilities (hotels and resorts) are sparse in all States but the constraint to investment common in other Pacific island countries – access to land for tourism development – does not appear to be a significant problem in FSM, where long term leases on land are relatively easy to arrange.

There appear to be two main and related constraints to tourism growth in FSM: (i) a lack of awareness at the national level of the potential of tourism to grow the economy and create jobs (hence the lack of a national effort at marketing) and (ii) the longevity of a monopoly or near-monopoly in airline services inter-State and into the country from overseas markets. The US airline Continental Micronesia is the only carrier to serve FSM directly from the only two international gateways to the country, Guam and Honolulu, and is the only airline providing inter-State services. Airfares into and out of FSM and between the States are very high; the cost of the RETA team's travel within FSM (typically a one-hour flight between adjacent States) per person was well more than double the total return fare from Fiji to Guam via Narita (a total of approximately 24 hours flying time). In the 1990s, Continental Micronesia offered a 'Circle Micronesia' airfare that provided a reduced fare for tourists to FSM, but this was discontinued in about 2002, and visitor numbers dropped. There is now a 'Visit Micronesia' fare available, but travel to FSM must commence in Guam (with minimum-stay restrictions in Guam); the fare has reportedly had limited impact on visitor numbers in FSM.

At present, the runways in the airports in FSM are not long enough to accommodate long range aircraft such as the 747 or even the 767 and 777; Continental Micronesia serve the country only with 737 aircraft.

Fiji and Samoa have recently seen dramatic reductions in air travel costs between the country and major overseas destinations such as Australia and New Zealand by introducing competition in international routes, particularly from new low-cost entrants such as Virgin Blue and Freedom Air. Competition in air travel in FSM would likely return similar benefit to the FSM traveling public and to tourists visiting the country. In February 2007, Japan Air Lines (JAL) opened a direct Narita-Majuro route to the neighboring Marshall Islands (also served by Continental Micronesia on the route to FSM from Honolulu). This was possible because the runway in Majuro is 7,000 feet long; the longest runway in FSM is the 6,000-foot runway in Pohnpei. Breaking the air travel monopoly in FSM and opening direct international routes outside of Guam and Honolulu would require lengthening the runway at least in Pohnpei (thus making Pohnpei an international hub)⁵. In July 2007, a team of Japanese engineers were in Pohnpei to investigate the feasibility of a runway-extension project to be funded by Japan. The economic and financial viability of such an upgrade, however, depends on the government's willingness to open international aviation to competition and to support the development of tourism in FSM with concerted promotion efforts in key overseas tourist markets (N America, Australia, New Zealand, Japan, Korea, and China).

The roads sector is under the Pohnpei Transport Authority (PTA). Roads maintenance receives no routine State budget allocation at all, apart from personnel salaries (there are 60 people presently on the payroll of the PTA). There is a 60-mile (96 km) circumferential coastal road that is sealed along its entire length, but is suffering moderate to severe degradation. Urban roads in Pohnpei are in poor condition; in common with other States, the priority of roads maintenance in Pohnpei has been chronically low. Drains exist in the

⁵ In about 2003, a short-lived attempt to establish a direct competitor to Continental Micronesia was the Palau Micronesia Airline, which (using a 737 aircraft) started a route from Palau to Yap, Chuuk, and Pohnpei and return, with an additional route to Manila from Palau. The new airline quickly failed, allegedly due to a campaign of predatory pricing by Continental Micronesia.

urban road network but are chronically blocked up and road flooding during rains is frequent.

Resources for maintenance are allocated infrequently and only on an emergency basis. Each maintenance operation must be funded against a specific request from the PTA, and there are often delays of a year or more between the request and the allocation. The PTA estimates that a steady core budget of \$200,000 per year would be required to maintain the primary and secondary roads properly.

The PTA is presently an authority under the Governor's Office. In 1999, a law was enacted to set up the PTA as an autonomous agency, with authority to collect road user fees (State fuel taxes and vehicle registration fees) into a road maintenance fund. The law, however, has not been implemented to date, apparently awaiting an Executive decision. The roads sector in Pohnpei (as in other States) appears to suffer most from limited awareness at top political levels of the strategic importance of good roads for the development of markets, support to private sector investment, and the creation of jobs.

Air and sea ports in Pohnpei are under the management of the Pohnpei Ports Authority (PPA), which is 100% financially self-sufficient from ports fees. The PPA is the only such autonomous State authority in the FSM – ports in the other States are departments under the respective public works departments or government infrastructure offices.

The Pohnpei airport needs urgent refurbishment. There is a section along its length that was originally built over a swamp area with inadequate fill and now continually sinks. Permanent repair of the problem will require driving piles, a lengthy and expensive process. The US Federal Aviation Administration (FAA) will support runway refurbishment work (5% of the project cost to be contributed by the Compact) and airport safety upgrades including construction of a new fire station with fire fighting equipment. Though the FAA authorized funding some 4 years ago, the contractor hired to do the design work (the PMU consulting firm, see above), did not perform as expected and FAA deadlines were not met. FAA funding is presently suspended and the PPA does not know when or how the project will proceed.

As mentioned, a team of engineers from Japan was in Pohnpei during the RETA team's visit to investigate the feasibility of extending the runway to accommodate larger aircraft, a development that would be key to opening aviation in FSM to competition. The runway extension, once designed and approved, would be funded by Japan. The project, however, is contingent on completion of the FAA-funded runway refurbishment, particularly the pile-driving component.

For the air and sea ports, any maintenance operation that exceeds \$5,000 in value is outsourced to private companies. The PPA is planning an (as yet unfunded) project to deepen and widen the Pohnpei sea port basin to improve ship movement efficiency. Stevedoring services in Pohnpei (as in other States) are provided by a private company, but competition in the market is limited, and operational efficiency in the sea port is low. Ports facilities and equipment are leased by the company from the PPA. Stevedoring rates are not regulated, but must be approved by the PPA Board.

Shipping services into and out of Pohnpei (and the other States) is largely an international operation. Inter-State cargo is shipped by international shipping lines (Kwoya and Matsons). There is a government-owned inter-State passenger ferry service (one ship, the *FSM Voyager*) which sails irregularly, is subsidized, and is evidently not heavily used by the traveling public.

- Kosrae

The State Government of Kosrae is in a severe fiscal crisis, with a deficit of about \$1.5 million inherited from the previous administration. A new Governor took office in February 2007. The deficit is causing a scaling back of State expenditures across the board, including support to infrastructure and maintenance.

The water supply in Kosrae is managed by five entities: the PWD (operating a number of treated boreholes in Tafunsak) and the Municipalities of Lelu, Utwe, Malem, and Walung. The Municipalities all operate surface water gravity-fed distribution systems. Few consumers are metered and none pays for water. Apart for the borehole supplies operated by the PWD, none of the water supply is treated. Water supply contamination and water borne diseases are serious health issues in Kosrae.

In 2003, the ADB prepared a project under the ODP to install water treatment facilities in all of the Municipal systems (except for Lelu, which was to be developed under a separate project funded by the Rural Utility Service (RUS) of the US Department of Agriculture) provided that the systems would be transferred to the management of the Kosrae Utilities Authority (KUA). Under the plan approved by the Kosrae and National governments, all water consumers in Kosrae would be metered and would pay a water tariff that would be gradually raised to achieve full cost recovery over an agreed period. To date, however, the water supply systems have not been transferred to the KUA, and hence neither the ODP nor the RUS water treatment projects have begun implementation. In Kosrae, there is strong popular and political opposition to the concept of metering and paying a tariff for water, which has traditionally been provided free. The opposition remains despite awareness at the State level of the serious health issues. When the project was developed in 2003, the need for a concerted public relations and awareness campaign on health and sanitation issues and on the costs of supplying and delivering treated water (and hence the need for metering and a tariff) was recognized and was part of the proposed implementation program, to be carried out by the State as the transfer to KUA went into effect. The need for such a campaign now appears to be even more urgent and should be started as soon as possible.

The Kosrae Island Resource Management Authority (KIRMA) functions as the State's EPA and land and resource conservation agency. KIRMA is responsible for all environmental permitting for public and private sector investment projects in the State. KIRMA has established a Community Resource Management Committee in each village in Kosrae, charged with monitoring land use at the village level and undertaking small works to protect the environment, e.g., through erosion control measures. With assistance from UNDP, KIRMA has begun a solid waste recycling program (and plans to privatize the recycling plant and the landfill), and is currently negotiating with a Chinese firm for the sale and removal of scrap metal from Kosrae. A successful recycling effort in Kosrae could spearhead a similar campaign in all States of FSM, as the resulting increased volume might make recycling more attractive to the private sector.

KIRMA is responsible for raw water and delivered water quality testing, but presently has no equipment to carry this out. The RUS has provided a building for a testing lab but funding for equipment has so far not been secured. There is as yet no baseline data on water quality in Kosrae.

As a follow-up to the ADB's regional CLIMAP project (2003), in which Kosrae participated as a case study, KIRMA has received a \$2 million grant from the State to 'climate proof' an environmentally sensitive section of circumferential road. KIRMA carries out extensive GIS activity on behalf of the State with assistance from the Fiji-based SOPAC, and has become Kosrae's main repository of GIS information. In conjunction with the State Department of Finance & Administration, a State register of Infrastructure Assets has been developed and is annually updated (including data on the assets' current condition and commentary on recent refurbishment or major maintenance works), which is used as

the core of a State-wide infrastructure benchmarking effort. KIRMA is working to provide GIS mapping of the location of all assets in the Register.

KIRMA collects no fees for services but is supported by allocations from the State budget. According to management, the allocations are not adequate to fulfill KIRMA's environmental mandate, and there is a shortage of skilled staff. KIRMA clearly has the management capacity and motivation to carry out its environmental functions but is constrained by a restrictive budget. Greater autonomy for KIRMA and authority to collect and manage its own fees for services would ease this constraint, to the benefit of the environment, land use planning, and investment in the State.

The Kosrae power sector is under the Kosrae Utilities Authority (KUA), a fully corporatized and commercially-operated power utility. When established in the mid-1990s, the KUA was intended also to take over water supply services, but as mentioned above, this has not happened.

The average electricity tariff, which has a component that varies with international fuel prices, is currently about \$0.29/kWh, considerably lower than the tariff in Pohnpei (\$0.37). Despite the fuel adjustment component, KUA operates at a loss.

There are two main feeders extending as far as possible in each direction along the circumferential coast road and reach almost all households. Only the village of Walung is not served, because the road has not been completed along that section of the coast. There is one central power station located in Tofol, across the street from the main government building. KUA has a substantial capacity reserve: total installed capacity (7 engines) of 5.6 MW against a peak demand of 1.2 MW, though most of the engines are old and inefficient. Demand has been declining steadily over the past six years; in 2001, peak demand stood at over 2.0 MW. During the period, a large US Army Corp of Engineers camp, the CAT team, departed Kosrae, and economic growth has been otherwise stagnant.

70 percent of KUA's customers are on pre-paid ('CashPower') meters. According to management, the introduction of pre-paid metering in itself contributed to a reduction in demand.

Despite the declining demand, in 2005 KUA purchased and installed a new 1 MW engine (no 7) because of its much higher fuel efficiency (about 15.5 kWh/gallon vs. about 12.5 kWh/gal typical of the older engines). KUA supplies nearly the entire load with the new engine and estimates that about \$100,000 is saved annually in fuel costs. The KUA have also fitted new radiators on all engines that will improve efficiency when the older engines are called back into service, and will install a solar-powered generation system on the sides of large buildings, with funding from the EU, that will feed into the grid. There is hydro potential in Kosrae, but development of this has reportedly been blocked due to environmental concerns.

There is considerable refurbishment work needed on the distribution feeders and on the main substation (built on wooden poles and has now begun to teeter), but no funding has been identified for this.

Tourism in Kosrae is constrained by a lack of facilities (only 60 hotel rooms and 5 restaurants), but investment has been limited due to poor prospects for increased visitor arrivals. In 2002, there were 1,900 visitor arrivals, of which 900 were tourists (65% from US). There followed a number of aviation crises (e.g., in 2005 there was a fuel contamination problem which caused Continental to cut flights back to 1/week), reducing visitor numbers which only in 2007 have regained their 2002 levels. In 2006, tourism promotion was stepped up to include campaigns in Europe and N America. Kosrae's tourism marketing budget is now about \$60,000/year, double that of Pohnpei but still very

small. Kosrae offers a pristine land and marine environment that potentially will attract the growing worldwide eco-tourism market. Easing constraints on tourism in Kosrae, as in FSM generally, consists in improving direct airline access to the country from major overseas markets, which would spur greater investment in tourism facilities. In addition, finally settling the water supply and contamination issues will have strategic importance to tourism development.

The ports sector is under the Kosrae Ports Authority (KPA) which, as in Pohnpei, controls both the marine port and the airport. The KPA is principally financed by an annual government budget allocation; ports fees are collected but, being the lowest in FSM (e.g., the airport landing fee in Kosrae at \$58/landing is reportedly about half the fee in the other States – and is tiny compared to landing fees in other Pacific countries), they do not cover costs. Legislation has been enacted to corporatize the KPA but (similar to the Pohnpei Transport Authority), the legislation has not been implemented⁶. Recently, however, a Board of Directors for the KPA has been appointed by the State. The State sets ports fees and these have not been changed for many years.

The State's budget allocation to ports is intended to cover operational expenses (mainly personnel) but is inadequate to cover even routine maintenance functions. There is no finance available for improvements or extensions to either the marine port or the airport. The KPA collects and retains airport fees (landing fees and departure taxes) but does not retain fees collected at the marine port, which are paid directly into the State's consolidated revenue fund. For the airport, the US FAA will fund a safety improvement project in September 2007 (purchase of 2 new fire trucks and construction of a new fire station, airport fencing, and limited apron improvements), but no other upgrade or extension projects are in the pipeline.

Stevedoring functions at the marine port are carried out by a private company, the Kosrae Terminal Stevedoring Co. (KTSC), which leases the port, storage facilities, and lifting equipment from the State. There is no competition in the provision of stevedoring services. KTSC is profitable and is 100% Kosraean owned, with shares held by 545 individuals (no direct government ownership). The company sets the fees charged for ports services, but these must be approved by the State government. KTSC is not responsible for maintenance of the port, which is borne by the KPA, apart from the storage facility. Most of the lifting capacity consists of a 25-tonne forklift which was donated by Japan; ships offloading in Kosrae are required to have adequate cranes on board.

In the last 6 years, cargo traffic has fallen considerably: whereas through the 1990s, 50-60 containers were handled per landing, currently throughput per voyage is 16-17 containers. (This is consistent with the drop-off in demand seen in the power sector.) There is very little passenger ship traffic in Kosrae. However, KTSC is hopeful that a new emerging market in scrap metal (see related discussion under KIRMA above) and a potential new bottled water factory in Kosrae will lift the cargo traffic.

The roads sector is under the Department of Transportation and Public Works of the Kosrae State government. Similar to the situation in Pohnpei, roads maintenance attracts no steady support from the State; the most recent roads maintenance funds were allocated in 2005. The roads department estimates that the core annual budget required to maintain the roads in Kosrae properly is about \$200,000 (coincidentally the same as the amount estimated by the PTA for Pohnpei). A factor that makes roads maintenance more expensive than elsewhere is that due to inadequate local geological conditions, aggregate for major operations (including new construction) is imported from overseas.

⁶ What appears to be a pattern in the FSM, whereby legislation is enacted but years can pass before it is implemented, is quite puzzling and has not been seen by the RETA team elsewhere in the Pacific.

Nevertheless, in Kosrae as in other States, roads maintenance has chronically been of low priority in State budget allocations. There has been to date no consideration of establishing an autonomous or semi-autonomous roads authority in Kosrae, though the idea has been enacted (if not implemented) in Pohnpei.

Japan has agreed to fund the remaining sections to complete the circumferential road in Kosrae. Design work is presently underway. A Japanese grant of \$16 million will fund the road construction and will also provide heavy maintenance equipment to the Kosrae State government.

- Chuuk

The State of Chuuk has been struggling with severe infrastructure issues (extremely poor services especially in roads, water/sanitation, and electricity) for many years, but there are encouraging signs that frustration with this at consumer and at political levels is beginning to translate into effective action. In support of this (whether cause, effect, or coincidence is not known), infrastructure support funds for rehabilitation and maintenance have begun flowing into Chuuk from the second Compact and from other sources. As examples, the Chuuk Public Utility Corporation (CPUC), responsible for water supply/sanitation and electricity, is under new management that is utilizing fresh Compact funds to tackle the chronic problems of power generation insufficiency and low cost recovery, longstanding land issues, and the derelict sewage collection and treatment facility in Moen (the main island and urban capital of Chuuk). Elsewhere in State government, roads rehabilitation is receiving more attention and funding and there is some promise that at least the urban road system will shortly be improved.

The Division of Planning is the secretariat of the State IPIC in Chuuk, and thus has responsibility for project development and supervision. Because of the rehabilitation work going on with Compact support, demands on the Division have increased many fold (from “small scale projects” to “multi-million dollar projects” overnight) but staffing and capacity have not increased commensurately. With only 6 project inspectors and 1 technical consultant, there is a crippling local capacity shortfall in State-level project management (though the national PMU provides some assistance). The Division’s budget depends on allocations from the State Legislature. Its current annual budget of \$130,000 covers about 10 percent of needs, according to management; there is an urgent need for higher skills, particularly in engineering. Anticipated funded projects which the Planning Division will be required to support include a \$1.7 million project to repair cyclone damage to the port financed by the US federal relief agency, FEMA, \$4 million in port improvements financed by Japan, and 2 miles of urban roads rehabilitation financed by the Compact.

The telecom sector in Chuuk, as in all other States, is supplied by the national government monopoly, the FSM Telecom Corporation (FSMTC), which provides the sole land line, mobile (the majority of telephone connections are mobile), and internet services in the country. The FSMTC also owns and operates nearly 100% of the cable TV services in FSM (though there is presently no cable TV service operating in Chuuk). The FSMTC Board comprises 5 members, one appointed by each of the 5 governments. Exclusivity for FSMTC is protected by law; the prospects for liberalizing the telecom market in FSM with the competition that has so improved services in, say, Samoa seem remote.

Inter-State and international traffic is by satellite and capacity is critically limited. The US Army is building an undersea fiber cable that will connect Kwajalein Atoll (a military base in the Marshall Islands) with Guam, via Pohnpei. FSMTC reports that the cost of connecting all four States to this cable will be of the order of \$100 million, cost to be borne by FSM. No decision on this investment has been made.

With four base stations, FSMTC in Chuuk claims 65% coverage in Weno (the capital town), and 40% coverage on each of the nearby outer islands of Tonoas and Fefan. The number of cellphone customers is around 5,000 in Chuuk and around 20,000 nationwide. FSMTC is reportedly buying new equipment from China that will increase capacity to 50,000 cellphone subscribers. Wireless internet is provided only in Pohnpei so far, because the billing system there is more advanced than elsewhere. FSMTC plans to upgrade the billing systems in the other States to match, but the timing of this is uncertain.

The power sector provider is the CPUC. The Corporation has long been suffering from severe metering, billing, and revenue collection problems. One of the conditions of the ADB-financed power rehabilitation project in Chuuk (under the Omnibus Infrastructure Development Loan approved in 2005) is that CPUC procure and install pre-payment (so called 'CashPower') meters for 100% of customers over a specified timeframe. Since 2005, some 1,360 CashPower meters have been installed (of a total customer base of about 2,300); enough CashPower meters have since been purchased to complete the job. Metering is now expected to be completed by the end of 2007, except for about 50 3-phase customers (which, due to the high cost of 3-phase CashPower meters, will take a number of years to accomplish). Present arrears to the CPUC (mainly from the government and households) stand at approximately \$1.5 million. The arrears are being gradually reduced by imposition of a CPUC surcharge to customers with arrears (e.g., \$20 paid by a CashPower customer will purchase \$10 of electricity, until the arrears are paid off).

A series of containerized emergency generators have been procured and sited at the old power station under Emergency Rehabilitation funds authorized under the Compact, and are now providing power to Weno. The engines, however, are second-hand and are fuel inefficient. Though cash flow has improved due to the new meters, the CPUC has had difficulty in procuring enough fuel and supply interruptions have been frequent. The engines to be procured for the new power station under the ADB loan are expected to be approximately 30 percent more fuel efficient and will ease CPUC's cash flow problems (as revenues continue to improve from the ongoing metering program).

Another condition of the ADB loan pertains to a multi-year contract to provide external professional management and technical support to CPUC (the so called Operations, Maintenance, and Management (OMM) contract). Despite the encouraging recent improvements in CPUC management, the OMM contract will still be pursued for (probably) 5 years by the CPUC with State assistance (2 years of the contract (\$700,000) will be funded by the Compact's Emergency Rehabilitation funds).

The original site proposed for the new power station financed by the ADB loan was an area on the main dock in Weno. For reasons that remain unclear, this site had been thrown into doubt by the State government, but it has now been re-selected as the site, thus resolving what had been a serious obstacle to implementation of the loan.

CPUC management claim that they have come to grips with longstanding land issues, which in the past prevented line maintenance (especially tree trimming) and even CPUC access to premises to read meters and maintain assets. From a concerted CPUC effort to meet with landowners, these issues have become far less serious than they were as recently as 2004. CPUC expect to receive (in August) about \$650,000 worth of distribution system rehabilitation equipment which will reduce losses and improve line reliability. Present technical losses in the distribution system are estimated at 20% of gross generation, due largely to a prevalence of under- and over-loaded transformers, foliage obstruction, and loose connections.

There is a certain number of large-consumer households (landowners) who have traditionally received free power from the CPUC. Though little progress has been made

in getting these landowners to pay for power, the CPUC claims that they are closer to an agreement with government to transfer the cost of these accounts to the State. A more permanent solution to this festering problem, however, will involve a policy of gradually (with appropriate public awareness efforts) transforming free-power connections to paying customers.

The CPUC will begin to charge a tariff for water supply and sewerage services to 5,000 customers in August 2007. The tariff will be close to that currently charged by the Pohnpei PUC.

The water supply in Weno is unsafe to drink and has been severely constrained by the failure of the ADB-financed borehole development project, which produces little more than 30 percent of its intended output, much of it contaminated. The majority of new boreholes, it seems, are poorly sited (e.g., in populated areas where local groundwater is contaminated or in seafront areas where salt intrusion is high). An ADB-financed consultant visited Chuuk in November 2006 to investigate the problems with this project, and produced a report in March 2007 with options and recommendations for addressing them. The CPUC management is very keen to pursue resolution of these issues through the State and the ADB, particularly as the water supply is intended to become an increasing portion of total revenue.

- Yap

Similar to the arrangement in Pohnpei, the power and urban water supply/sanitation sectors in Yap are under one utility, the Yap State Public Service Corporation (YSPSC). There is a second water supply company that provides water service to a limited rural population on the main island. As in Pohnpei, the water and sewerage tariff is not sufficient to cover costs, and these services are cross-subsidized by power revenues. Water supply and effluent quality are not well monitored as the Yap State Environmental Protection Agency (EPA) is under-funded and understaffed to carry out this function effectively.

Access to electricity in the main island of Yap is nearly 100%. Treated and delivered water supply, however, is limited to the main urban area and a small portion of the rural population. The ADB Omnibus Development Loan will fund a major extension of the rural water supply, providing nearly 100% coverage in the main island.

Unlike any of the other States in the FSM, the road sector in Yap is under the State Public Works Department (PWD) and receives adequate maintenance (funded at \$150,000/year). The PWD is also responsible for maintenance of the marine and airports in the State. Stevedoring services are provided by the private WAAB Transportation Co., which with about 100 personnel also engages in contract construction and sand dredging activities. WAAB Transportation owns and maintains its own equipment, but leases the main wharf from the State (the wharf itself is maintained by the PWD).

Uniquely in FSM, the State government operates a passenger and small cargo shipping service (subsidized) between the main island and the outer islands of the State.

Summary of Key Findings

Infrastructure development in the FSM since Independence in 1986 has been supported by funding from the Compact agreements with the United States. The first Compact Agreement (1986-2001) largely failed in its aims of capacity building (though Pohnpei and Yap appear to have done better in power, water, and sanitation services during that period than the other two States). The second Compact Agreement (2004-2023) is better designed to support infrastructure capacity building than the first, with long term strategic planning and explicit criteria for infrastructure investment and maintenance. Initial

disbursements under the second Agreement have been slow as the FSM national and state governments adjust to the new requirements. However, there are encouraging signs that the new requirements are having a desirable effect, combined with a perceptibly higher government priority for improving infrastructure services. The greatest degree of improvement can be seen in Chuuk, where new management of the State power and water utility, with support from the Compact, is coming to grips with chronic deficiencies in asset maintenance, metering and customer relations, land issues, and internal cash flow. In concert with generally heightened awareness of critical infrastructure issues in the country, the ADB Omnibus loan will provide financing for asset extension and renewal in water supply, sanitation, and power projects throughout the country.

However, infrastructure services in FSM still face some fundamental constraints. Firstly, regulatory capacity is largely undeveloped. Environmental regulatory agencies exist at the State level but all are under-funded and under-staffed in comparison to needs. (The exception in this area is Kosrae, where environmental regulation appears to be pro-active and well managed, despite insufficient funding.) There is little or no formal tariff regulation in the FSM, except in Pohnpei.

Maintenance of infrastructure assets in the FSM, a critical issue of long standing, remains a critical factor. Mechanisms are in place under the second Compact agreement to begin to address it, including mandated allocations to maintenance from approved infrastructure project budgets. However, poor maintenance will continue to be a severe constraint on service delivery until gaps in skills (e.g., project preparation including engineering, cost estimation, financial control and budgeting, budget submission, and technical operations) are filled through training and institutional reform, and higher allocations to maintenance are made by government decision makers.

Infrastructure planning and project implementation is under the control of the national Infrastructure Plan Implementation Committee and its subsidiary State IPICs, though it does not appear that this arrangement has to date been effective in overcoming chronic constraints in planning, project preparation, and project supervision capacity. There is a lack of local skills in engineering and project supervision. This constrains also the country's ability to harness the private sector competitively in infrastructure investment or O&M services (the private sector commonly traditionally operates ports and stevedoring services in FSM, but not competitively).

Rigid national government or foreign private sector monopolies are in control of the strategic aviation and telecommunications sectors. In comparison with other countries in the Pacific, the FSM is severely lagging in terms of competitive market development in these sectors, and this limits access and raises the cost of such services to consumers in the FSM. Inter-island marine transport is extremely limited with one domestic passenger vessel (Yap does a notable job in providing State-supported domestic shipping services, but only within the State). Though there is considerable potential for tourism in the FSM, development is restricted due to the monopolies in the communications and transport markets, and a low government priority to marketing tourism overseas. Opening of these markets and advancement of tourism would likely have a considerable positive impact on the local economies of the FSM.

In sum, though infrastructure is well supported with external finance, service delivery improvement depends on further policy development, particularly in the areas of regulation and market liberalization, and capacity building in project planning and implementation.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Fiji, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

Fiji has gained a wealth of experience in corporatization and commercialization of key infrastructure service sectors, including ports, telecommunications, and electricity. Reform processes in these sectors, often resulting in greatly improved conditions for private sector participation, have continued after corporatization and some are continuing now (e.g., in telecoms). Restructuring of the long-ago corporatized Fiji Electricity Authority (FEA) since 2001 has paved the way for private sector independent power producers to enter the generation market in a substantial way, and outsourcing of O&M functions has allowed a halving of FEA permanent staff requirements. (FEA currently retains a self-regulatory function, but this will be resolved under multi-sector regulatory reforms – see below.) International ports operations have greatly improved since corporatization was completed in the late 1990s.

Fiji is taking bold steps in opening markets to competition and market forces, especially in the critical sectors of aviation and communications. This can be expected to have strong effects in terms of improved coverage and service quality, lower costs, and better access to export markets (including tourism). Needed regulatory reforms are also being addressed: multi-sector regulatory capacity building (a TA project first developed by the ADB and AusAID in late 2006) is to proceed with the government's own resources, while a Fiji government-funded analysis of the government's social obligations in a number of key infrastructure sectors, including power, water, and transport was completed in 2006 and now forms the basis of a coherent subsidy policy in the management of public enterprises. However, both the Commerce Commission and the Ministry of Public Enterprises are currently under-resourced and under-staffed to carry out their functions adequately.

The same cannot be said for other critical sectors, including roads maintenance (and the government plant pool that is supposed to support roads maintenance), water supply and sewerage, government buildings maintenance, and government shipping services. Roads maintenance and the water and sewerage sector are well on the way to corporatization but many steep challenges remain in terms of filling gaps in skills and marshalling the additional financial and human resources required to bring those sectors up to a higher standard of performance. Government shipping, plant pool maintenance, and government buildings are areas of extreme asset fatigue and under-performance, and which suffer from chronically inadequate funding for sustainable operations and little prospect of attracting private sector participation. These sectors can certainly benefit from reforms similar to those which Fiji has already implemented successfully in ports and electricity; a crisis in service delivery (especially in shipping services) awaits if inaction in these sectors continues.

Outsourcing of government buildings maintenance, increased outsourcing of roads maintenance supported by increased resource allocations to create a long term,

predictable market for roads maintenance in which the private sector can participate, will likely achieve rapid increases in the performance of these sectors and ultimately lower costs. There is an urgent need to complete the institutional reform process underway in the water and sewerage sector, supported by accelerated progress with the Suva-Nausori Upgrade project. Mechanical Services and Government Shipping Services should arrange to sell all assets as soon as practicable and fully privatize those services.

A tabulated summary of the strategy follows. The detailed strategy is outlined in the subsequent sections, presented by sector. The country consultation report is presented as an Annex.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>(i) 100% government-owned Telecom Fiji Ltd (TFL) for landline, mobile, and internet services; (ii) 100% government-owned FINTEL, the country's international gateway for voice and data; and (iii) private sector Unwired Fiji Ltd, for wireless internet services.</p> <p>80% coverage of the country for voice services.</p>	<p>The Fiji Water Authority (FWA) officially formed in 2007 from the former Water and Sewerage Department, now being corporatized.</p> <p>Services to all urban areas of the country. Remote isolated rural areas served by government-subsidized village based schemes. About 80% of Fiji's population has access to treated, delivered water and 16% is connected to a centralized sewage system.</p>	<p>Fiji Electricity Authority (FEA), a fully corporatized, commercially-oriented government-owned utility. FEA power reaches about 70% of the population.</p> <p>270,000 people are not grid-connected, of these, 70,000-100,000 have access to intermittent and unreliable electricity supply from about 450 subsidized stand-alone diesel gensets administered by the Ministry of Energy (MoE) but owned and operated by the villages.</p>	<p>The Department of National Roads (DNR), has been declared a 'reorganization entity' (i.e., to be corporatized). The DNR may be merged with the Land Transport Authority (LTA, responsible for vehicle and driver licensing) to create a National Roads Authority, and thus will be able to access revenues from road user fees for road maintenance.</p> <p>Road access in and between urban areas is good, with a mixture of tar-sealed and gravel roads, but often in poor condition. Remote rural communities on the main islands often have no or nearly impassable access.</p>	<p>The Fiji Ports Corporation Ltd (FPCL) was established under the Companies Act as a government-owned commercial enterprise in 2004, having been corporatized as the Maritime and Ports Authority of Fiji in 1998.</p> <p>O&M at the ports handled by Ports Terminal Ltd (PTL), a wholly-owned subsidiary of FPCL.</p> <p>The FPCL has four ports: Suva, Lautoka, Labasa, and Levuka. All are profitable except for Levuka which is cross-subsidized by the others.</p>	<p>The sector is served by Government Shipping Services (GSS), a non-corporatized government department, and a number of private shipping companies. GSS has about 50% of the domestic shipping market, which it serves with 14 vessels (a mix of roll-on/roll-off, cargo, passenger, and landing craft vessels).</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Community Service Obligations	<p>Findings of a 2006 government study of social obligations applied to a national subsidy policy in the management of public enterprises. Provision of CSOs will be subject to a formal contracting process.</p> <p>Presently, no defined community service obligations from telecoms. Extended rural telephone coverage (TFL) provided with wireless technology. FINTEL has adopted the wireless WiMax technology for its internet services.</p>	<p>No defined community service obligations, though the water supply and sewerage entity is contracted by government to build village water schemes in remote areas, which are turned over to the villages for ownership, operations, and maintenance.</p>	<p>No defined community service obligations. Since 1993, however, the government has implemented a policy of providing stand-alone diesel gensets if the villages provide 10 percent of the initial cost.</p> <p>FEA limiting self-investment to RE projects which show a commercially-acceptable return. Under the 1993 policy, grid extensions by FEA can be subsidized.</p> <p>A Rural Electrification Master Plan is to be prepared, including creation of a Rural Electrification Fund subject to multilateral contributions.</p>	<p>No defined community service obligations.</p>	<p>Minor ports in the small outer islands of Fiji are operated by the (non-corporatized) Department of Public Works. These operate at a substantial loss. In the ports sector at present, there are no defined community service obligations.</p>	<p>Non-profitable routes have been served by the GSS at low rates, or at subsidized rates by the private companies. Recently, a route licensing scheme has been introduced with subsidies paid to the licensed shippers on non-economic routes.</p> <p>However, in the shipping sector at present, there are no defined community service obligations.</p> <p>Regarding the study of CSOs conducted by the Ministry of Public Enterprises in 2006 that will form the basis of future policy, see section 2.2.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	<p>The MPE and the Commerce Commission have key roles in the regulation and performance supervision, respectively, of state-owned infrastructure service providers. Both agencies to be strengthened under Telecom Deregulation Bill implemented by the Interim Government, which will open the sector to competition.</p> <p>The Commerce Commission is the subject of institutional strengthening via a multi-sector price regulatory capacity building TA formulated by the ADB in September 2006.</p>	Similar to telecoms.	<p>Price regulation of the grid-connected public power supply (FEA) by the Commerce Commission, subject to review and approval of Cabinet. Technical regulatory functions are retained within FEA.</p> <p>The proposed multi-sector regulator would cover price regulation in power, removing current self-regulatory functions of the Fiji Electricity Authority.</p>	The road sector is unregulated. There is a 'watchdog' organization concerned with road safety issues, the National Roads Safety Council, but it has no regulatory functions.	<p>Rates are set by the FPCL Board, following a consultative process with shipping companies, submitted to the Commerce Commission for review, and approved by Cabinet. Shipping companies are represented on the FPCL Board; there are no government representatives.</p> <p>An ADB-funded review of rates is currently underway.</p>	<p>The domestic shipping sector is not price regulated, but price controlled. Some uneconomical routes served by private shipping companies are subsidized.</p> <p>The GSS is responsible for maintaining the maritime nav aids system in Fiji, but the system is in an advanced state of disrepair.</p> <p>The FIMSA is the maritime safety regulatory agency and will be corporatized. FIMSA will take over management of the maritime nav aids system from the GSS, and will undertake responsibility for hydrographic survey.</p> <p>Hydrographic charts are outdated and inaccurate. International and local systems for distress signaling and response need to be improved.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	There are no significant asset maintenance issues in the telecom sector.	Operations and maintenance procedures have been chronically under-funded and assets have deteriorated. Outsourcing of operation and maintenance functions is desired but constrained by lack of budget and capacity to manage and supervise contracts.	<p>The operations and maintenance functions within FEA's large diesel-generating stations have been outsourced to an overseas private firm. There are no significant maintenance issues in the grid-connected power supply.</p> <p>In the isolated rural power supply, maintenance and performance problems are severe. Stand-alone village diesel stations suffer chronic and lengthy outages due to the difficulty of maintenance and uncertain fuel supply arrangements in remote areas. MoE policy now emphasizes installation of solar home systems as being more affordable and reliable in remote settings.</p>	Roads maintenance in Fiji is poor and under-funded. Contract management skills within the DNR are lacking; there is a Roads Asset Management System in place, but staff and skills are insufficient to make effective use of it. National roads maintenance needs estimated at F\$40 million/year in 1997; Current annual allocation is about F\$26 million, much of it spent on reactive storm damage repair. Thus a backlog of roads maintenance requirements is gradually building.	<p>There are no significant asset maintenance issues in the urban ports sector.</p> <p>The condition of the PWD-operated minor ports on the smaller outer islands is unknown.</p>	<p>The average age of the government's 14 vessels is more than 28 years. Six ships were scuttled as beyond repair in 2006. Most of the government vessels will soon need to be retired. The government vessels mainly provide cargo shipping services to the government; cargo is shipped for free for government clients.</p> <p>All revenues collected by GSS are transferred to FIMSA and are thus not retained for operation and maintenance. The budget granted by the Ministry of Finance to keep GSS vessels in service has chronically been well below needs. Maintenance is carried out on privately-owned slipways, which also provide maintenance services; but are not cost-competitive.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	<p>Interim Government supports hard push on public sector reform. Monopoly on TV licenses removed; the government strongly supports telecom market liberalization. Private companies will soon be competing with the traditional government monopolies in mobile and internet services.</p> <p>Fiji has a significant advantage in its access to the Southern Cross fiber cable which connects Fiji with New Zealand.</p>	<p>Corporatization process ongoing for a number of years, but not successfully completed to date. ADB-funded TA for capacity building has been completed but not to date fully implemented. The ADB loan-funded Suva-Nausori Upgrade Project has commenced; with a Project Management Unit to assist corporatization process (PMU completed its work in December 2006). Government has re-affirmed commitment to complete the corporatization of water and sewerage services, a process that remains on-going.</p>	<p>Management reforms effective in enabling a substantial increase in independent power producers (IPPs), and a shift away from diesel towards renewable sources of energy for generation.</p> <p>Also, as mentioned, operations and maintenance in FEA's large central diesel stations has been outsourced, allowing a substantial reduction in FEA professional staff.</p>	<p>DNR is undergoing corporatization, with the intention of building capacity and concentrating road-user generated resources for improved road asset management, planning, and maintenance. The process has not been completed and positive impacts on the quality of Fiji's roads have not yet been felt.</p>	<p>An ADB-funded upgrade of the Suva port completed in 2003 was highly effective in improving container efficiency.</p> <p>FPCL has recently installed cranes on its major ports and will now be able to serve a wider variety of ships.</p> <p>The Association of Pacific Ports conducts a twinning program for on-the-job training between the member ports companies of the Pacific (including in Australia and New Zealand), and regional benchmarking for the ports sector. Other training is conducted in-house and through TPAF.</p>	<p>Licensing of routes has been recently introduced, which should strengthen the financial viability of some of the private shipping companies and thus help to sustain services. Otherwise, few initiatives have been undertaken to improve services in this sector.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	Not applicable.	<p>Assets continue to deteriorate due to lack of maintenance.</p> <p>The ADB-funded Suva-Nausori Upgrade Project is not meeting targets. New local manager for the project has been appointed, and performance is expected to improve.</p> <p>Sector is not compliant with existing labor safety and environmental standards.</p> <p>Urgent need to adjust the water tariff in Fiji, which has been held to a level well below cost for many years, but this remains a contentious political issue.</p>	<p>For isolated areas, institutional constraints of the MoE are severe, especially in terms of project preparation and management. There is no competitive bidding for the rural electrification projects implemented by the FEA and the Department of Works for grid connection and stand-alone diesel schemes, respectively, which are quoted to MoE on a cost-plus basis.</p> <p>Government allocates F\$6 million annually to the MoE for rural electrification, but service delivery limited by lack of competition in project design and construction, limited government financial resources, and weak institutional capacity.</p>	<p>Government-owned plant for road maintenance held by Mechanical Services of the Ministry of Works and Energy is poorly maintained. Government clients must hire from the private sector.</p> <p>With present under-funding, roads maintenance has not developed into a predictable, long-term market in which the private sector might take an active interest. DNR needs greater contract management capacity to use the private sector more effectively. The ADB-funded Fiji Roads Upgrade Project IV (FRUP IV) contains a TA to address these issues.</p>	<p>The physical status of minor ports in Fiji, operated and maintained by the PWD, is not known, but they likely face the insufficient maintenance and poor management typical of roads, shipping services, and other government departments providing services.</p>	<p>Lack of investment in vessel capacity and lack of expenditure on maintenance and vessel and passenger amenities, due to shipping rates that are held low under price control.</p> <p>The heavily subsidized GSS directly competes with the private shippers and undermines the latter's commercial viability.</p> <p>The nav aids system is in poor repair and is unsafe. GPS systems are not in wide use.</p> <p>Hydrographic charts are outdated and inaccurate (do not match GPS data where available).</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> • Both MPE and the Commerce Commission critically under-staffed and under-skilled to fulfill their functions. • Under present arrangements, Commerce Commission does not operate independently; decisions must be endorsed (and can be reversed) by Cabinet. • Competition is being rapidly introduced in the sector in Fiji, and it is becoming increasingly important to take market dynamism into account. 	<ul style="list-style-type: none"> • Commerce Commission needs to build capacity as an independent multi-sector regulator. See section 2.7. • Technical regulation to be transferred to the Ministries of Environment and Mineral Resources. Environment is under-resourced and under-staffed to undertake full regulatory responsibilities. Capacity building exercise in the Ministry of Environment is underway. 	<ul style="list-style-type: none"> • Commerce Commission needs to build capacity as an independent multi-sector regulator. See above, section 2.7. • Technical regulation of the sector is the responsibility of the service provider itself, and this creates a potential conflict. Technical regulation will be transferred away from FEA once the multi-sector regulator has been implemented. 	<ul style="list-style-type: none"> • Roads performance and quality standards monitoring is presently ad hoc; • Roads standards monitoring and enforcement should be separated from direct maintenance activities; with increased budget and direct maintenance shifting to the private sector through outsourcing. 	<ul style="list-style-type: none"> • Commerce Commission needs to build capacity as an independent multi-sector regulator. See above, section 2.7. • At present, technical regulation of the sector is the responsibility of the service provider itself, and this creates a potential conflict. Technical regulation will be transferred away from FPCL once the multi-sector regulator is established. 	<ul style="list-style-type: none"> • Commerce Commission needs to build capacity as an independent multi-sector regulator. See above, section 2.7. • Technical regulation (including all safety aspects including navaid supervision and maintenance and distress response) and licensing of routes is to be housed under FIMSA. which will also undertake responsibility for hydrographic survey. This is underway in the process of corporatizing FIMSA.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Building multi-sector regulatory capacity in the Commerce Commission; • Strengthening the capacity of the Ministry of Public Enterprises to provide performance oversight of SOEs; • Design and implementation of a Social Obligations Policy (underway by the MPE). 	<ul style="list-style-type: none"> • Complete the corporatization and capacity building processes that were initiated in 2005; • Implement needed regulation of the water supply and sewerage sector (see section 3.7); • Adjust the water tariff to achieve full cost recovery from all users who can afford to pay; • Expediently complete implementation of the Suva-Nausori Upgrade project. 	<ul style="list-style-type: none"> • Complete a Rural Electrification Master Plan, as specified in a TA proposed by ADB in 2006, and implement it. • Strengthen price regulation and remove technical regulation from FEA 	<ul style="list-style-type: none"> • Support to the National Roads Authority to build capacity in Asset Management and Contract Supervision • Wind up Mechanical Services and transfer assets to the private sector. 	<ul style="list-style-type: none"> • Building multi-sector regulatory capacity in the Commerce Commission; • Strengthening the capacity of the Ministry of Public Enterprises to provide performance oversight of SOEs; • Design and implementation of a Social Obligations Policy (underway by the MPE). 	<ul style="list-style-type: none"> • Efficient price regulation is required to sustain the commercial viability of a competitive industry, supported by a transparent CSO policy; • Urgent need for a regional effort to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response; • Full privatization of the domestic shipping sector in Fiji (winding up of GSS)

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> Capacity Building in the Ministry of Public Enterprises (MPE) and Commerce Commission 	<ul style="list-style-type: none"> For needed regulatory reforms, see section 2.9; Complete capacity building in the Fiji Water Authority as recommended by TA 4270 and the PMU (2005-2006); Complete capacity building in the Ministry of Environment (understood to be underway); Prepare a water supply and sewerage tariff submission for consideration by the Commerce Commission 	<ul style="list-style-type: none"> Prepare and implement a Rural Electrification Master Plan. For needed regulatory reforms, see section 2.9. 	<ul style="list-style-type: none"> The corporatization process underway for the DNR needs to be supported with appropriate needs assessment and training. Privatization of Mechanical Services: schedule this organization for winding up, with sale of assets with remaining useful life to the private sector. 	<ul style="list-style-type: none"> Proposed approaches for achieving the reforms to meet the priorities for improving service delivery concern capacity building for regulation and SOE oversight, and are the same as proposed for the telecom sector. See section 2.9. 	<ul style="list-style-type: none"> Proposed approaches for achieving the reforms to meet the priorities for improving service delivery concern capacity building for regulation and SOE oversight, and are the same as proposed for the telecom sector. See section 2.9. Conduct a detailed GPS survey of the South Pacific; identification and implementation of increased hydrographic training capacity, and improvements in international and local systems for distress signaling and response and associated training, to be included; Winding up of GSS: schedule this organization for winding up, with sale of assets with remaining useful life to the private sector.

2 Telecoms

2.1 Sector Structure and Service Quality

The telecom sector is composed of (i) 100% government-owned Telecom Fiji Ltd (TFL) which operates the land line system (the 'copper') throughout the country and includes the 100% subsidiaries of Vodaphone (for mobile services) and Connect (for internet services); (ii) 100% government-owned FINTEL, a company which operates the country's international gateway for voice and data and has recently (late 2006) started internet services; and (iii) private sector Unwired Fiji Ltd, a provider of wireless internet services. Unwired has been licensed in Fiji since 2001, but began operations in 2005. The company has a minority share of the ISP market with about 3,200 subscribers (against Connect's 10,000-12,000).

Thus the government monopoly in internet services has been broken but remains intact for land- and mobile phone services (and, because of the 'copper' monopoly, in DSL-based internet services). TFL claims an 80% coverage of the country for voice services; once competition begins in mobile services, coverage may be expected to increase rapidly to approaching 100%.

2.2 Community Service Obligations

The Ministry of Public Enterprises (MPE) commissioned a study in 2006 of the government's social obligations with respect to provision of services in non-economic (chiefly rural) areas in sectors including telecoms, power, water supply, domestic shipping, and ports (as well as other social areas such as agricultural services). Though the study has not been released for public review or comment, the MPE has applied the findings to an initiative to implement a national subsidy policy in the management of public enterprises. The study, with MPE's recommendations, are reportedly before Cabinet (3rd quarter 2007). The policy will make it possible to address institutional and subsidy issues for services from key infrastructure sectors to non-economic areas. Under the new policy, provision of CSOs will be subject to a formal contracting process.

In the telecom sector at present, however, there are no defined community service obligations. However, TFL is providing extended rural telephone coverage with the wireless (but stationary) EasyTel technology, a handset that provides a range of 60 km and transfer rates of 128 kbps, via satellite. The cost per rural connection is about F\$200, versus a rural landline connection cost of F\$1500. Because of this, TFL investments in 'copper' extensions in rural areas have ceased. FINTEL has adopted the wireless WiMax technology for its internet services, the coverage of which will gradually extend to rural areas.

2.3 Regulatory Arrangements

The Ministry of Public Enterprises and the Commerce Commission have key roles in the regulation and performance supervision, respectively, of state-owned infrastructure service providers. Under current arrangements, telecom rates are regulated by the Commerce Commission, while the Telecom Regulatory Unit of the Ministry of Communications provides limited technical oversight functions. Both agencies are to be strengthened under a new Telecom Deregulation Bill to be implemented by the Interim Government, which will open the sector to competition. The Bill provides for new licenses to be issued for land, mobile, and internet services in competition with the government companies (Digicel already holds a provisional

license in Fiji; when operational, Digicel is expected to double the number of mobile subscribers in Fiji, according to Connect management).

The Commerce Commission is the subject of a comprehensive institutional strengthening effort via a multi-sector price regulatory capacity building TA formulated by the ADB in September 2006. The proposed multi-sector regulator would cover price regulation in power, water/sanitation, and telecommunications. Though processing of external finance of the TA has been suspended in the wake of 5 December 2006, the MPE has reported its intention to implement it with Fiji government resources.

2.4 Maintenance Issues

There are no significant asset maintenance issues in the telecom sector.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

The Interim Government has launched a hard push on public sector reform. The monopoly on TV licenses has been removed; the administration strongly supports telecom deregulation and will implement the Telecom Deregulation Bill. In anticipation of deregulation, TFL has reorganized itself to prepare for competition; management is confident that TFL will fare well under the new market. A number of private companies including Digicel, Unwired, and probably others, will soon be competing with the traditional government monopolies in mobile and internet services.

Compared to many other Pacific countries, Fiji has a significant advantage in overseas telecom services due to its access to the bandwidth available on the Southern Cross fiber cable which connects Fiji with New Zealand. Limited Pacific satellite capacity is not a serious constraint in Fiji, but is in most other countries.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Historically, the entrenched government monopolies (TFL and FINTEL) have resisted competition and attempted to make difficult connection of new entrants to the network and international gateway. (As noted in the country report (see Annex), this problem delayed Unwired's start-up as an alternative ISP by some four years, resolved in 2006.) These competitive issues have now largely been sorted out in policy, despite some instances of continued resistance from the incumbents in 2007. The current government's telecoms sector policy is aggressively in favor of competition and shared access.

New entrants, however, have often been slow to invest in capacity (or have been slower than the public expected based on announcements of new services); both wireless ISPs, for example – there are now two – launched aggressive marketing campaigns well before they had actually built the requisite infrastructure enabling broad coverage even in the main urban centers, forcing interested customers to wait many months to be connected to the new services. Also, the effects of competition have not become fully apparent in user charges, and there is some disappointment that these have not fallen faster. That said, the Commerce Commission announced a 10%-20% drop (depending on the specific service) in connection and user charges for mobiles and internet in the first week of October 2007. Further reductions are expected as competition develops momentum.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Both the Ministry of Public Enterprises and the Commerce Commission are critically under-staffed and under-skilled to fulfill their functions. For both, a detailed comparison is needed of their mandates and expected outcomes with the staff and financial resources that are available to them, to identify the specific gaps in expertise and the measures taken to fill them through recruitment and training.
- The Commerce Commission needs to build capacity rapidly to handle its current price regulatory functions and its responsibilities as a multi sector regulator (once the latter role has been defined, initially covering telecoms, water, and power). Under present arrangements, the Commerce Commission does not operate independently, and its decisions must be endorsed (and can be reversed) by Cabinet.

Further, the Commerce Commission presently lacks a detailed understanding of the dynamics of the telecoms sector as a competitive market, treating the various sub-markets (e.g., landline telephones, mobile telephones, etc) essentially as monopolies without explicit recognition that each market affects the others. Nevertheless, competition is being rapidly introduced in the sector in Fiji, and it is becoming increasingly important to take such dynamism into account. (The Commerce Commission does not presently regulate internet service providers as it considers this market already competitive. However, as the internet assumes an increasingly centre-stage role in commerce and communications, it will become increasingly necessary to monitor ISP performance and the degree of competition as the service evolves.)

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Building multi-sector regulatory capacity in the Commerce Commission to protect competition and maintain performance standards in a number of dynamic and interlocking markets;
- Strengthening the capacity of the Ministry of Public Enterprises to provide essential performance oversight of SOEs;
- Design and implementation of a Social Obligations Policy (underway by the MPE).

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following. It is recognized that, under the initial impetus of meeting regulatory needs of the telecom sector, the approaches outlined below will have importance for multiple infrastructure sectors in Fiji:

- Capacity Building in the Ministry of Public Enterprises (MPE) and Commerce Commission

The Ministry of Public Enterprises and the Commerce Commission have key roles in the regulation and performance supervision, respectively, of state-owned infrastructure service providers and both need internal strengthening to carry out their current and future mandates effectively (see “Key Regulatory Challenges” above).

Ministry of Public Enterprises:

- (i) Form a Steering Committee of key stakeholders to oversee the strengthening of the MPE’s capacity to monitor the performance of public enterprises and support corporate governance;
- (ii) Arrange stakeholder workshops to review the role and legislation of the MPE in the supervision of the management and performance of public enterprises;
- (iii) Develop stakeholder consensus of the MPE’s role in this, for review by higher authorities of the government as required;
- (iv) Define the institutional structure and resource requirements and identify gaps in job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
- (v) Prepare a manual of public enterprise monitoring procedures;
- (vi) Arrange periodic internal workshops to ensure that MPE staff have a clear understanding of the MPE’s role and are properly applying the procedures of public enterprise supervision.

Commerce Commission:

- (i) In parallel with the multi-sector regulation project (see above, “Regulatory Arrangements”), recruit appropriate expertise to prepare a manual of price regulation for the Commerce Commission for each of the sectors covered by multi-sector regulation (water, power, telecommunications);
- (ii) In the long term, extend multi-sector regulation under the Commerce Commission to cover price regulation in marine and air ports services and marine transport (domestic shipping).

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

The water and sewerage sector is now under the newly-formed Ministry of Local Government, Urban Development, and Public Utilities. The Fiji Water Authority (FWA) has been officially formed in 2007 from the former Water and Sewerage Department and is now being established as a corporatized entity.

Water and sewerage services are provided in three operational Divisions that cover all urban areas of the country. Remote isolated rural areas on Fiji's main islands and small outer islands (chiefly in the Eastern Division) are served by government-subsidized village based schemes. About 80% of Fiji's population has access to treated, delivered water and 16% is connected to a centralized sewage system.

3.2 Community Service Obligations

For the study of CSOs conducted by the Ministry of Public Enterprises in 2006 that will form the basis of future policy, see section 2.2 above.

In the water sector at present, there are no defined community service obligations, though the water supply and sewerage entity is contracted by government to build village water schemes in remote areas, which are turned over to the villages concerned for ownership, operations, and maintenance.

3.3 Regulatory Arrangements

See above, section 2.3.

3.4 Maintenance Issues

Operations and maintenance procedures in the water supply and sewerage entity have been chronically under-funded and assets have deteriorated. Outsourcing of operation and maintenance functions is desired but is constrained by a lack of budget and in-house capacity to manage and supervise contracts.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

The water supply and sewerage entity, formerly the Water and Sewerage Department and now the Fiji Water Authority, has been undergoing a corporatization process for a number of years, but has not been successfully completed to date. An ADB-funded TA¹ to specify needed capacity building within the entity to function as a commercially-oriented utility has been completed but not to date fully implemented. The ADB loan-funded Suva-Nausori Upgrade Project has commenced; in mid 2005, a Project Management Unit was appointed to assist the implementation of the loan and the corporatization process and completed its work in December 2006. Since then, the Interim Government has re-affirmed the Government's commitment to complete the corporatization of water and sewerage services, a process that remains on-going.

¹ TA 4270-FIJ: *Capacity Building in Water and Sewerage Services*

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Assets continue to deteriorate due to lack of maintenance, in turn due to insufficient funding for operations and maintenance. Water supply and sewerage services are heavily subsidized to all user groups, including large commercial users.

Implementation of the ADB-funded Suva-Nausori Upgrade Project is not meeting targets. Since 2005, about F\$19 million of a total expected expenditure of F\$148 million has been disbursed under the project, resulting in only 2 of 13 water supply components, and none of eight sewerage projects, completed so far. Management identified two constraints leading to this result: (i) the need for the government to make expenditures upfront, to be reimbursed by loan proceeds (a disbursement mechanism that was originally elected by the government), and (ii) a lack of project management capacity within the department. Recently, however, a new local manager for the project has been appointed, and performance is expected to improve. Also, the department reportedly may request, via the government, a change in loan disbursement procedures.

The water supply and sewerage service sector is not compliant with existing labor safety and environmental standards.

The corporatization process itself has experienced periodic losses in momentum due to changes in government, although the current government has re-affirmed commitment to continue the process. There is an urgent need to adjust the water tariff in Fiji, which has been held to a level well below cost for many years, but this remains a contentious political issue.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The Commerce Commission needs to build capacity as an independent multi-sector regulator. See above, section 2.7.
- At present, technical regulation of the sector is the responsibility of the service provider itself, but under corporatization, that will be transferred to the Ministries of Environment and Mineral Resources. The Ministry of Environment is under-resourced and under-staffed at present to undertake its full regulatory responsibilities in the water supply and sewerage sector. It is understood that a capacity-building exercise in the Ministry of Environment is underway.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Complete the corporatization and capacity building processes that were initiated in 2005, including meeting all legal standards for worker safety and environmental protection;
- Implement needed regulation of the water supply and sewerage sector (see above section 3.7);

- Adjust the water tariff to achieve full cost recovery from all users who can afford to pay (i.e., all commercial and industrial users, all non-poor households, and the government itself); maintain the existing lifeline tariff for poor households;
- Expediently complete implementation of the Suva-Nausori Upgrade project.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For needed regulatory reforms, see section 2.9 above;
- Complete capacity building in the Fiji Water Authority as recommended by TA 4270 and the PMU (2005-2006) including implementation of OHS improvements by the end of 2008. No TA needed;
- Complete capacity building in the Ministry of Environment (understood to be underway) to enable the Ministry to assume technical regulation responsibilities for the water supply and sewerage sector (end 2008). No TA needed;
- Using the results of TA 4270 and the financial modeling and management reform work of the PMU (2005-2006), prepare a water supply and sewerage tariff submission for consideration by the Commerce Commission (end 2008). No TA needed.

4 Power

4.1 Sector Structure and Service Quality

The public power supply is provided by the Fiji Electricity Authority (FEA), a fully corporatized, commercially-oriented government-owned utility. The FEA provides 24 hr/day grid-connected power to all urban areas of the 2 main islands (Viti Levu and Vanua Levu) and to Levuka in Ovalau. FEA power supply reaches about 70% of the population.

Rural electrification by FEA is carried out by grid connections where these are geographically feasible, but not all populated rural areas are accessible. Of Fiji's population of approximately 850,000, some 270,000 people are not grid-connected, living in rural areas chiefly in the interiors of the main islands and in the outer islands. Of these, an estimated 70,000-100,000 have access to intermittent and unreliable electricity supply from about 450 subsidized stand-alone diesel gensets administered by the Ministry of Energy (MoE) but owned and operated by the villages. In addition, about 300 households or 1500 people are supplied with solar home systems (SHS), which provide lighting to households for 4-6 hours/day. Overall, about 80% of Fiji's population has access to a public power supply of one form or another.

4.2 Community Service Obligations

For the study of CSOs conducted by the Ministry of Public Enterprises in 2006 that will form the basis of future policy, see section 2.2 above.

In the power sector at present, there are no defined community service obligations. Since 1993, however, the government (through the Ministry of Energy) has been implementing a policy of providing stand-alone diesel gensets and associated distribution networks to remote rural villages, if the villages provide 10 percent of the initial cost.

FEA is gradually extending the networks in the main islands, but limiting self-investment to projects which show a commercially-acceptable return. Under the 1993 policy, the MoE subsidizes line construction to villages that have road access but which do not meet FEA's commercial criteria (again providing that villages contribute 10 percent of the initial cost) and engages FEA as the sole contractor to construct the lines. FEA then assumes responsibility for supply to the affected villages. Since 1994, FEA has connected about 250 villages, totaling some 11,000 customers.

A component of the proposed multi-sector regulator TA that was prepared by ADB in 2006 (mentioned previously) is support for preparation of a Rural Electrification Master Plan, designed to provide structure and identify resources for investment (e.g., through creation of a Rural Electrification Fund subject to multilateral contributions) in rural electrification over a number of years. It is understood that the government wishes to proceed with this component.

4.3 Regulatory Arrangements

Price regulation of the grid-connected public power supply (FEA) is provided by the Commerce Commission, subject to review and approval of Cabinet. Technical regulatory functions are retained within FEA.

As mentioned, the Commerce Commission is the subject of a comprehensive institutional strengthening effort via a multi-sector price regulatory capacity building

TA formulated by the ADB in September 2006. The proposed multi-sector regulator would cover price regulation in power (removing current self-regulatory functions of the Fiji Electricity Authority), water/sanitation, and telecommunications. Though processing of external finance of the TA has been suspended in the wake of 5 December 2006, the MPE has reported its intention to implement it with Fiji government resources.

4.4 Maintenance Issues

The operations and maintenance functions within FEA's primary diesel-powered generating stations on the main island of Viti Levu have been successfully outsourced to an overseas private firm (Telesource, of CNMI), which has been mainly responsible for a reduction in FEA staff from about 1100 to slightly more than 500. Other areas of operation and maintenance (distribution/transmission, small diesel stations) are carried out directly by trained FEA personnel. There are no significant maintenance issues in the grid-connected power supply.

In the isolated rural power supply administered by the Ministry of Energy, especially when diesel-supplied, maintenance and performance problems are severe. The stand-alone diesel stations suffer chronic and lengthy outages due to the difficulty of maintenance and uncertain fuel supply arrangements in remote areas and dependence on largely untrained village staff for operations. Ministry of Energy policy now emphasizes installation of solar home systems as being more affordable and reliable in remote settings.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

Management reforms introduced by the Fiji Electricity Authority (FEA) in 2001 have been effective in enabling a substantial increase in the contribution to generation of independent power producers (IPPs), for which provision (under signed agreements) has been made in the current 10-year development plan. The development plan heavily emphasizes a shift away from diesel towards renewable sources of energy for generation. FEA, however, faces a challenging uncertainty in terms of future load growth and the performance of their future capacity investments, which are directly influenced by the uncertain direction of Fiji's economy.

Also, as mentioned, operations and maintenance in FEA's large central diesel stations has been outsourced, allowing a substantial reduction in FEA professional staff.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

For isolated areas, institutional constraints have hampered the MoE's ability to support the government's goals for rural electrification in Fiji, especially in terms of project preparation and management. The MoE has limited capacity to monitor projects, with weak communication links to the field, a largely manual (hard copy) record system, and poor control over costs. There is, for example, no competitive bidding for the rural electrification projects implemented by the FEA and the Department of Public Works for grid connection and stand-alone diesel schemes, respectively, which are quoted to MoE on a cost-plus basis.

Though the government accords high priority to rural electrification and allocates some F\$6 million annually to the MoE for the purpose, service delivery is limited by a lack of competition in project design and construction, limited government financial resources to support rural electrification objectives, and weak institutional capacity to

construct and monitor rural projects or to provide mechanisms for their sustainable operation and maintenance.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The Commerce Commission needs to build capacity as an independent multi-sector regulator. See above, section 2.7.
- At present, technical regulation of the sector is the responsibility of the service provider itself, and this creates a potential conflict. Technical regulation will be transferred away from FEA, however, once the multi-sector regulator has been implemented.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Strengthen price regulation and remove technical regulation from FEA;
- Complete a Rural Electrification Master Plan, as specified in a TA proposed by ADB in 2006, and implement it.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

- For needed regulatory reform, see section 2.9;
- Proposed approaches for generating a Rural Electrification Master Plan for implementation include the following (consistent with the proposed TA):
 - Ensure continuous consultation and dialogue with all stakeholders, including in particular Ministry of Finance & National Planning, Department of Energy, and the Fiji Electricity Authority.
 - Conduct wider stakeholder workshops to disseminate work progress and receive feed-back on proposals; arrange for an experienced leader of a successful rural electrification program/rural electrification fund to present institutional and implementation aspects, financing options, private sector participation, and lessons learnt.
 - Ascertain government objectives for rural electrification; identify progress and gaps in rural electrification development. Review the Rural Electrification Policy (1993) and related legislation; assess gaps in the delivery of electrification services in rural areas under current programs, institutional arrangements and policy;
 - Provide benchmark indicators for rural electrification to show progress over time;
 - Review the FEA's plans for grid extensions; assess the existing policy and criteria for grid-extension; prepare a detailed budget outlining capital, operations and maintenance costs;

- Prepare a rural demand forecast for electricity consistent with government objectives for extending services to rural areas;
- Assess affordability of poor households to overcome up-front costs and ability to pay cost recovery tariffs; assess subsidy requirements; determine whether existing arrangements for addressing connections for the rural poor are sufficient, particularly with reference to the MPE's policy regarding CSOs;
- Outline the legal, institutional and financing arrangements and management procedures of best-practice rural electrification in Fiji; prepare a time-bound implementation plan for implementation clearly identifying the steps to be taken by various stakeholders; prepare feasible costed master plan scenarios to sustainably electrify rural areas in Fiji Islands;
- Prepare an assessment of the potential of establishing a rural electrification fund under a semi-autonomous Board of Directors; recommend an appropriate composition of the Board of Directors and define its roles and functions;
- Conduct workshops for all stakeholders to discuss the proposed institutional and implementation arrangements and the rural electrification strategy; revise the strategy as appropriate for consideration by Government and Cabinet.

5 Roads

5.1 Sector Structure and Service Quality

The roads sector is under the Department of National Roads (DNR), until recently under the Ministry of Works and Energy and now under the Ministry of Public Enterprise as it has been declared a 'reorganization entity' (i.e., to be corporatized) under the Public Enterprise Act. The DNR may be merged with the Land Transport Authority (LTA, responsible for vehicle and driver licensing) to create a National Roads Authority, and thus will be able to access revenues from road user fees for road maintenance². Road access in and between urban areas is good, with a mixture of tar-sealed and gravel roads, albeit often in poor condition. Remote rural communities on the main islands often have no road access or nearly impassable access.

5.2 Community Service Obligations

In the roads sector at present, there are no defined community service obligations.

5.3 Regulatory Arrangements

The road sector is unregulated. There is a 'watchdog' organization concerned with road safety issues, the National Roads Safety Council, but it has no regulatory functions.

5.4 Maintenance Issues

Roads maintenance in Fiji is poor and under-funded. Contract management skills within the DNR are lacking; there is a Roads Asset Management System in place, but DNR management acknowledge that staff and skills are insufficient to make effective use of it. An ADB-funded study in 1997 estimated that an appropriate annual budget for national roads maintenance would be approximately F\$40 million/year; no more recent estimate is available, but a realistic figure for 2007 would be almost certainly higher. The current annual allocation to roads maintenance is about F\$26 million, much of it spent on reactive storm damage repair. Thus a backlog of roads maintenance requirements is gradually building.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

The Department of National Roads (DNR) is undergoing corporatization, with the intention of building capacity and concentrating road-user generated resources for improved road asset management, planning, and maintenance. Though this indicates that policy assigns an increased priority for roads in the public sector, the process has not been completed and positive impacts on the quality of Fiji's roads have not yet been felt.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Outsourcing of roads maintenance is increasing, but in Fiji's case, this may result as much from unavailability of government plant as application of private sector-supportive policy. Government-owned plant for road maintenance is held by

² However, current LTA revenues are a small fraction of the annual road maintenance requirement.

Mechanical Services of the Ministry of Works and Energy, but the plant is poorly maintained and the majority of it is permanently out of service. Government clients of Mechanical Services must routinely meet their plant needs by hiring from the private sector (at commercial rates, reportedly some 2.5 times higher than the government rates).

With present under-funding, roads maintenance in Fiji has not developed into a predictable, long-term market in which the private sector might take an active interest, as has been done in Samoa. Also, as mentioned, the DNR will need greater contract management capacity to use the private sector more effectively. The national roads maintenance requirement was estimated in 1997 but has not been formally updated since then. A computerized asset register and road maintenance management system exists but is not effectively utilized due to lack of skilled staff. The ADB-funded Fiji Roads Upgrade Project IV (FRUP IV) contains a TA to address these issues. Funding for that TA component might be transferred to the ongoing FRUP III project to advance implementation of the TA.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads performance and quality standards monitoring is presently ad hoc (the tools of asset management exist in the DNR but are not effectively utilized);
- There is a need for roads standards monitoring and enforcement to be separated from direct maintenance activities; with increased budget and direct maintenance shifting to the private sector through outsourcing, the DNR should gradually assume mainly a regulatory/supervisory role.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Support to the National Roads Authority to build capacity in Asset Management and Contract Supervision
- Government-owned plant for road maintenance is held by Mechanical Services of the Ministry of Works and Energy is responsible for holding, maintaining, fuelling, and hiring out to government agencies government-owned heavy equipment for civil works including government road maintenance. Much of the heavy plant is left over from past overseas grant- and loan-funded civil works projects. Government allocations have not been adequate to maintain the plant; eighty percent of the equipment is non-functional and beyond repair. Thus the status quo appears to retain a heavy burden of maintenance of government-owned plant, while most actual plant services are carried out by the private sector at commercial rates. Privatizing the plant pool would thus eliminate maintenance costs while not materially increasing plant hire costs.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The corporatization process underway for the DNR needs to be supported with appropriate needs assessment and training as follows:
 - Update the annual maintenance requirement of the national roads system;
 - Update the asset register and the asset maintenance management system;
 - Prepare a manual for operation and maintenance of the asset register and roads maintenance management system;
 - Prepare a manual for project specification, contract tendering and contract administration and supervision;
 - Taking account of the institutional structure and resource requirements of the corporatized DNR, identify gaps in job functions and skills to fill its required roles, and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
 - Arrange periodic internal workshops to ensure that DNR staff have a clear understanding of the NRA's role and are properly applying the procedures of asset management and contract supervision.

These activities can be assisted under existing TA arrangements provided in the ADB FRUP III and FRUP IV projects (see above).

- Privatization of Mechanical Services: schedule this organization for winding up, with sale of assets with remaining useful life to the private sector.
 - Prepare a detailed inventory and valuation of assets held by Mechanical Services;
 - Identify assets to be written off and disposed of;
 - Arrange for sale by tender of assets with remaining useful life to the private sector.

These activities should be accomplished by the end of 2008. No TA needed.

6 Ports

6.1 Sector Structure and Service Quality

Over the past ten years, the ports sector in Fiji has undergone rapid and successful institutional reform. The Fiji Ports Corporation Ltd (FPCL) was established under the Companies Act as a government-owned commercial enterprise in 2004, having been corporatized as the Maritime and Ports Authority of Fiji in 1998.

Operations and maintenance at the ports owned by FPCL are handled by Ports Terminal Ltd (PTL), previously an operations department of the Ports Authority and now a wholly-owned subsidiary of FPCL. FPCL's and PTL's operations are fully integrated and computerized and achieve international best-practice standards of throughput (20 containers/hr).

The FPCL has four ports: Suva, Lautoka, Labasa, and Levuka. All are profitable except for Levuka which is cross-subsidized by the others.

6.2 Community Service Obligations

Minor ports in the small outer islands of Fiji are operated by the (non-corporatized) Department of Public Works. These operate at a substantial loss. In the ports sector at present, there are no defined community service obligations.

For the study of CSOs conducted by the Ministry of Public Enterprises in 2006 that will form the basis of future policy, see section 2.2 above.

6.3 Regulatory Arrangements

Rates at FPCL's ports are set by the FPCL Board, following a consultative process with shipping companies, submitted to the Commerce Commission for review, and approved by Cabinet. Shipping companies are represented on the FPCL Board; there are no government representatives. An ADB-funded review of rates is currently underway.

6.4 Maintenance Issues

There are no significant asset maintenance issues in the urban ports sector. The condition of the PWD-operated minor ports on the smaller outer islands is unknown.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

An ADB-funded upgrade of the Suva port completed in 2003 was highly effective in improving container efficiency. FPCL has recently installed cranes on its major ports (an investment of some F\$16 million) and will now be able to serve a wider variety of ships. FPCL is profitable and pays taxes and dividends to the government.

The Association of Pacific Ports is headquartered in the Secretariat of the Pacific Communities (SPC, Suva), and conducts a twinning program for on-the-job training between the member ports companies of the Pacific (including in Australia and New Zealand), and regional benchmarking for the ports sector. Other training is conducted in-house and through the national public sector training agency, TPAF. Some training is available through the Port of Singapore, with costs supported by Japan.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The physical status of minor ports in Fiji, operated and maintained by the PWD, is unknown. However, the minor ports likely face the insufficient maintenance and poor management typical of roads, shipping services (see below), and other government departments providing services.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The Commerce Commission needs to build capacity as an independent multi-sector regulator and formally incorporate ports within its jurisdiction. See above, section 2.7.
- At present, technical regulation of the sector is the responsibility of the service provider itself, and this creates a potential conflict. Technical regulation will be transferred away from FPCL, however, once the multi-sector regulator has been implemented.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following (both regulatory), also applicable to the telecom sector (section 2.8):

- Building multi-sector regulatory capacity in the Commerce Commission to perform effective price regulation in the ports sector;
- Strengthening the capacity of the Ministry of Public Enterprises to provide essential performance oversight of SOEs;
- Design and Implementation of a Social Obligations Policy (underway by the MPE)

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery concern capacity building for regulation and SOE oversight, and are the same as proposed for the telecom sector. See above section 2.9.

7 Shipping

7.1 Sector Structure and Service Quality

Domestic shipping services in Fiji are conducted by Government Shipping Services (GSS), which is a non-corporatized government department, and a number of private shipping companies. GSS, now under the Ministry of Works, has about 50% of the domestic shipping market, which it serves with 14 vessels (a mix of roll-on/roll-off, cargo, passenger, and landing craft vessels).

7.2 Community Service Obligations

Traditionally, non-profitable routes have been served by the GSS at low rates, or at subsidized rates by the private companies. Recently, a route licensing scheme has been introduced which assigns certain shippers to certain routes, with subsidies paid to the licensed shippers on non-economic routes. These constitute the currently defined community service obligations of the sector.

Regarding the study of CSOs conducted by the Ministry of Public Enterprises in 2006 that will form the basis of future policy, see section 2.2 above.

7.3 Regulatory Arrangements

The domestic shipping sector is not price regulated, but price controlled. Government shipping rates are approximately 50% of the private sector shipping company rates, the latter approved by the Price and Incomes Board. Some uneconomical routes served by private shipping companies are subsidized.

The private sector shipping services have recently (2nd quarter 2007) come under licensing of routes by the Fiji Islands Maritime Safety Authority (FIMSA), a move largely supported by the private shippers, as it restricts entry into established routes, which without entry restrictions and limited traffic become uneconomic to serve.

The GSS is responsible for maintaining the maritime nav aids system in Fiji, but the system is in an advanced state of disrepair. The existing nav aids technology is largely visual and thus outmoded; upgrade to a GPS system would be highly desirable.

The FIMSA is the maritime safety regulatory agency and has been declared a 'reorganization entity' under the Public Enterprise Act and thus will be corporatized. As part of this process the 1986 Marine Act is under review, to be harmonized with the Seaports Act and made consistent with international conventions. FIMSA will take over management of the maritime nav aids system from the GSS, and will undertake responsibility for hydrographic survey. Hydrographic charts are outdated and inaccurate. FIMSA sees an urgent need for a regional project to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response.

7.4 Maintenance Issues

In 1971, GSS operated 37 ships, but most have since been written off as beyond repair; the average age of the government's remaining 14 vessels is more than 28 years. Six ships were scuttled as beyond repair in 2006. Most of the government vessels will soon need to be retired, but there is no current budget available to replace them. (GSS estimates that F\$10-\$12 million is needed for urgent vessel

replacements, if the government is committed to remaining in shipping services.) The government vessels mainly provide cargo shipping services to the government; cargo is shipped for free for government clients. Private cargo and passenger services are also provided, at rates approved by the Ministry of Finance.

All revenues collected by GSS are transferred to the Fiji Islands Maritime Safety Administration (FIMSA) and are thus not retained for operation and maintenance. GSS allocates the budget granted by the Ministry of Finance to keep its vessels in service, but this has chronically been well below needs. Maintenance is carried out on privately-owned slipways, which also provide maintenance services; GSS claims that these services are not cost-competitive.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

Licensing of routes has been recently introduced, which should strengthen the financial viability of some of the private shipping companies and thus help to sustain services. Otherwise, few initiatives have been undertaken to improve services in this sector.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There is a lack of investment in vessel capacity and lack of expenditure on maintenance and vessel and passenger amenities, due to shipping rates that are held low under price control. The heavily subsidized GSS directly competes with the private shippers and undermines the latter's commercial viability.

The nav aids system is in poor repair and is unsafe. GPS systems are not in wide use.

Hydrographic charts are outdated and inaccurate (do not match GPS data where available).

7.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The Commerce Commission needs to build capacity as an independent multi-sector regulator and formally incorporate price regulation of domestic shipping within its jurisdiction. See above, section 2.7.
- Technical regulation (including all safety aspects including nav aids supervision and maintenance and distress response) and licensing of routes is to be housed under FIMSA, which will also undertake responsibility for hydrographic survey. This is underway in the process of corporatizing FIMSA.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Efficient price regulation is required to sustain the commercial viability of a competitive industry, supported by a transparent CSO policy (subsidies to non-economic routes; as mentioned in the telecoms section, such a policy is being prepared by the MPE);

- There is an urgent need for a regional effort to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response;
- Full privatization of the domestic shipping sector in Fiji (winding up of GSS) would not restrict service or undermine government's social obligations, as the private sector already provides shipping services (sometimes with subsidy); and would relieve government of a massive investment requirement to replace aging vessels and a continuous burden of expenditure on operation and maintenance, staffing, and training.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Concerning capacity building for regulation and SOE oversight to be applied to the shipping sector, proposed approaches are the same as for the telecom sector. See above section 2.9.
- Conduct a detailed GPS survey of the South Pacific as a regional TA to produce a consistent and accurate set of hydrographic charts of the entire region, including Fiji, Solomon Islands, PNG, Vanuatu, Samoa, Niue, Tonga, and the Cook Islands. Identification and implementation of increased hydrographic training capacity, and improvements in international and local systems for distress signaling and response and associated training, should be included as components of this TA. The time required to complete this is not known (presumably 2-3 years);
- Winding up of GSS: schedule this organization for winding up, with sale of assets with remaining useful life to the private sector.
 - Prepare a detailed inventory and valuation of assets held by GSS;
 - Identify assets to be written off and disposed of;
 - Arrange for sale by tender of assets with remaining useful life to the private sector.

These activities should be accomplished by the end of 2008. No TA needed.

8 Annex: Country Consultation Report

FIJI ISLANDS

The RETA Team visited Suva from 28 March through 5 April. Discussions were held with (not in order):

- Ministry of Finance and National Planning (MFNP)
- Fiji Ports Corporation Ltd (FPCL)
- Government Shipping Services (GSS)
- Telecom Fiji Ltd (TFL)
- Prime Ministers Department
- Commerce Commission
- Ministry of Transport, Works, and Energy (MWTE)
- Government Building Maintenance Unit (MWTE)
- Mechanical Services (MWTE)
- Department of National Roads (MWTE)
- Transport Planning Unit (MWTE)
- Water and Sewerage (Ministry of Local Government, Urban Development & Public Utilities)
- Fiji Electricity Authority (Ministry of Local Government, Urban Development & Public Utilities)
- Fiji Trade and Investment Board (FTIB)
- Unwired Fiji (I-Pac Communications Ltd)
- Connect Ltd (subsidiary of TFL)
- Fiji National Provident Fund (FNPF)
- Pacific Power Association (PPA)
- Ministry of Public Enterprises (MPE)
- Telecom Regulatory Unit (Ministry of Communications)

Highlights

Over the past ten years, the ports sector in Fiji has undergone rapid and successful institutional reform. The Fiji Ports Corporation Ltd (FPCL) was established under the Companies Act as a government-owned commercial enterprise in 2004, having been corporatized as the Maritime and Ports Authority of Fiji in 1998. Operations and maintenance at the ports owned by FPCL are handled by Ports Terminal Ltd (PTL), previously an operations department of the Ports Authority and now a 100% subsidiary of FPCL. FPCL's and PTL's operations are fully integrated and computerized and achieve international best-practice standards of throughput (20 containers/hr). An ADB-funded upgrade of Suva completed in 2003 was highly effective in improving container efficiency.

Rates at FPCL's ports are set by the FPCL Board, following a consultative process with shipping companies, submitted to the Commerce Commission for review, and approved by Cabinet. Shipping companies are represented on the FPCL Board; there are no government representatives. An ADB-funded review of rates is currently underway.

FPCL is profitable and pays taxes and dividends to the government. The FPCL has four ports: Suva, Lautoka, Labasa, and Levuka. All are profitable except for Levuka which is cross-subsidized by the others. (The Levuka wharf was profitable until the Pafco cannery was built with AusAid assistance, including a new wharf which took much of the traffic volume from the FPCL wharf. FPCL would like to close this wharf.)

The Association of Pacific Ports is headquartered in the Secretariat of the Pacific Communities (SPC, Suva), and conducts a twinning program for on-the-job training between the member ports companies of the Pacific (including in Australia and New Zealand), and regional benchmarking for the ports sector. Other training is conducted in-house and through the national public sector training agency, TPAF. Some training is available through the Port of Singapore, with costs supported by Japan.

Shipping services in Fiji are conducted by Government Shipping Services (GSS) and a number of private shipping companies. GSS, now under the Ministry of Works, has about 50% of the domestic shipping market, which it serves with 14 vessels (a mix of roll-on/roll-off, cargo, passenger, and landing craft vessels). In 1971, GSS operated 37 ships, but most have since been written off as beyond repair; the average age of the government's remaining vessels is more than 28 years. Six ships were scuttled as beyond repair in 2006. Most of the government vessels will soon need to be retired; but there is no current budget available to replace them. (GSS estimates that F\$10m-\$12m is needed for urgent vessel replacements, if the government is committed to remain in shipping services.) The government vessels mainly provide cargo shipping services to the government; cargo is shipped for free for government clients. Private cargo and passenger services are also provided, at rates approved by the Ministry of Finance.

Government shipping rates are approximately 50% of the private sector shipping company rates, the latter approved by the Price and Incomes Board. Some uneconomical routes served by private shipping companies are subsidized. All revenues collected by GSS are transferred to the Fiji Islands Maritime Safety Administration (FIMSA) and are thus not retained for operation and maintenance. GSS allocates the budget granted by the Ministry of Finance to keep its vessels in service, but recognizes the impending loss of vessel capacity due to old age. Maintenance is carried out on privately-owned slipways, which also provide maintenance services; GSS claims that these services are not cost-competitive.

GSS is also responsible for maintaining the maritime nav aids system in Fiji, but the system is in an advanced state of disrepair. The nav aids technology is largely visual and thus outmoded; upgrade to a GPS system would be highly desirable. Technical training (for routine deck and mechanical operation and maintenance) is a chronic and urgent need.

The private sector shipping services are to come under stricter regulation and licensing of routes by FIMSA in late 2007, a move largely supported by the private shippers, as it would restrict entry into established routes, which is now unrestricted.

Full privatization of the domestic shipping sector in Fiji would not restrict service or undermine government's social obligations, as the private sector already provides shipping services (sometimes with subsidy); and would relieve government of a massive investment requirement to replace aging vessels and a continuous burden of expenditure on operation and maintenance, staffing, and training.

The FIMSA as a maritime regulatory agency is to be corporatized and has been declared a 'reorganization entity'. As part of this process the 1986 Marine Act is under review, to be harmonized with the Seaports Act and made consistent with international conventions. FIMSA will take over management of the maritime nav aids system from the GSS, and will undertake responsibility for hydrographic survey. Hydrographic charts are outdated (use obsolete projections) and are inaccurate. FIMSA sees an urgent need for a regional project to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response.

Mechanical Services of the Ministry of Works and Energy is responsible for holding, maintaining, fuelling, and hiring out to government agencies government-owned heavy equipment for civil works and passenger vehicles. Much of the plant held by Mechanical Services, especially the heavy equipment, is left over from past overseas grant- and loan-funded civil works projects. Government allocations have not been adequate to maintain the plant; eighty percent of the equipment is non-functional and beyond repair. Government clients of Mechanical Services must routinely meet their plant needs by hiring from the private sector (at commercial rates, reportedly some 2.5 times higher than the government rates). Thus the status quo appears to retain a heavy burden of maintenance of government-owned plant, while most plant services are carried out by the private sector at commercial rates. Mechanical Services does not outsource any of the maintenance of the plant pool to the private sector. Privatizing the plant pool might thus eliminate maintenance costs while not materially increasing plant hire costs. Alternatively, a corporatized entity for Mechanical Services could provide equipment leasing services under guaranteed standards of performance and availability.

The Government Buildings Maintenance Unit (GBMU), also under the Ministry of Works and Energy, is responsible for buildings maintenance and construction and enforcement of building codes. Government buildings are deteriorating as the GBMU lacks resources to carry out more than reactive, stop-gap maintenance. However, as a small experiment, the GBMU is preparing a tender for outsourcing the maintenance to 10 government quarters to the private sector. The results in terms of cost and performance will be compared to GBMU's direct maintenance services. If the results are favorable, the experiment will be expanded; the GBMU management are receptive to the idea of eventually being able to radically down-size the Unit to a supervisory role if the private sector could cost-effectively provide the needed services.

The water and sewerage sector is now under the newly-formed Ministry of Local Government, Urban Development, and Public Utilities. The Fiji Water Authority (FWA) will be formed upon gazettal and President's signature on the order creating it, expected in 2007. The process of creating the FWA has been driven by a Charter Implementation Committee, briefly suspended after 5 December but now fully formed.

Outsourcing of operation and maintenance services in the water and sewerage sector is desired but is constrained by a lack of in-house capacity to manage and supervise contracts.

The ADB-funded Suva-Nausori Upgrade Project is not meeting targets. Since 2005, about F\$19m of a total expected expenditure of F\$148m has been disbursed under the project, resulting in only 2 of 13 water supply components, and none of 8 sewerage projects, completed so far. It thus appears that improvements in service quality in the Suva-Nausori corridor (where service quality is a serious public issue) are not available to support the ongoing institutional reform process. Management identified two constraints leading to this result: (i) the need for the government to make expenditures upfront, to be reimbursed by loan proceeds (a disbursement mechanism that was originally elected by the government), and (ii) a lack of project management capacity within the department. Recently, however, a new local manager for the project has been appointed, and performance is expected to improve. Also, the department reportedly may request, via the government, a change in loan disbursement procedures.

The roads sector is under the Department of National Roads (DNR), until recently under the Ministry of Works and Energy and now under the Ministry of Public Enterprise as it has been declared a 'reorganization entity' (see below). Roads maintenance in Fiji is poor and under-funded. Contract management skills within the DNR are lacking; there is a Roads Asset Management System in place, but DNR management acknowledge that staff and skills are insufficient to make effective use of it. An ADB-funded study in 1997 estimated that an appropriate annual budget for national roads maintenance would be

approximately F\$40m/year; no more recent estimate is available, but a realistic figure for 2007 would be almost certainly higher. The current annual allocation to roads maintenance is about F\$26m, much of it spent on reactive storm damage repair. Thus a backlog of roads maintenance requirements is gradually building. Outsourcing of roads maintenance is increasing, but in Fiji's case, this may result as much from unavailability of government plant as application of private sector-supportive policy (see above discussion on Mechanical Services). With present under-funding, roads maintenance in Fiji has not developed into a predictable, long-term market in which the private sector might take an active interest, as has been done in Samoa. Also, as mentioned, the DNR will need greater contract management capacity to use the private sector more effectively. The ADB-funded Fiji Roads Upgrade Project IV (FRUP IV) contains a TA to address these issues. Funding for that TA component might be transferred to the ongoing FRUP III project to advance implementation of the TA.

The telecom sector in Fiji is composed of (i) government-owned Telecom Fiji Ltd (TFL) which operates the land line system (the 'copper') throughout the country and includes the 100% subsidiaries of Vodaphone (for mobile services) and Connect (for internet services); (ii) government-owned FINTEL, a company which operates the country's international gateway for voice and data and has recently (late 2006) started internet services; and (iii) Unwired Fiji Ltd, a private sector provider of wireless internet services. Thus the government monopoly in internet services has been broken but remains intact for land- and mobile phone services (and, because of the 'copper' monopoly, in DSL-based internet services).

Compared to many other Pacific countries, Fiji enjoys a significant advantage in overseas telecom services, due to its access to the bandwidth available on the Southern Cross fiber cable which connects Fiji with New Zealand. Thus Pacific satellite capacity is not a serious constraint in Fiji, but is in most other countries.

The telecom sector is to be deregulated by a Telecom Deregulation Bill prepared in 2005/06 with World Bank assistance (a Telecommunications Roadmap was completed in 2006), which will be implemented by the Interim Government. The Bill provides for new licenses to be issued for land, mobile, and internet services in competition with the government companies (Digicel already holds a provisional license in Fiji; when operational, Digicel is expected to double the number of mobile subscribers in Fiji, according to Connect management), and provides for strengthened technical and economic regulation of the sector. (See below. Under current arrangements, telecom rates are regulated by the Commerce Commission, while the Telecom Regulatory Unit of the Ministry of Communications provides limited technical oversight functions. Both agencies are to be strengthened under the new Telecom Bill.)

In anticipation of deregulation, TFL reorganized itself to prepare for competition under the leadership of the recently retired Joe Mar; management is confident that TFL will fare well under the new market. TFL is providing extended rural telephone coverage with the wireless (but stationary) EasyTel technology – a handset that provides a range of 60 km and transfer rates of 128 kbps, via satellite. The cost per rural connection is about F\$200, versus a rural landline connection cost of F\$1500. Because of this, TFL investments in 'copper' extensions in rural areas have ceased. TFL claim an 80% coverage of the country for voice services. FINTEL has adopted the wireless WiMax technology for its internet services, the coverage of which will gradually extend to rural areas.

Unwired Fiji Ltd, a private sector competitor to Connect in the ISP market, has been licensed in Fiji since 2001, but began operations in 2005. The 4-year delay was due to the initial high cost of bandwidth offered by FINTEL; the cost has since reduced by 60%. Though present international links are through FINTEL, under telecom deregulation Unwired will be allowed access to the Southern Cross fiber cable without going through FINTEL; this is expected to fuel a rapid growth for Unwired in market share. Unwired is

100% locally owned (Unwired Australia has no financial interest in Unwired Fiji). The company has a minority share of the ISP market with about 3,200 subscribers (against Connect's 10,000-12,000).

The Interim Government (Prime Minister's department) has launched a hard push on public sector reform. The monopoly on TV licenses has been removed; the administration strongly supports telecom deregulation and will implement the Telecom Deregulation Bill. The Department of National Roads (DNR) has been declared a 'reorganization entity' under the Public Enterprise Act and thus will be corporatized; maintenance of roads will be increasingly outsourced. The DNR may be merged with the Land Transport Authority (LTA) to create a National Roads Authority. The water/sanitation sector has previously been approved for corporatization and, as mentioned, has been transferred out of the Ministry of Works and Energy to the Ministry of Local Government, Urban Development, and Public Utilities, together with the Fiji Electricity Authority. In a relevant parallel reform, the Public Service Commission and the Ministry of Public Enterprise have been merged.

The Government will continue to push for multisector regulation, with price and tariff determination remaining with the Commerce Commission and a multisector regulator focusing on enabling and maintaining an appropriate business environment through licensing and technical oversight functions. The Government recognizes that the Commerce Commission needs considerable capacity building support to fulfill its functions.

Air Pacific has lost 28% of its market to Australia to Virgin Blue; its Australian routes are now break-even, with New Zealand the only remaining profitable route. Air Niugini (PNG) has opened a Port Moresby-Nadi route, providing a link to Singapore. The Government would like to open a direct Air Pacific route to Singapore and, later, direct routes to China and India, hereby reducing Air Pacific's dependence on Australia/NZ markets.

Constraints of land issues on development may be eased by introducing a land-swap policy, under which a developer owning a piece of freehold would be allowed to swap it for an equivalent piece of customary land (with landowner agreement) in a more desirable location. Currently, land cannot be transferred out of customary ownership under any circumstances. Approximately ten percent of the land in Fiji is freehold.

The Commerce Commission (CommComm) is to be merged with the Department of Fair Trading, Price and Incomes Board, and the Consumers Council, all public sector consumer protection agencies, and this will help the Commerce Commission to overcome its gaps in capacity.

Telecom deregulation will result in the present Telecom Regulatory Unit of the Ministry of Communications being re-established as the Telecom Regulatory Authority (TRA), but CommComm will retain telecom tariff regulation. The TRA will take up technical regulation, quality of service, licensing, and market and business development. CommComm is working with the Telecom Regulatory Unit to fully coordinate activity and roles by May 2007.

Currently, the CommComm treats service providers as monopolies in their own markets, e.g., TFL for local landlines, Vodaphone for mobiles, etc., rather than treating the telecoms sector as a whole in a competitive market. However, regulation of the 'market-monopolies' will become lighter as competition improves. Internet Service Providers (ISPs) are not regulated because they are already deemed competitive.

The CommComm's determinations are not final (do not carry the force of law as in other countries, e.g., Samoa), as they can be overturned by Cabinet. Recently, the Cabinet reversed the 3rd stage of the electricity tariff increase that had been approved by the CommComm in 2006. CommComm's budget is dependent entirely on government

allocation; license fees collected from regulated service providers would provide an increased degree of autonomy and are under discussion.

The amalgamation of Ministry of Public Enterprises (MPE) and Public Service Commission ensures that the MPE continues to act as the key reform driver, particularly with the continuing corporatization process of various government services (e.g., water, roads). The Private Public Partnership (PPP) Unit has lost its staff – the legal officer has returned to the judicial system – and needs strengthening. MPE would make use of a regional advisory service in many areas of its work including assistance in corporatization, PPP, and regulation. MPE supports the concept of a multisector regulator and is concerned about the establishment of the Telecom regulator under the proposed Telecom Bill, as it separates pricing and technical regulation.

In the electricity sector, management reforms introduced by the Fiji Electricity Authority (FEA) in 2001 have been effective in enabling a substantial increase in the contribution to generation of independent power producers (IPPs), for which provision (under signed agreements) has been made in the 10-year development plan. Additionally, the operations and maintenance functions within FEA's primary diesel-powered generating stations on the main island of Viti Levu have been successfully outsourced to an overseas private firm (Telesource, of CNMI), which has been mainly responsible for a reduction in FEA staff from about 1100 to slightly more than 500. FEA, however, face a challenging uncertainty in terms of future load growth and the performance of their future capacity investments, which are directly influenced by the uncertain direction of Fiji's economy.

The Fiji National Provident Fund (FNPF) has some F\$3.3 billion in assets, and could become a potent source of finance for Fiji infrastructure. Nearly all of FNPF's assets are domestic, due to a 2005 change in the Act requiring divestment of overseas assets. Previously, FNPF invested mainly in bonds; the current investment focus is in real estate and tourism – projects with high and relatively short term returns. FNPF's approach to potential infrastructure projects is gingerly, as infrastructure in Fiji is viewed as risky due to management and government policy/regulatory issues. FNPF management will monitor infrastructure developments and will open the door to finance of infrastructure wider in tandem with institutional reform and economic stability.

The Pacific Power Association (PPA) has conducted regional power sector benchmarking in the past (2002) with assistance of the ADB. PPA management remains keenly interested in benchmarking but feels it needs assistance to strengthen benchmarking among its members due to a present lack of staff capacity for this function. Associations in other sectors (ports, water, telecoms) provide similar functions and could be built up to a substantial mutually supportive regional capacity to sustain benchmarking across ADB Pacific member countries and in a variety of key sectors. A network of Associations focused on benchmarking is a potential that will be pursued by the RETA through further liaison with Associations in the Pacific.

Summary of Key Findings

Fiji has gained a wealth of experience in corporatization and commercialization of key infrastructure service sectors, including ports, telecommunications, and electricity. Reform processes in these sectors, often resulting in greatly improved conditions for private sector participation, have continued after corporatization and some are continuing now (e.g., in telecoms). Restructuring of the long-ago corporatized Fiji Electricity Authority since 2001 has paved the way for private sector independent power producers to enter the generation market in a substantial way, and outsourcing of O&M functions has allowed a halving of FEA permanent staff requirements. International ports operations have greatly improved since corporatization was completed in the late 1990s.

Fiji is taking bold steps in opening markets to competition and market forces, especially in the critical sectors of aviation and communications. This can be expected to have strong effects in terms of improved coverage and service quality, lower costs, and better access to export markets (including tourism). Needed regulatory reforms are also being addressed.

The same cannot be said for other critical sectors, including roads maintenance (and the government plant pool that is supposed to support roads maintenance), water supply and sewerage, government buildings maintenance, and government shipping services. Roads maintenance and the water and sewerage sector are well on the way to corporatization but many steep challenges remain in terms of filling gaps in skills and marshalling the additional financial and human resources required to bring those sectors up to a higher standard of performance. Government shipping, plant pool maintenance, and government buildings are areas of extreme asset fatigue and under-performance, and which suffer from chronically inadequate funding for sustainable operations and little prospect of attracting private sector participation. These sectors can certainly benefit from reforms similar to those which Fiji has already implemented successfully in ports and electricity; a crisis in service delivery (especially in shipping services) awaits if inaction in these sectors continues.

Outsourcing of government buildings maintenance, increased outsourcing of roads maintenance supported by increased resource allocations to create a long term, predictable market for roads maintenance in which the private sector can participate, will likely achieve rapid increases in the performance of these sectors and ultimately lower costs. There is an urgent need to complete the institutional reform process underway in the water and sewerage sector, supported by accelerated progress with the Suva-Nausori Upgrade project. Mechanical Services and Government Shipping Services should arrange to sell all assets as soon as practicable and fully privatize those services.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Palau, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

Palau has several inherent advantages that will support stable development, growth in jobs, and investment opportunities. The country's pristine tropical and marine environment offers unique tourist attractions and it is geographically well-placed to cater to high-end tourist markets in Japan, Europe, and N America. The government's plans to increase tourist arrivals from the present 80,000 to 250,000 within a few years seem almost modest in comparison with the apparent potential. Though much of the tourism potential remains untapped due to limited investment, a new road network into the large island of Babeldaob that will be commissioned in 2007 should accelerate investment in tourist facilities; access to land for such developments is not nearly as constrained by title issues as it is in other Pacific island countries. Palau's Compact of Free Association with the United States provides the country with substantial grant assistance for the development of infrastructure and, equally importantly, guarantees the right of Palauans to live and work in the US, thus keeping unemployment and attendant poverty in check.

A third notable feature is that Palau has historically been able to rely on considerable bilateral grant support to infrastructure services in addition to that from the US. Due to its geographical position and historical/cultural ties with many of the developed countries in the region, continuation of such assistance into the long term seems likely. Despite the boost to real incomes that such assistance provides, the RETA team notes that chronic external subsidies to certain sectors (e.g., the water supply and sanitation) has produced a legacy of weak service provision with drastically insufficient resources and staff for routine maintenance, asset management, and quality control. This highlights what appears to be Palau's key vulnerability: as assets grow and as development proceeds, the country's capacity to provide quality infrastructure services will come under increasing strain and may undermine the pace of development and, in time, the quality of life for the residents of Palau. The point seems especially clear in 2007, as a vast new addition to the roads network will be commissioned without identifiable capacity to keep it maintained in the future.

The lack of effective regulation in Palau is, in the view of the RETA team, at the root of the problem. For example, key decisions regarding the structure of the telecoms market appear to be made at a political level without due consideration of rural service obligations or consumer options for urban services; there is no evident 'level playing field' for the entrance of competitive providers. In the water sector, there is no authority with whom the service provider (BPW) can seek adjustments of the tariff to improve cost recovery, and there is no external authority to enforce water quality and effluent standards. In the ports sector, rates are set more or less unilaterally by the private sector contractor, without effective external review of costs and competitiveness. It is anticipated that the effects of poor regulation in Palau will be felt more keenly in the future as the economy continues to diversify and grow.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>The telecoms sector is shared by the corporatized government-owned company, Palau National Communications Corporation (PNCC) and a private Taiwanese company that competes with PNCC in the mobile and internet markets.</p> <p>At present, mobile services are limited to the urban areas and Melekeok on the large island.</p>	<p>The water supply and sanitation systems are under the non-corporatized Bureau of Public Works (BPW). Access to piped water outside of the urban area in Palau is not known. A sewage collection system and treatment plant serves the urban area.</p> <p>The transfer of water and sewer to the PPUC has been proposed and is under discussion, though the present status of the proposal is not clear.</p>	<p>The power sector is under the 100% government-owned Palau Public Utilities Corporation (PPUC). The power system reaches the great majority of the population, largely in Koror, Airai, Aimeliik, and Melekeok; the system is gradually being extended along the new circumferential road in Babeldaob.</p>	<p>The roads sector is under the non-corporatized Bureau of Public Works (BPW). A circumferential road around the large island is being commissioned in 2007. Apart from small islands to the south (Peleliu and Angaur), virtually all inhabited areas of Palau are connected to the urban centre of Koror via a contiguous road network.</p>	<p>The principal marine port for the country is owned by Koror State government, and operated by a private company, Palau Transfer/Commercial Port (PTCP). There is no Ports Authority in Palau. The private company has made a steep investment in heavy equipment, and carries out all maintenance on the State assets that it operates. Though there is no competition for the services, the ports appear to be well operated.</p>	<p>There is no commercial domestic shipping sector in Palau. The overwhelming majority of the population has road access to the urban and commercial centre of the country.</p>
Community Service Obligations	<p>The PNCC reports that it has an 'obligation' to provide universal service (implying an obligation to invest more in rural services) but PNCC and the government do not agree on how the obligation should be interpreted.</p> <p>A coherent CSO policy is needed to address this, and allow the Taiwanese mobile company now operating in Koror to participate in rural services.</p>	<p>There are no defined community service obligations in the water supply and sanitation sector. All users are heavily subsidized under present arrangements.</p>	<p>There are no defined community service obligations in the power sector. All users may be subsidized under present arrangements.</p>	<p>There are no defined community service obligations in the roads sector.</p>	<p>There are no defined community service obligations in the ports sector.</p>	<p>None identified.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	<p>There is no effective regulation of the sector; formal regulatory responsibility for telecoms rests with the Ministry of Commerce and Trade, but they are reportedly understaffed and under-funded to carry out this function effectively. Lack of effective regulation of the sector has generated a great deal of uncertainty in regard to an investment plan for PNCC in which management can have confidence.</p> <p>The Fiji-based Forum Secretariat has been requested by Palau to conduct a study of telecom regulatory requirements, and the Forum's report on this is expected shortly.</p>	<p>Apart from poorly enforced environmental regulation governing water supply and effluent quality, the sector is not regulated.</p>	<p>Independent electricity price regulation is absent. There is no technical regulation of electricity in Palau.</p>	<p>There are no regulatory arrangements for the roads sector.</p>	<p>There are no regulatory arrangements for the ports sector. PTCP sets its own fees and these are not regulated.</p>	<p>None identified.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	No significant maintenance issues in the telecoms sector were identified.	Water supply and sanitation systems in Palau are poorly maintained. Water quality and effluent quality is poorly monitored, and standards are not enforced. Funding for maintenance is well below what BPW estimates is needed; the BPW is doing its best to keep the system operating but cannot afford to undertake major maintenance works or corrections to metering. Water losses are high and inadequately-maintained sewage pipes and lift stations cause frequent urban pollution.	No significant maintenance issues have been identified.	Maintenance in the roads sector is chronically under-funded; there is no current estimate on the total annual budget requirement for roads maintenance.	No significant current maintenance issues were identified.	None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	<p>Introduction of competition for the Taiwanese company was effective in reducing local mobile call rates substantially (from \$0.99/minute to \$0.35), but has not greatly improved the quality of service (reliability or coverage). Digicel, the Irish company that has made such rapid inroads to the telecom markets south of the equator, is reportedly interested in entering the Palau market.</p>	<p>The water treatment plant has recently been upgraded with assistance from Taiwan. Continued assistance to improve system quality is expected.</p> <p>The water supply volume and quality are reported to be good (quality meets WHO standards), except during droughts. All facilities are operating at full capacity and there is no spare for growth; but growth has been essentially nil in recent years.</p>	None identified.	<p>In addition to the US-funded Compact road work, Japan and Taiwan are each making grants available to upgrade urban roads and some feeder roads to villages in Babeldaob. Historically, grant assistance for roads construction and rehabilitation has, to a degree, replaced maintenance funding by the government.</p> <p>As the road maintenance carried out is largely outsourced to the private sector, the BPW does not own or have to maintain a large pool of heavy plant.</p>	None identified.	None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>Little additional investment was stimulated by the licensing of a second company. This underscores the importance of adequate regulation of the sector and an adequate CSO policy.</p> <p>Internet bandwidth is by satellite, provided by a very small 9Mb contract with Intelsat. There are limited prospects of connecting Palau to an international fiber optic cable.</p>	<p>There is little or no cost recovery in the sector; metered rates are very low and some consumers are unmetered and on flat monthly rates. Low charges, and (especially) flat rates encourage wasteful consumption; a tariff review is long overdue and urgently needed.</p> <p>The BPW reports a high rate of illegal connections and faulty metering, poor revenue collections, and a high rate of water losses (about 50% unaccounted for water (UFW)).</p> <p>The distribution system is aged and degraded.</p>	<p>It is understood that the PPUC does not recover full costs. The current tariff has no ability to adjust automatically to changing fuel prices, which are now exceptionally high worldwide. Further fuel price increases will further undermine the PPUC's financial viability if the tariff structure is not changed. A tariff review is needed.</p>	<p>The roads sector appears to suffer most from limited awareness at top political levels of the strategic importance of maintenance to keep good roads. Though maintenance has traditionally been financed to a large extent by overseas grant aid, an increasing share of the maintenance burden shifting to the State is inevitable.</p>	<p>There is no ports authority to look after the public interest in the ports sector.</p> <p>The lack of competition in services and of economic regulation of the sector raises the risk that ports fees are monopoly profit-maximizing rather than efficient.</p>	<p>A domestic shipping service in Palau is unlikely to be commercially viable due to extremely limited demand.</p>
Regulatory Challenges	<ul style="list-style-type: none"> Independent telecoms sector regulation (on the Samoa model) needs to be introduced, to ensure that all markets remain commercially viable. 	<ul style="list-style-type: none"> There is no economic regulation of the water sector. Quality monitoring needs to be strengthened. 	<ul style="list-style-type: none"> There is no regulatory capacity for the power sector. There is no defined CSO policy for power. 	<ul style="list-style-type: none"> Roads maintenance budget preparation is poor or absent; there is essentially no budget for routine (non-reactive) maintenance; Roads performance and quality standards monitoring is presently absent, and this will inhibit government confidence in any proposed roads maintenance budget. 	<ul style="list-style-type: none"> There is no ports authority; The ports sector is not independently regulated (a ports authority could assume this role as a self-regulator, as long as the ports authority itself is autonomous and free of political influence). 	<ul style="list-style-type: none"> None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Implement, with appropriate legislation, effective telecom price regulation in Palau; the initial capacity for telecoms regulation could be extended at a later stage to other sectors (power, ports, water); • Adopt a clear and arm's length policy inviting international competition in mobile and internet services; • Develop a sound policy regarding Community Service Obligations for telecoms, for replication for the power and water sectors; • Explore affordable options for connection to undersea cable capacity. 	<ul style="list-style-type: none"> • Urgently review and adjust the water sector tariff to recover full costs; • Design and implement a CSO policy for the water sector; • Corporatize the water supply and sewerage service provider; • Meter all users, eliminate flat rates and bill all users based on metered consumption; • Introduce water sector economic regulation; • Undertake system improvements to the water supply and sewerage systems to reduce leakages. 	<ul style="list-style-type: none"> • Conduct a power sector tariff review and adjust tariffs to a level that recovers full costs; • Design and implement sound CSO policy for power (for CSO policy reforms, see section 2.8); • Introduce power sector economic regulation (for regulatory reform, see section 2.8); 	<ul style="list-style-type: none"> • Raise awareness in the national government of the strategic importance of maintaining roads standards; establish targets for roads standards that the government and the BPW will agree to meet; • Establish an asset management system for roads, to be operated and maintained by the BPW for all State roads including in the urban areas; 	<ul style="list-style-type: none"> • Establish an autonomous corporatized ports authority in Palau under the Ministry of Commerce and Trade; • Implement autonomous capacity to regulate the ports sector, either within the new ports authority or as a separate entity (for regulatory reform, see section 2.8); 	<ul style="list-style-type: none"> • None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Design and implement independent telecom price regulation. Once implemented, the same capacity can be extended to incorporate the water, ports, and power sectors. • Once the telecom price regulator is established, support the regulator's capacity building efforts. • Develop a sound policy regarding Community Service Obligations (CSO) in the telecoms sector. Note: other services, including power and water also need a CSO policy, based on the CSO policy for telecoms developed hereunder. • Explore options and costs at the regional level to access undersea cable capacity. 	<ul style="list-style-type: none"> • For steps leading to the development of CSO policy and regulatory reform, see section 2.9; • Implement demand metering on all consumers and collect consumption data over a one-year period; • Estimate water demand in the urban area and in all locations served in the large island; • Taking into account the full costs of operating a commercially-oriented corporatized water utility in Palau, design and implement a full cost recovery tariff, equitably apportioned to the identified consumer groups on the basis of cost of service; • Draft appropriate legislation (perhaps with reference to the PNG and Fiji models) and complete establishment of a corporatized water utility with responsibility for water supply and sewerage services in Palau. 	<ul style="list-style-type: none"> • Undertake a comprehensive financial review of the power sector, including projections of demand for electricity and associated supply costs including O&M, fuel/lube, management overheads, depreciation and financing costs, and calculate a schedule of tariffs that recover full costs from users; incorporate a factor in the tariff formula that varies automatically with changing international fuel prices; • For steps leading to the development of CSO policy and regulatory reform, see section 2.9. 	<ul style="list-style-type: none"> • Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the BPW to the Finance Ministry; • Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; • Assess, with periodic updates, the aggregate annual maintenance requirement of all roads under State responsibility; • Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision; • Identify gaps in job functions and skills to fill their required roles (including in relation to contracting and supervision). 	<ul style="list-style-type: none"> • Under the auspices of the Ministry of Commerce and Trade consult widely with relevant government, private sector, and community stakeholders; draft appropriate enabling legislation for a ports authority in Palau; and complete establishment of a corporatized ports authority; • For steps leading to regulatory reform, see section 2.9. 	<ul style="list-style-type: none"> • None identified.

2 Telecoms

2.1 Sector Structure and Service Quality

The telecoms sector is shared by the corporatized government-owned company, Palau National Communications Corporation (PNCC) and a private Taiwanese company that competes with PNCC in the mobile and internet markets.

The Taiwanese company offers roaming on its network, at least with Taiwan. PNCC does not currently offer roaming, but is making arrangements with a US-based umbrella organization that will give Palau access to about 100 roaming agreements worldwide. Phone rates are competitive but unregulated: each company's Board proposes rates which, after a 30-day period for public hearings, are announced by the respective Boards. At present, mobile services are limited to the urban areas and Melekeok on the large island.

2.2 Community Service Obligations

PNCC pays no dividends or taxes to government; government considers its investment in the company a public service. It is not known whether the Taiwanese mobile company is liable for taxes.

The PNCC reports that it has an 'obligation' to provide universal service (implying an obligation to invest more in rural services) but PNCC and the government do not agree on how the obligation should be interpreted. The potential for increasingly serious misunderstanding between the government and PNCC on this issue is large. A coherent CSO policy would be the most effective means to address this, and allow the Taiwanese mobile company now operating in Koror to participate in rural services.

2.3 Regulatory Arrangements

There is, according to PNCC, no effective regulation of the sector; the circumstances under which the Taiwanese company was allowed to begin operations in Palau are being disputed by PNCC. Formal regulatory responsibility for telecoms rests with the Ministry of Commerce and Trade, but they are reportedly under-staffed and under-funded to carry out this function effectively. Lack of effective regulation of the sector – which has become competitive on the basis of a political decision without, according to PNCC, being guided by public policy – has generated a great deal of uncertainty in regard to an investment plan for PNCC in which management can have confidence.

The Fiji-based Forum Secretariat has been requested by Palau to conduct a study of telecom regulatory requirements, and the Forum's report on this is expected shortly.

2.4 Maintenance Issues

No significant maintenance issues in the telecoms sector were identified.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

According to the Minister of Commerce and Trade, introduction of competition for the Taiwanese company was effective in reducing local mobile call rates substantially (from \$0.99/minute to \$0.35), but has not greatly improved the quality of service (reliability or coverage). The RETA team considers that, in common with the Cook Islands, Palau represents a case where an open competitive tender for monopoly

services could result in improved service and reduced cost. Digicel, the Irish company that has made such rapid inroads to the telecom markets south of the equator, is reportedly interested in entering the Palau market.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Though the telecoms sector in Palau is now “competitive”, reliability and coverage has not significantly improved, as the competition occurs only in the profitable urban area of the country. Little additional investment was stimulated by the licensing of a second company. This underscores the importance of adequate regulation of the sector (there is presently none) and an adequate CSO policy.

Internet bandwidth is by satellite, provided by a very small 9Mb contract with Intelsat. There are no present prospects of connecting Palau to an international fiber optic cable.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Independent telecoms sector regulation (on the Samoa model) needs to be introduced, to ensure that all markets remain commercially viable. Based on experience in neighboring countries (e.g., PNG), this will spur investment in the sector, broaden coverage, and reduce rates.

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Implement, with appropriate legislation, effective telecom price regulation in Palau; the initial capacity for telecoms regulation could be extended at a later stage to other sectors (power, ports, water);
- Adopt a clear and arm’s length policy inviting international competition in mobile and internet services, with fair competitive access to the international gateway now controlled by PNCC;
- Develop a sound policy regarding Community Service Obligations for telecoms, for replication for the power and water sectors;
- Explore affordable options for connection to undersea cable capacity.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Design and implement independent telecom price regulation (TA probably required; implementation by end 2008)¹ Once implemented, the same capacity can be extended to incorporate the water, ports, and power sectors.

¹ Refer to the working paper on Regulation and Governance for further discussion of the concept and role of ‘independent regulation’.

Note that this might be done in conjunction with very similar activity proposed for the FSM; there will likely be valuable lessons to learn from both countries, making collaboration or close liaison between the countries while these activities are underway of great potential value):

- Under the auspices of the Ministry of Commerce and Trade (MCT), form a Steering Committee of key stakeholders to oversee the process of capacity building in regulation for the telecom sector;
 - Arrange stakeholder workshops to review the role and legislation of similar organizations in the Pacific (e.g., the Office of the Regulator in Samoa, the ICCC in PNG);
 - Develop stakeholder consensus of the regulator's role, for review by higher authorities of the government as required;
 - Define the institutional structure and resource requirements and identify job functions and skills to fill the required role(s), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;
 - Draft legislation for the creation and empowerment of telecom regulation in Palau, with explicit recognition of the efficacy of competition and the necessity of sound policy and enforcement of community service obligations, for consideration of the Cabinet and enactment by the Legislature;
- Once the telecom price regulator is established, support the regulator's capacity building efforts (TA to assist if requested; implementation by end 2009):
 - Prepare a manual of public enterprise monitoring procedures, protection of service providers' and consumers' rights in competitive markets, and a manual of telecom price regulation;
 - Arrange periodic internal workshops to ensure that the regulator's staff have a clear understanding of their role and are properly applying the procedures of public enterprise regulation;
 - Determine what operating guidelines will be required to support competition and the development of the market, and commence drafting the guidelines. Finalization of the guidelines will require consultation with market participants, once drafted.
 - Under the auspices of the Ministry of Finance, develop a sound policy regarding Community Service Obligations (CSO) in the telecoms sector. (TA required, completion by end 2008). **Note:** other services, including power and water also need a CSO policy, based on the CSO policy for telecoms developed hereunder:
 - Review business activities and identify activities or services in the sector that are not commercially sustainable as a separate business line or service.

- Identify the amount of additional revenue each service provider would require (taking into account the benefits of shared overhead costs and scale and scope and factoring in an appropriate risk premium) to continue the non commercial business line or service. Specify the outputs and performance measures to be provided for the required additional revenue;
 - Prepare a report identifying the non-commercial activities and the cost to continue them, upon which the government will base decisions on which activities the government will continue to purchase or fund as CSOs;
 - The service providers will negotiate with the Ministry of Finance the terms and conditions under which the service or business line would continue as CSOs;
 - Once the service providers and Finance have agreed the details of the CSOs and costs/funding required, prepare a final report on the agreed position for government approval;
 - In implementing the CSO policy, the government will direct the state owned enterprise operating in the sector not to undertake activities that are not funded under either as commercial activities or explicitly under a CSO.
- Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to access undersea cable capacity.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

The water supply and sanitation systems are under the non-corporatized Bureau of Public Works (BPW). Access to piped water outside of the urban area in Palau is not known. A sewage collection system and treatment plant serves the urban area.

Unmetered customers pay a flat rate of \$10/month. The water supply tariff to metered customers is currently \$0.85 per thousand gallons (compared to \$1.80/thousand gallons in Pohnpei). The rate of \$0.85 includes an (unspecified) charge for sewerage operations, but even ignoring that, the tariff works out to about \$0.22 per m³, well below the rates common elsewhere in the Pacific.

The transfer of water and sewer to the PPUC has been proposed and is under discussion, though the present status of the proposal is not clear.

3.2 Community Service Obligations

There are no defined community service obligations in the water supply and sanitation sector. All users are heavily subsidized under present arrangements.

3.3 Regulatory Arrangements

Apart from poorly enforced environmental regulation governing water supply and effluent quality, the sector is not regulated.

3.4 Maintenance Issues

Water supply and sanitation systems in Palau are poorly maintained. Water quality and effluent quality is poorly monitored, and standards are not enforced. Funding for maintenance is well below what BPW estimates is needed; the BPW is doing its best to keep the system operating but cannot afford to undertake major maintenance works or corrections to metering. All raw water comes from surface sources. Water losses are high and inadequately-maintained sewage pipes and lift stations cause frequent urban pollution.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

The water treatment plant has recently been upgraded with assistance from Taiwan. Continued assistance to improve system quality is expected. Grant assistance is a boon to the country but lessens political pressure to tackle long term problems in the system, including chronically low maintenance and capacity building.

The water supply volume and quality, however, are reported to be good (quality meets WHO standards, i.e., the tap water is potable), except during droughts. All facilities are operating at full capacity and there is no spare for growth; but growth has been essentially nil in recent years.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There is little or no cost recovery in the sector; metered rates are very low and some consumers are unmetered and on flat monthly rates. Low charges, and (especially) flat rates encourage wasteful consumption; the demand for treated water may be

expected to reduce substantially once cost-recovery charges for metered consumption are imposed. A tariff review is long overdue and urgently needed.

The BPW reports a high rate of illegal connections and faulty metering, poor revenue collections, and a high rate of water losses (about 50% unaccounted for water (UFW)). All revenues collected by BPW are transferred to the Treasury, and funds for maintenance are allocated by the national government.

The distribution system is aged and degraded, accounting for the high losses (though it's not clear what portion of losses is due to illegal connections). The BPW feels powerless to persuade government to increase allocations for system maintenance and performance improvement and appears to be resigned to the status quo.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- There is no economic regulation of the water sector. Quality monitoring needs to be strengthened.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Urgently review and adjust the water sector tariff to recover full costs;
- Design and implement a CSO policy for the water sector (for CSO policy reform, see above, section 2.8);
- Corporatize the water supply and sewerage service provider;
- Meter all users, eliminate flat rates and bill all users based on metered consumption;
- Introduce water sector economic regulation (for regulatory reform, see above, section 2.8);
- Undertake system improvements to the water supply and sewerage systems to reduce leakages.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following, to be carried out under the auspices of the MCT (TA support required, completion by mid-2009):

- For steps leading to the development of CSO policy and regulatory reform, see above, section 2.9;
- Implement demand metering on all consumers and collect consumption data over a one-year period;
- Estimate water demand in the urban area and in all locations served in the large island; identify consumers and classify them according to category

(domestic, commercial, government) and quantify the current (unmetered) demand for water by each category; estimate post-tariff demand based on consumption patterns in neighboring countries;

- Taking into account the full costs of operating a commercially-oriented corporatized water utility in Palau, design and implement a full cost recovery tariff, equitably apportioned to the identified consumer groups on the basis of cost of service;
- Draft appropriate legislation (perhaps with reference to the PNG and Fiji models) and complete establishment of a corporatized water utility with responsibility for water supply and sewerage services in Palau.

4 Power

4.1 Sector Structure and Service Quality

The power sector is under the 100% government-owned Palau Public Utilities Corporation (PPUC). The power system reaches the great majority of the population, largely in Koror, Airai, Aimeliik, and Melekeok; the system is gradually being extended along the new circumferential road in Babeldaob.

4.2 Community Service Obligations

There are no defined community service obligations in the power sector. All users may be subsidized under present arrangements; the initial block of monthly consumption which is charged a lower rate (500 kWh) greatly exceeds the electricity that would normally be required by the poor household. The higher-rate block (all consumption in excess of 500 kWh/month), however, is also to be below cost (i.e., subsidized).

4.3 Regulatory Arrangements

Independent electricity price regulation is absent. There is no technical regulation of electricity in Palau.

4.4 Maintenance Issues

No significant maintenance issues have been identified.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The current tariff is \$0.21/kWh for the first 500 kWh consumed per month, and \$0.23/kWh for consumption in excess of 500 kWh/month, well below rates in FSM (\$0.30-\$0.39/kWh). The electricity tariff in Palau is scheduled to increase by \$0.01/kWh across the board on 1 August.

However, it is understood that the PPUC does not recover full costs. The current tariff has no ability to adjust automatically to changing fuel prices, which are now exceptionally high worldwide. Further fuel price increases will further undermine the PPUC's financial viability if the tariff structure is not changed. A tariff review is needed.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- There is no regulatory capacity for the power sector.
- There is no defined CSO policy for power.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Conduct a power sector tariff review and adjust tariffs to a level that recovers full costs;
- Design and implement sound CSO policy for power (for CSO policy reforms, see above, section 2.8);
- Introduce power sector economic regulation (for regulatory reform, see above, section 2.8);

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Undertake a comprehensive financial review of the power sector, including projections of demand for electricity and associated supply costs including O&M, fuel/lube, management overheads, depreciation and financing costs, and calculate a schedule of tariffs that recover full costs from users; incorporate a factor in the tariff formula that varies automatically with changing international fuel prices. (TA support required. Tariff preparation by end 2008);
- For steps leading to the development of CSO policy and regulatory reform, see above, section 2.9.

5 Roads

5.1 Sector Structure and Service Quality

The roads sector is under the non-corporatized Bureau of Public Works (BPW). A circumferential road around the large island is being commissioned in 2007. Apart from small islands to the south (Peleliu and Angaur), virtually all inhabited areas of Palau are connected to the urban centre of Koror via a contiguous road network.

5.2 Community Service Obligations

There are no defined community service obligations in the roads sector.

5.3 Regulatory Arrangements

There are no regulatory arrangements for the roads sector.

5.4 Maintenance Issues

Maintenance in the roads sector is chronically under-funded, in common with many other Pacific countries. In Palau, there is no current estimate on the total annual budget requirement for roads maintenance; the requirement has certainly increased with the commissioning of the 53-mile (85-km) Compact-funded circumferential road this year. That maintenance funds are lacking was evidenced to the RETA team on the drive to Melekeok: at least six land slips extending onto the new road were seen, some of which had clearly been there for some time (though safety measures had been taken, such as road cones directing traffic around the slips).

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

In addition to the US-funded Compact road work, Japan and Taiwan are each making grants available to upgrade urban roads and some feeder roads to villages in Babeldaob. Historically, grant assistance for roads construction and rehabilitation has, to a degree, replaced maintenance funding by the government. It is not clear, however, what the government's liability for future maintenance will be or how this might be funded, given the considerable extension to the road network now being completed.

As the road maintenance carried out is largely outsourced to the private sector, the BPW does not own or have to maintain a large pool of heavy plant.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The roads sector appears to suffer most from limited awareness at top political levels of the strategic importance of maintenance to keep good roads for the development of markets, support to private sector investment, and the creation of jobs. Though maintenance has traditionally been financed to a large extent by overseas grant aid, an increasing share of the maintenance burden shifting to the State, especially now that road assets have been increased significantly, would appear to be inevitable.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads maintenance budget preparation is poor or absent; there is essentially no budget for routine (non-reactive) maintenance;
- Roads performance and quality standards monitoring is presently absent (the tools of asset management do not exist in the BPW), and this will inhibit government confidence in any proposed roads maintenance budget;

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Raise awareness in the national government of the strategic importance of maintaining roads standards; establish targets for roads standards that the government and the BPW will agree to meet;
- Establish an asset management system for roads, to be operated and maintained by the BPW for all State roads including in the urban areas;

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following. (TA support required. Steps to be accomplished by end-2008):

- Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the BPW to the Finance Ministry, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; categorize roads by type and use; and prepare a manual for operation and maintenance of the asset register and roads maintenance management system; the asset management system would be operated and maintained by the BPW;
- Identify annual maintenance requirements per km for each type of road under State responsibility;
- Assess, with periodic updates, the aggregate annual maintenance requirement of all roads under State responsibility;
- Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision;
- Taking account of the institutional structure and resource requirements of the road maintenance entity within the BPW, identify gaps in job functions and skills to fill their required roles (including in relation to contracting and supervision), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;

- Arrange periodic internal workshops to ensure that road maintenance staff have a clear understanding of their roles and are properly applying the procedures of asset management and contract supervision.

6 Ports

6.1 Sector Structure and Service Quality

The principal marine port for the country is owned by Koror State government, and operated by a private company, Palau Transfer/Commercial Port (PTCP). There is no Ports Authority in Palau, and there appear to be no current moves to create one. The private company has made a steep investment in heavy equipment, and carries out all maintenance on the State assets that it operates. Though there is no competition for the services, the ports appear to be well operated.

6.2 Community Service Obligations

There are no defined community service obligations in the ports sector.

6.3 Regulatory Arrangements

There are no regulatory arrangements for the ports sector. PTCP sets its own fees and these are not regulated.

6.4 Maintenance Issues

The marine port dates from WWII and is said to be in need of primary overhaul and renewal, though the surface and storage areas appear to be in good shape. No significant current maintenance issues were identified.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There is no ports authority to look after the public interest in the ports sector. Though the ports sector appears to be operating adequately, the lack of competition in services and of economic regulation of the sector raises the risk that ports fees are monopoly profit-maximizing rather than efficient and that, because of this, throughput is less than the country needs and can economically afford. Though such issues are not now readily apparent, they may arise in the future and if they do, the State will not have the regulatory tools needed to deal with them.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- There is no ports authority;
- The ports sector is not independently regulated (a ports authority could assume this role as a self-regulator, as long as the ports authority itself is autonomous and free of political influence);

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Establish an autonomous corporatized ports authority in Palau under the Ministry of Commerce and Trade;
- Implement autonomous capacity to regulate the ports sector, either within the new ports authority or as a separate entity (for regulatory reform, see above, section 2.8);

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Under the auspices of the Ministry of Commerce and Trade and with reference to relevant legislation in FSM, Fiji, and other Pacific countries, consult widely with relevant government, private sector, and community stakeholders; draft appropriate enabling legislation for a ports authority in Palau; and complete establishment of a corporatized ports authority with responsibility for ports operations, maintenance, and management in Palau (TA support required; legislation to be prepared by end 2008);
- For steps leading to regulatory reform, see above, section 2.9.

7 Shipping

7.1 Sector Structure and Service Quality

There is no commercial domestic shipping sector in Palau. The overwhelming majority of the population has road access to the urban and commercial centre of the country.

7.2 Community Service Obligations

None identified.

7.3 Regulatory Arrangements

None identified.

7.4 Maintenance Issues

None identified.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

A domestic shipping service in Palau is unlikely to be commercially viable due to extremely limited demand.

7.7 Key Regulatory Challenges

None identified.

7.8 Priorities for Improving Service Delivery

None identified.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

None identified.

8 Annex: Country Consultation Report

PALAU

The RETA Team visited Palau from 26 July through 01 August. Discussions were held with (not in order):

- Bureau of Public Works
- Bureau of Commerce and Development (BCD)
- Palau Visitors Authority
- Ministry of Commerce & Trade
- Belau Transfer/Commercial Port
- Palau National Communications Corporation (PNCC)
- Ministry of Finance
- Ministry of Resources & Development
- Palau Public Utilities Corporation (PPUC)

Highlights

Palau is the last of the former US Trust Territories to gain independence, in 1994. As in the other former Trust territories (FSM and RMI), independence was supported by a 15-year Compact of Free Association with the United States, which will expire in 2009. In conjunction with the Compact, Palau formulated an Economic Development Plan which is used, in part, to guide Compact-funded infrastructure investments in the country.

Palau's workforce of some 12,000 includes more than 6,000 foreign workers, i.e., about 50 percent, most of whom come from the Philippines. Unemployment is low by Pacific standards, largely because of the free right of migration to the US. A few other countries in the region also enjoy free migration: the FSM and RMI to the US; the Cook Islands and, to a lesser degree, Samoa, to NZ. In the Pacific, free migration has had a substantial impact on employment and wages, in comparison with countries without it such as Fiji, the Solomons, and PNG. In Palau, free migration allows locals to leave lower-paid jobs to foreign workers, and accounts for the large number of foreign workers in the country and the apparent low level of dissatisfaction with the job market.

In contrast with the rest of Micronesia, tourism is a prime strategic economic sector in Palau. The country has a total of 1300+ hotel rooms and takes in about 80,000 visitors per year, keeping the ground facilities running at near-full capacity. There is vast potential to expand tourism, especially in the largest and least developed but quite accessible island of Babeldaob. The national government has allocated \$600,000 annually to market tourism, and the target markets are carefully selected. Tourism planners aim for an increase to about 250,000 visitors annually but volume is not the prime objective; there is strong awareness that tourism investment and growth must be carefully managed to take maximum advantage of the market and to limit potential negative impacts on the land and culture. In addition to tourism, fishing exports (especially premium sashimi-grade tuna flown to Japan) have traditionally been important to the economy, though this output has declined significantly in recent years due to depleted stocks.

Three bilateral donors fund the bulk of investment in infrastructure as grant aid: the US (through a Compact agreement), Taiwan, and Japan (JICA). Assistance from these donors and others has been long term and appears to be stable. The grants are supported either by treaty agreements or by longstanding historical/political ties. Almost

uniquely in the Pacific, Palau appears to be able to be selective in the sources and scope of grant assistance.

In all of the above respects – employment, tourism markets, and bilateral donor assistance – Palau enjoys inherent advantages and thus can afford to be selective. Combined with Palau's position between, but not in, common cyclone tracks in the western Pacific and the rarity of earthquakes, Palau may be one of the "luckiest countries in the world", as mentioned by one of the participants in the consultations. It may also be one of the most thoroughly governed: the population of about 20,000 is divided into 16 States, each with its own Legislature and Governor. The smallest of the States has a population of 300. A new national capital at Melekeok in Babeldaob has recently been completed, housing national Executive, Judiciary, and Legislative offices. Though well connected by a new road² to government offices in the old capital (Koror), the drive distance is about 45 minutes and Melekeok remains isolated. Expectations are that, with the completion of the Compact road, settlement in Babeldaob will increase, civil servants and their families will find housing closer to the new offices, and Melekeok's isolation will gradually diminish.

The principal marine port for the country is owned by Koror State government, while the airport is owned by the national government. Both are operated by a private company, Palau Transfer/Commercial Port. There is no Ports Authority in Palau, and there appear to be no current moves to create one. The company has made a steep investment in heavy equipment, and carries out all maintenance on the State assets that it operates. Though there is no competition for the services, the ports appear to be well operated. The private company sets its own fees and these are not regulated.

The runway is one of the longest in Micronesia at 7,200 ft, and can take long distance aircraft such as the 767, 777, and A330, but not a 747. The RETA team heard a rumor (hope?) that the US military might assist with a project to extend the runway to 10,000 ft and thus admit larger aircraft. At present, the airport serves direct flights from Taiwan, Japan, Philippines, and Guam. The largest group of incoming passengers are Taiwanese (35,000/year), followed by Japan (25,000), and North America and the rest of the world (20,000). Until recently, arrivals from Japan were the largest group (and part of tourism marketing strategy is to restore that situation, since Japanese visitors are known to spend more than other tourists).

The marine port dates from WWII and is said to be in need of primary overhaul and renewal, though the surface and storage areas appear to be in good shape.

The power sector is under the 100% government-owned Palau Public Utilities Corporation (PPUC). The power system reaches the great majority of the population, largely in Koror, Airai, Aimeliik, and Melekeok; the system is gradually being extended along the new circumferential road in Babeldaob. The current tariff is \$0.21/kWh for the first 500 kWh consumed per month, and \$0.23/kWh for consumption in excess of 500 kWh/month, well below rates in FSM (\$0.30-\$0.39/kWh). The electricity tariff in Palau is scheduled to increase by \$0.01/kWh across the board on 1 August.

The water supply and sanitation systems and roads sector are under the Bureau of Public Works (BPW). Unmetered customers pay a flat rate of \$10/month. The water supply tariff to metered customers is currently \$0.85 per thousand gallons (compared to \$1.80/thousand gallons in Pohnpei). The rate of \$0.85 includes an (unspecified) charge for sewerage operations, but even ignoring that, the tariff works out to about \$0.22 per m³, well below the rates common elsewhere in the Pacific. The BPW reports a high rate

² The Compact road runs along the circumference of Babeldaob through Melekeok and is just now being completed. It is built to US Highway standards and, for now, is one of the finest roads in the Pacific.

of illegal connections and faulty metering, poor revenue collections, and a high rate of water losses (about 50% unaccounted for water (UFW)). All revenues collected by BPW are transferred to the Treasury, and funds for maintenance are allocated by the national government. Funding for maintenance is well below what BPW estimates is needed; the BPW is doing its best to keep the system operating but cannot afford to undertake major maintenance works or corrections to metering. All raw water comes from surface sources. The water supply volume and quality, however, are reported to be good (quality meets WHO standards, i.e., the tap water is potable), except during droughts. All facilities are operating at full capacity and there is no spare for growth; but growth has been essentially nil in recent years.

The water treatment plant has recently been upgraded with assistance from Taiwan. Continued assistance to improve system quality is expected. Grant assistance is a boon to the country but lessens political pressure to tackle long term problems in the system, including chronically low maintenance and capacity building. The distribution system is aged and degraded, accounting for the high losses (though it's not clear what portion of losses is due to illegal connections). The BPW feels powerless to persuade government to increase allocations for system maintenance and performance improvement and appears to be resigned to the status quo.

The transfer of water and sewer to the PPUC has been proposed and is under discussion, though the present status of the proposal is not clear.

Maintenance in the roads sector is chronically under-funded, in common with many other Pacific countries. In Palau, there is no current estimate on the total annual budget requirement for roads maintenance; the requirement has certainly increased with the commissioning of the 53-mile (85-km) Compact-funded circumferential road this year. That maintenance funds are lacking was evidenced to the RETA team on the drive to Melekeok: at least six land slips extending onto the new road were seen, some of which had clearly been there for some time (though safety measures had been taken, such as road cones directing traffic around the slips). As the road maintenance carried out is largely outsourced to the private sector, the BPW does not own or have to maintain a large pool of heavy plant.

In addition to the US-funded Compact road work, Japan and Taiwan are each making grants available to upgrade urban roads and some feeder roads to villages in Babeldaob. Historically, grant assistance for roads construction and rehabilitation has, to a degree, replaced maintenance funding by the government. It is not clear, however, what the government's liability for future maintenance will be or how this might be funded, given the considerable extension to the road network now being completed.

The completion of the Compact road is expected to spur investment in tourist facilities in Babeldaob. Title to land is held by individual Palauans, and may be sold, but only to Palauans and Palau-registered corporations. It is illegal for foreigners to own land in Palau. Land issues do not appear to be a serious constraint to tourism development.

The telecoms sector is shared by the government-owned company, Palau National Communications Corporation (PNCC) and a Taiwanese company that competes with PNCC in the mobile and internet markets. There is, according to PNCC, no effective regulation of the sector; the circumstances under which the Taiwanese company was allowed to begin operations in Palau are being disputed by PNCC. Formal regulatory responsibility for telecoms rests with the Ministry of Commerce and Trade, but they are reportedly under-staffed and under-funded to carry out this function effectively. Lack of effective regulation of the sector – which has become competitive on the basis of a political decision without, according to PNCC, being guided by public policy – has generated a great deal of uncertainty in regard to an investment plan for PNCC in which management can have confidence.

The Fiji-based Forum Secretariat has been requested by Palau to conduct a study of telecom regulatory requirements, and the Forum's report on this is expected shortly.

The Taiwanese company offers roaming on its network, at least with Taiwan. PNCC does not currently offer roaming, but is making arrangements with a US-based umbrella organization that will give Palau access to about 100 roaming agreements worldwide in 45-60 days, according to PNCC. Phone rates are competitive but unregulated: each company's Board proposes rates which, after a 30-day period for public hearings, are announced by the respective Boards. At present, mobile services are limited to the urban areas and Melekeok.

Internet bandwidth is by satellite, provided by a very small 9Mb contract with Intelsat. There are no present prospects of connecting Palau to an international fiber optic cable.

According to the Minister of Commerce and Trade, introduction of competition for the Taiwanese company was effective in reducing local mobile call rates substantially (from \$0.99/minute to \$0.35) but has not greatly improved the quality of service (reliability or coverage). The RETA team considers that, in common with the Cook Islands, Palau represents a case where an open competitive tender for monopoly services could result in improved service and reduced cost. Digicel, the Irish company that has made such rapid inroads to the telecom markets south of the equator, is reportedly interested in entering the Palau market.

PNCC pays no dividends or taxes to government; government considers its investment in the company a public service. The PNCC has an 'obligation' to provide universal service (implying an obligation to invest more in rural services) but PNCC and the government do not agree on how the obligation should be interpreted. The potential for increasingly serious misunderstanding between the government and PNCC on this issue is large. A coherent regulatory policy would be the most effective means to address this.

Summary of Key Findings

Palau has several inherent advantages that will support stable development, growth in jobs, and investment opportunities. The country's pristine tropical and marine environment offers unique tourist attractions and it is geographically well-placed to cater to high-end tourist markets in Japan, Europe, and N America. The government's plans to increase tourist arrivals from the present 80,000 to 250,000 within a few years seem almost modest in comparison with the apparent potential. Though much of the tourism potential remains untapped due to limited investment, a new road network into the large island of Babeldaob that will be commissioned in 2007 should accelerate investment in tourist facilities; access to land for such developments is not nearly as constrained by title issues as it is in other Pacific island countries. Palau's Compact of Free Association with the United States provides the country with substantial grant assistance for the development of infrastructure and, equally importantly, guarantees the right of Palauans to live and work in the US, thus keeping unemployment and attendant poverty in check.

A third notable feature is that Palau has historically been able to rely on considerable bilateral grant support to infrastructure services in addition to that from the US. Due to its geographical position and historical/cultural ties with many of the developed countries in the region, continuation of such assistance into the long term seems likely. Despite the boost to real incomes that such assistance provides, the RETA team notes that chronic external subsidies to certain sectors (e.g., the water supply and sanitation) has produced a legacy of weak service provision with drastically insufficient resources and staff for routine maintenance, asset management, and quality control. This highlights what appears to be Palau's key vulnerability: as assets grow and as development proceeds, the country's capacity to provide quality infrastructure services will come under increasing strain and may undermine the pace of development and, in time, the quality of

life for the residents of Palau. The point seems especially clear in 2007, as a vast new addition to the roads network will be commissioned without identifiable capacity to keep it maintained in the future.

The lack of effective regulation in Palau is, in the view of the RETA team, at the root of the problem. For example, key decisions regarding the structure of the telecoms market appear to be made at a political level without due consideration of rural service obligations or consumer options for urban services; there is no evident 'level playing field' for the entrance of competitive providers. In the water sector, there is no authority with whom the service provider (BPW) can seek adjustments of the tariff to improve cost recovery, and there is no external authority to enforce water quality and effluent standards. In the ports sector, rates are set more or less unilaterally by the private sector contractor, without effective external review of costs and competitiveness. It is anticipated that the effects of poor regulation in Palau will be felt more keenly in the future as the economy continues to diversify and grow.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Papua New Guinea (PNG), with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

In contrast with much of the rest of the Pacific region, tourism in PNG is undeveloped and a rapid expansion in that sector is not in prospect, due largely to limited infrastructure outside of the main urban centers and persistent public safety concerns. However, PNG is wealthy in other natural resources and these are driving a sustained economic boom and a substantial improvement in the government's fiscal health. Allocations to asset maintenance and infrastructure service delivery have greatly increased in recent years. The country is in an enviable position of being able to experiment with different approaches to funding infrastructure investment and service delivery, based on its wealth of resources and a large but so far untapped domestic market potential. In hopes of realizing this potential, the private sector and to some extent the public sector are beginning to take more investment risks, most notably in telecommunications but also in transportation. A critical factor facilitating this development in no small measure has been the creation of a sound regulatory environment through establishment of the Independent Consumer and Competition Commission (ICCC), which has gained a reputation for impartiality and effectiveness since its establishment in 2003. Management improvements evident in the SOEs for electricity and water supply are either caused by good regulatory influence or have been strengthened by it. Similar improvements in maritime and road transport can and, it seems, ultimately will result from the same influence (though the challenges in this regard seem to be steepest in marine ports due to an exceptionally long history of neglect).

In comparison with many other PDMCs, there is relatively little indication of the expected policy initiative or other pre-cursors of reform in the infrastructure sectors of PNG. Government officials and utility personnel did not express the perception of a need for structural reform. Typically, a core public management initiative to support the reform process is the emergence of the Ministry of Finance as a champion and coordinator of infrastructure reform working with other key agencies in Ministries related to the sector. The RETA has aimed to reinforce this in most countries by working through an infrastructure committee, but this didn't work in PNG. It is possible that strong political intervention in PNG infrastructure contributes to this environment. Often, the need for reform is apparent through actual or perceived crises in the sector, but these may be masked in PNG by external grant assistance enabling the government to avoid making hard choices to improve the quality of infrastructure services.

Despite the current difficulties faced by ICCC in the liberalization of the telecom sector¹, the creation of this independent regulatory authority contributes strongly to the reform process. While the authority of the ICCC is currently being tested in both the courts and Parliament, it is the fact that this agency is established under its own law² and is not subject to direction from the government, that has allowed licenses to be granted to two entrants to the telecom

¹ The issuance of 2 telecom licenses by ICCC has been challenged in the courts. As at July 2007, the PNG national court has ruled in favor of ICCC but it is expected that Telekom will challenge this decision.

² Independent Consumer and Competition Commission Act 2002

market as well as to PNG Sustainable Energy Limited (PNGSEL) to operate electricity generation and distribution in the Western Province. ICCG is a new agency and has significant capacity constraints that it is addressing through training and recruitment.

The RETA team heard comments that structural solutions to infrastructure sector reform are not working in PNG. For example, PNG Ports, despite corporatization and two changes in name, continue to base ports development on grant assistance from government and donors, with limited awareness of Ports' role in progressing the maritime sector, particularly with regard to passenger shipping. A lack of faith in the newly established Roads Authority was expressed by a number of stakeholders, including donors. The Independent Public Business Corporation (IPBC), which was ostensibly created to support the commercialization of public enterprises, is supporting a proposed new telecom policy to split networks and operations as two separate, government owned entities, which would effectively nationalize all network assets and severely curtail sector liberalization and reform.

PNG Sustainable Development Program Ltd (PNGSDP) is worthy of particular comment. It does not fit easily into the specific categories of the paper, but it starting to have an impact on investments and service delivery in power and road infrastructure throughout PNG, particularly in rural areas.

PNGSDP is the majority (52%) shareholder of Ok Tedi Mine Ltd (OTML) in the Western Province, having taken over BHP's shares in 2001. PNGSDP's Board has 3 Directors appointed by BHP, 3 by the national government (1 each from the Bank of PNG, the Chamber of Commerce, and Treasury), and 1 from Singapore, where the company is registered. The purpose of PNGSDP is to invest 33% of its dividend income in rural infrastructure; the balance of dividend income is invested in long term funds. Of the 33% of income earmarked for projects, 33% is spent in the Western Province and 67% in the rest of PNG. PNGSDP has two subsidiaries to carry out project implementation: PNG Sustainable Infrastructure Ltd (PNGSIL) to focus on transport infrastructure (roads, ports, and airstrips) and on water and sanitation, and PNG Sustainable Energy Ltd (PNGSEL) to focus on rural electrification. Dividends paid to PNGSDP are reported to average around K300 million per year, implying a flow of some K100 million per year to development projects. OTML currently expects that the mine will remain open through 2013, with a longer period considered probable³. PNGSDP has been engaged as the project manager of a World Bank-funded roads sector project and is contributing funds to the investment.

Though PNGSDP project investments are made in addition to, not in lieu of, taxes paid to the national and provincial governments, the company apparently expects to make little or no income from them. (For example, many of the infrastructure projects concern the rehabilitation and maintenance of provincial and national roads.) PNGSIL maintains that their long term goal is to provide for sustained rural investment in infrastructure through creation of a trust fund that would generate income and to which the provincial and national governments would continue to contribute after the mine closes. The trust fund would contract with local landowners for long term maintenance services. Current plans call for the construction of a road from Kiunga to Daru and port facilities in Daru. Though starting in the Western Province, the clear intention is to extend a successful model nationwide. In other parts of the country, PNGSIL has already begun to work on roads rehabilitation and maintenance in conjunction with oil palm producers, demonstrating that the model need not depend on Ok Tedi or even on minerals.

³ Depending on future copper prices.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>Sector until recently been dominated by the government monopoly provider, Telikom PNG, there are now 2 licensed competitors in the mobile market.</p> <p>Recent developments have seen the Government and Telikom take legal action to close Digicel down following an NEC decision to revoke both the Digicel and Greencomm licenses.</p> <p>The Government is also introducing an ICT policy to nationalize the network structure installed by Digicel and other private ISPs.</p>	<p>Sector is under two corporatized entities: (i) Eda Ranu, which services Port Moresby and (ii) the PNG Water Board operating in provincial capitals and (in the future) district centers.</p> <p>Each company serves about 250,000 customers in their respective jurisdictions.</p> <p>Both companies are financially self sustaining.</p>	<p>The power sector is under PNG Power Ltd (corporatized in 2002), 100% government-owned.</p> <p>There is one IPP supplying bulk power to the POM grid.</p> <p>There is increasing private sector involvement in rural power through PNG SDL.</p>	<p>The National Roads Authority (NRA) has been established to take over road maintenance from the PWD, financed by a national road fund The NRA is not yet fully established and funded and as such the PWD remains responsible for road maintenance.</p>	<p>Ports Corporation (PC) has been corporatized and is under the supervision of the IPBC, but its performance has been poor. The PC suffers from political interference at the board level.</p> <p>There are two main revenue-generating ports (Port Moresby and Lae). In addition, the ports of Kimbe, Rabaul, and Wewak are financially break-even or marginally profitable. There are a further 11 minor ports that operate at a substantial financial loss.</p>	<p>There is limited competition in the coastal shipping sector, which is dominated by three interlocked companies. There is no government shipping service.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Community Service Obligations	<p>It does not appear that PNG Telikom is burdened by CSOs to provide fixed line coverage in rural areas.</p> <p>A condition of the mobile licenses awarded to Digicel and GreenCom, is a degree of rural coverage. Digicel's license, for example, obligates it to extend coverage to 450 villages.</p>	<p>There is no formal CSO contracting framework in place for water supply, nor a formal policy for rural extension. Eda Ranu serviced areas are charged on a user pays basis, but the NCDC distributes water to certain poor areas free. There also appears to be some cross subsidization in both the Eda Ranu and Water Board operations.</p>	<p>PNG Power receives a subsidy of some K85 million/year for rural electrification. The provision of these CSOs is defined in the regulatory contract with ICCC.</p> <p>Price cross subsidization is built into the regulated prices of PNG Power.</p>	<p>Until the NRA is fully established and funded fuel taxes and vehicle registration fees, the road network is directly funded by allocation from the Government's general budget.</p>	<p>There are no contracted CSOs in place although it is noted that of the sixteen ports, two appear to provide a reasonable return, three are just breakeven and the balance (11) are all loss making. There would appear to be a significant level of cross subsidization.</p> <p>Current tariff arrangements administered by the ICCC reflects to a larger extent, internal price cross subsidization between the various ports.</p>	<p>There are no CSOs identified</p>
Regulatory Arrangements	<p>The ICCC has been an effective regulator in the PNG telecommunications sector. The ICCC's response to the Government's attempts to close Digicel attests to its effectiveness and independence.</p>	<p>Water board regulates quality and performance standards (including their own), while the ICCC regulates price.</p>	<p>Tariffs are regulated under a 10 year regulatory contract (akin to a general tariff order) issued by the Treasurer and administered by the ICCC.</p> <p>The ICCC is also the technical regulator in the industry. It will delegate its technical functions to the Department of Petroleum and Energy as part of a new industry policy recently announced by the government.</p>	<p>When established the NRA will have access to and control over the road infrastructure database, Road Asset Management System (RAMS) There is no external quality control in relation to road maintenance and construction.</p>	<p>ICCC are responsible for economic regulation of this sector.</p>	<p>Rates for coastal shipping are regulated by the Department of Transport. It is however expected that the ICCC will have responsibility for licensing coastal shipping companies going forward should the government implement the recommendations from a recent review undertaken by the ICCC into this industry</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	<p>There are significant maintenance and capital works issues for the incumbent carrier. The existing network of Telikom is in need of urgent capital works and upgrading to fully meet and service existing demand including the needs of the new mobile entrants.</p> <p>The threat of competition appears to have forced Telikom to incur and expedite the necessary capital works to increase its network capacity and reliability as well as to protect its market share</p>	<p>PNG Water Board does not undertake major maintenance work due to lack of funds. This results in accelerated deterioration of assets and high replacement costs.</p> <p>Under the current pricing arrangements, both PNG WaterBoard and Eda Ranu have committed to certain capital expenditure on their infrastructure. The pricing arrangement is conditional on this commitment being realized; otherwise the service provider will be appropriately penalized by the ICCC.</p>	<p>Maintenance was poor through the 1990s but is improving now following corporatization and the structuring of appropriate cost reflective tariffs by the ICCC since 2002.</p>	<p>Maintenance of the national highway system has been poor but an AusAID transport sector support program (A\$50m/year) and a fully funded NRA should improve maintenance.</p> <p>Crucial next step is the introduction of a PBMCS (performance based maintenance contracts)</p>	<p>Serious maintenance issues in the major ports of Lae and POM; many small Provincial ports are dilapidated. The PNG Ports Corporation remains under-funded and not yet functioning effectively.</p>	<p>Domestic shipping sector is aligned with international shipping companies. Significant maintenance issues are not evident</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	<p>There is no doubt that the introduction of competition has seen a significant increase in service quality and mobile phone penetration. Three weeks after launch by Digicel the number of mobile phones jumped from 160,000 to 315,000. It is estimated that mobile subscribers now total 450,000.</p> <p>Over the last 51 years and prior to the introduction of competition, the national penetration rate of telco services was about 1.2%. In the last three months since the introduction of competition, that rate has soared to 6% and is still rising.</p>	<p>The commercialization of water operations in PNG will have been positive in relation to service delivery improvements, but the team has been unable to quantify the extent of the benefits.</p> <p>Both Eda Ranu and the Water Board undertake benchmarking.</p>	<p>Many of the improvements achieved by PNG Power are ascribed to the salutary effects of good regulation from the ICCC.</p> <p>Regulatory intervention with a long term tariff agreement has motivated the company to recruit needed management skills and implement reforms that have strengthened performance.</p> <p>At present an industry policy is currently being developed by the government for the industry, which will seek to provide an overall framework for the introduction of competition in the generation sector, the CSO framework for the industry the overall regulatory and policy objectives going forward.</p>	<p>The establishment of the NRA will address a number of the issues associated with the historic poor maintenance. The fact that road maintenance will also be funded from a separate and identifiable source will also ensure that sufficient funding will be available.</p>	<p>The port sector is lagging behind others sectors in achieving gains in service delivery.</p> <p>There has been an improvement in maritime safety following the ADB project to upgrade the navigation aid system and restructure the Maritime Safety Authority</p>	<p>The domestic shipping sector is operated by private sector companies. The team could not identify any significant initiatives that have led to service delivery improvements.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>The Government's decision to reverse its previous policy of allowing competition in the telecommunications creates a very adverse investment climate.</p> <p>Government may potentially be liable to reasonably compensate Digicel for its network.</p>	<p>The BOT structure within Eda Ranu may be limiting innovation.</p> <p>There does not seem to be any interconnection between Eda Ranu and Water Board systems.</p> <p>There is a lack of funding for particularly rural infrastructure</p> <p>There are land access issues.</p>	<p>Lack of competition in the sector inhibits innovation; very limited private sector participation reduces efficiencies. Absence of a formal CSO framework leads to inefficiencies and poor service delivery in the rural areas. A poorly-negotiated PPP for power generation is a drain on PNG Power's finances.</p>	<p>It is a concern that the NRA has not yet been fully operationalized.</p> <p>It will be necessary that the NRA has access to good source data on the network. Bringing the RAMS data base up to date should be a matter of priority.</p> <p>Lack of contracting out and contestability for road maintenance and construction is also a concern.</p>	<p>High levels of political interference in PC governance; lack of formal CSOs relating to the operation of the non commercial ports; limited private sector participation; lack of adequate maintenance; apparent lack of management and technical skills; lack of benchmarking.</p>	<p>The interlinked ownership between the private sector operators inhibits competition.</p> <p>Revised rules and greater regulatory control over the licensing of operators (as proposed by the ICCC) should create opportunities for more competition and further private sector participation.</p>
Regulatory Challenges	<p>The ICCC appears to be a competent if somewhat under-resourced regulator. They are continuing to develop telecommunications codes to support effective competition in the market. The ADB has approved a TA to provide technical assistance to develop codes in; customer complaints, billing and credit management, Land access and a customer service charter.</p>	<p>Separating the technical PNG wide regulation of quality and performance standards for water/ sanitation from the Water Board and placing it within a separate body.</p>	<p>Regulatory framework that facilitates private sector participation, particularly in rural power provision.</p> <p>Under the current industry policy, which is in its draft stage, greater contestability will be introduced in the generation segment of the industry through the structuring of feed-in tariffs. Accordingly, the ICCC will need to quickly draft up an overall third party access regime including the development of the specific access codes for the industry.</p>	<p>None identified</p>	<p>While the ICCC regulates price including the minimum service standards and capital expenditure requirements of PNG Ports, the safety regulations covering port activities are vested with the National Maritime Safety Authority.</p>	<p>The proposal that the ICCC should control the licensing of ship operators will have benefits as noted above.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Rejection of the ICT policy • Continued competition • Equitable interconnection agreement. • Opening the international gateway to competition. • Strong and independent regulator • Continued development of the codes to strengthen competition and market development. 	<ul style="list-style-type: none"> • Review the BOT to determine whether it is (i) fair and reasonable, (ii) can be renegotiated and (iii) can allow for integration. • Funding required for the Water Boards rural expansion and a policy that addresses rural extension priorities and encourages private sector participation • Need to develop mechanism to gain access to land for network expansion • Formal CSO policy • Improve asset management and maintenance at PNG Water. 	<ul style="list-style-type: none"> • Sector development policy that encourages private sector participation and competition. • Comprehensive corporate governance reforms at PNG Power, including the development of statements of corporate intent and formal CSO contracting frameworks to reduce the risks of political interference. 	<p>Reform has already commenced in this area with the decision to establish the NRA; other areas include</p> <ul style="list-style-type: none"> • Gazetting the Road Fund • Updating RAMs • Contracting unit in NRA or PWD including contract monitoring unit • Strategic links with privates sector participants. • Long-term road maintenance and construction programme including developing PBMCs (including tendering policies) • Develop a consultation plan to deal with land owners that will have an interest in road maintenance and construction. 	<ul style="list-style-type: none"> • Improve the governance structure by removing elected officials from boards. • Develop formal CSOs for those activities undertaken by the Ports Corporation that are not commercial. • Long-term fully costed asset management plan. • Review all activities and identify opportunities to contract out non-essential services • Undertake a HR audit • Undertake regular benchmarking • PC should be subject to quality and safety regulations. • Evaluate the benefits of entering into a PPP for ports management and development. 	<ul style="list-style-type: none"> • Increased competition through the introduction of a more robust licensing arrangement administered by the ICCC. • The license arrangements could cover such matters as limitation (or even prohibitions) on cross shareholding amongst shipping companies servicing the same routes.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Provided the Government's efforts to impose a new ICT policy and renationalize the sector are not successful, then telecommunications users should continue to experience improved services at competitive prices. • If, on the other hand, the new ICT policy is approved by Parliament, every effort should be made to mitigate its potential detrimental impact on competition and investment by ensuring that ensuing regulations protect investments already made by private providers as well as the regulatory and licensing powers of the ICCC. 	<ul style="list-style-type: none"> • Review the BOT to address (i) rights to review or renegotiate (ii) review the incentives (iii) review termination rights.. • Explore options to source funding to extend services to the identified rural areas. • Identify opportunities for outsourcing. • Establish a technical quality and performance regulator. • Develop land access arrangement. • Prepare asset management plan for PNG Water and CSO contracting plan. 	<ul style="list-style-type: none"> • Finalize with support from the ADB, a new sector development plan which fully integrates the role of the private sector. • PNG power and IPBC launch corporate governance strengthening. • ICCC to strengthen power sector regulatory capacity. 	<ul style="list-style-type: none"> • Policy on road maintenance responsibility (NRA or PWB) • institutional responsibilities of NRA to be immediately gazetted so that they can be operationalized • Consider twinning NRA/DPW staff with Samoan MWTI road maintenance staff • Recruit needed additional staff at NRA/DPW 	<ul style="list-style-type: none"> • Undertake review of all of business lines and port operations, exit from those operations that are not viable. Prepare CSO for non-commercial ports or business lines. • Review the board, remove any elected officials and utilize a best skilled appointment process to find a replacements. • Identify opportunities to contract out. • Identify as a matter of urgency a suitable quality and safety regular. • Newly reconstituted Ports Corporation board should undertake a review of the staffing and management requirements for the Corporation going forward. 	<ul style="list-style-type: none"> • The team understands that the ICCC is to take over responsibility for licensing and if that is the case, the recommended strategy will have been achieved.

2 Telecoms

2.1 Sector Structure and Service Quality

The teledensity of PNG is one of the lowest in the world, at approximately 1 fixed line per 100 people. The advent of mobile telephony is improving these numbers, as an estimated 450,000 subscribers now use mobile lines, bringing the total teledensity of the country up to approximately 8.5%. The sector is still dominated by the government monopoly provider, Telikom PNG, which controls fixed lines, one mobile provider (B Mobile) and, crucially, the gateway to the underwater cable to Australia. There are 4 ISP providers, all of whom must access the cable via PNG Telikom. With only 60,000 fixed phone lines in the country, internet penetration remains very low. The government has unsuccessfully attempted to privatize PNG Telikom in the past but lack of success could be due a lack of true commitment to a fully competitive and transparent sales process. In November 2006, the mobile sector was opened up to competition for the first time, with the award of two mobile licenses to Digicel and GreenComm. Of these two new licenses, only Digicel has begun operating with an estimated 1000 local staff.

The hallmarks of Digicel's entry into the Pacific have been speed, technical quality, and coverage. The incumbent (usually monopoly) telecom providers have typically reacted first with legal action and then with stepped-up investment to try to match Digicel's product. In PNG, Digicel launched in mid 2007 with 100-150 stations (against Telikom's 40 stations) and is looking to cover the country with a total of 600 stations. To support this, they are also building their own network rather than riding on Telikom's existing one. It is estimated that the company currently has 200,000 subscribers after less than 6 months of operations. B Mobile, in contrast, has attracted only 250,000 subscribers after more than 10 years of operations. The amount that Digicel plans to invest in PNG is not known to the RETA team but it is clearly significant. Digicel is, to an astonishing degree, undeterred by the attendant risks; they cite their successful against-all-odds entry in Haiti, one of the poorest countries in the world, as evidence that the model works.

Recent developments have seen the Government and Telikom take legal action to close Digicel down following an NEC decision to revoke both the Digicel and Greencomm licenses. Telikom has argued that ICCC does not have the authority to terminate its monopoly. Following the NEC decision the PNG Radio Communications and Telecommunications Technical Authority (technical regulator) revoked the licenses. Digicel challenged that revocation and won, however the battle continues. Submissions from Telikom in a current legal review have indicated that the competitive threat from Digicel is seen by Telikom as sufficient to threaten its ongoing commercial viability.

Of perhaps even greater concern is the Government's attempts to introduce a new Telecommunications Policy (ICT Policy). This policy, in its current form, would create a new sector structure and nationalize much of the network infrastructure (towers) already installed by Digicel and private ISPs.

2.2 Community Service Obligations

CSOs in the telecommunications sector typically take the form of rural service delivery. Given the very low fixed line density in PNG, it does not appear that PNG Telikom is burdened by CSOs. As a condition of the mobile licenses awarded to

Digicel and GreenCom, however, is a degree of rural coverage. Digicel's license, for example, obligates it to extend coverage to 450 villages.

2.3 Regulatory Arrangements

A new entrant to an untested market might reasonably condition investment on (i) favorable government attitudes and legislation supporting liberalization of the market where the incumbent is a monopoly and (ii) a sound regulatory environment. Digicel claims that they don't actually insist on both of these; one or the other is sufficient. According to management, Digicel's entry in PNG was made possible by the impartial regulatory environment provided by ICCC; the proposed new ICT policy, if adopted, could effectively remove ICCC's licensing powers and severely curtail its regulatory powers.

ICCC currently has regulatory oversight of the telecommunications sector and is currently developing a series of codes to govern such matters as land access, interconnection, customer services requirements etc.

In general, and despite the current court action and threats posed by the new ICT policy relating to the Digicel license, the ICCC is an effective regulator and is working to create a full suite of regulations and codes to govern the telecommunications sector in PNG.

2.4 Maintenance Issues

There are no significant maintenance issues in regard to the currently installed assets. However, there are significant capital works issues for the incumbent carrier (Telikom PNG). The existing network is in need of urgent capital works and upgrading to fully meet and service existing demand including the needs of the new mobile entrants.

The threat of competition appears to have motivated Telikom to incur and expedite the necessary capital works to increase its network capacity and reliability as well as to protect its market share.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

There is no doubt that the introduction of competition has seen a significant increase in service quality and mobile phone penetration. Three weeks after launch by Digicel the number of mobile phones jumped from 160,000 to 315,000. It is estimated that mobile subscribers now total 450,000, more than 7 times the number of fixed line subscribers.

Over the last 51 years and prior to the introduction of competition, the national penetration rate of telco services was about 1.2%. In the last three months since the introduction of competition, that rate has soared to 6% and is still rising.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The Government's decision to reverse its previous policy of allowing competition in the telecommunications sector in the weeks preceding the recent election, after

licenses had been issued to new entrants and also after one of those new entrants had invested significant capital to launch its operations in PNG creates a very adverse investment climate.

Should the Government persist with its current intentions of revoking the licenses already issued then the team would expect to see a dramatic reversal of the gains achieved in the telecommunications sector, which have been driven solely by competition. It would also be expected that future offshore investors looking to invest in infrastructure in PNG will require a higher risk premium to justify that investment than might otherwise have been the case.

Government may be liable to compensate Digicel reasonably for its network.

2.7 Key Regulatory Challenges

The ICCC appears to be a competent if somewhat under-resourced regulator. They are continuing to develop telecommunications codes to support effective competition in the market. The ADB has approved a TA to provide technical assistance to develop codes in:

- Customer Complaints (including Billing Accuracy);
- Billing and Credit Management;
- Land Access; and
- Customer Service Charter

Continued TA support for the ICCC will be required to develop greater depth in knowledge and expertise.

The ICCC's approach to the Government's attempts to revoke the Digicel license shows the real strength and benefit of a truly independent regulator.

2.8 Priorities for Improving Service Delivery

The most important factors to insure ongoing improvements in service delivery are:

- Rejection of the proposed new ICT policy;
- Continued competition;
- Establishment and enforcement of equitable interconnection agreements;
- Opening up the international gateway to competition;
- A strong and independent regulator with licensing powers; and
- Continued development of the telecommunications codes to strengthen the market and facilitate competition.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

- Provided the Government's efforts to impose a new ICT policy and rationalize the sector are not successful, then telecommunications users should continue to experience improved services at competitive prices.

- If, on the other hand, the new ICT policy is approved by Parliament, every effort should be made to mitigate its potential detrimental impact on competition and investment by ensuring that ensuing regulations protect investments already made by private providers as well as the regulatory and licensing powers of the ICCC.

3 Water Supply and Sanitation

3.1 Sector Structure and Service Quality

The piped water supply and sanitation sector is under two corporatized entities, both members of IPBC: (i) Eda Ranu, which provides water supply and sewerage collection and treatment services in Port Moresby and (ii) the PNG Water Board which provides the same services for provincial capitals and (in the future) district centers. (Technically, there is a third entity, the Goroka Town Council, which provides water and sanitation in Goroka.) Both Eda Ranu and PNG Water Board serve about 250,000 customers in their respective jurisdictions. The remaining 91% of PNG's population that are not served by these two entities source water individually or through village schemes. The technical efficiency of operations in Eda Ranu and PNG Water Board is high relative to other Pacific island countries, with Unaccounted For Water (UFW, i.e., losses) only about 32% of the gross treated volume compared to 50% often found elsewhere. The Water Board aims to reduce UFW further to 20-25%.

Both companies are financially self sustaining, but expansion of services outside of the national capital, which are under the responsibility of the Water Board, is constrained by lack of finance and by land issues. It should be noted that the Water Board, while generating a small net profit, does not allocate any resources to major maintenance, so the financial results of the company are not a reflection of sound asset management.

The creation of Eda Ranu (which means "our water") and the BOT that was put in place in 1996 with a Malaysian firm, JC-KRTA, has not been without some criticism. The BOT was entered into to finance much needed investment in the Port Moresby water and wastewater infrastructure and the Malaysian firm was granted an open ended 22 year license. Some have suggested that the license is heavily weighted in favor of the operator and that it can be extended at the end of the 22 year term if the operator has not recovered an adequate return.⁴

In accordance with its agreement with the ICCC, the Water Board plans to extend services with private sector participation to more than eighty district centers in addition to the 15 or so provincial capitals it now serves, at an estimated cost of K1 billion. To date, the extensions are unfunded, and it appears that no assistance from the government budget is likely, as rural water and sanitation services are not identified as priorities in the government's Medium Term Development Strategy. JICA recently funded a pilot water supply project in 3 district towns, but this assistance has ended; discussions with the EU for project assistance have commenced. The Water Board recognizes the need to raise the profile of the water/sanitation sector in government planning processes.

The Water Board is also responsible for the technical regulation of quality and performance standards for water/sanitation throughout PNG but is uncomfortable in its dual role as regulator and provider. The company has recommended to the ICCC that a separate body be established for technical regulation. To address land issues, the Water Board supports the formation of a landowners trust as a way to engage landowners closely in the identification of needs for land and in the negotiation process. Lessons from recent efforts in Samoa, the Cook Islands, and Fiji to confront

⁴ Commonwealth Foundation Study 2004 – PNG Privatisation of Water "Eda Ranu", Dr. Julianne Kaman

and resolve land issues, in which standard and financially negotiable lease agreements that provide for a significant landowner stake in the enterprises/activities being developed are protected under new legislation, will have useful application in PNG.

There is considerable scope for outsourcing of water sector services.

3.2 Community Service Obligations

There is no formal CSO contracting framework in place for water supply, nor a formal policy for rural extension. Water in the Port Moresby area (Eda Ranu) is basically charged on a user pays basis, but the NCDC does supply water to urban settlements for free. Cross subsidization occurs between urban users who can pay the tariff and village or peri-urban areas. PNG Water Board also engages in significant cross subsidization.

3.3 Regulatory Arrangements

The Water Board is currently responsible for the technical regulation of quality and performance standards for water/sanitation throughout PNG. The ICCC is responsible for price regulation.

3.4 Maintenance Issues

PNG Water Board does not undertake major maintenance work due to lack of funds. This results in accelerated deterioration of assets and high replacement costs.

Under the current pricing arrangements, both PNG Water Board and Eda Ranu have committed to certain capital expenditure on their infrastructure. The pricing arrangement is conditional on this commitment being realized; otherwise the service provider will be appropriately penalized by the ICCC.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

The commercialization of water operations in PNG will have been positive in relation to service delivery improvements, but the team has been unable to quantify the extent of the benefits. The introduction of a private sector operator in Eda Ranu appears to have had beneficial consequences in relation to maintenance.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

While the BOT structure in Eda Ranu appears to have had a beneficial impact on maintenance, it seems that the contract, as structured, may be unbalanced and too favorable in relation to the private sector operator. If the incentives in the BOT are not correctly aligned this could limit future improvements in service quality and capacity.

It appears that the BOT with JC-KRTA was structured on the basis that the operator is not responsible for the small distribution pipes, leaks, illegal connections and lack of pressure. Therefore the structure of the BOT itself may be limiting ongoing service quality improvements.

There appears to be no interconnect between the Water Board and Eda Ranu systems. There would also appear to be good opportunities for a greater level of private sector participation through contracting out maintenance, pipe laying, meter reading etc.

The Water Board plans (as agreed with the ICCC) to extend services with private sector participation to more than eighty district centers in addition to the 15 or so provincial capitals it now serves is frustrated due to lack of funding. As observed the Government does not see rural water and sanitation services as priorities in the Medium Term Development Strategy.

Access to land for pipelines etc is also an ongoing issue.

3.7 Key Regulatory Challenges

Separating the technical PNG wide regulation of quality and performance standards for water/sanitation from the Water Board and placing it within a separate body.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- The BOT contract with JC- KRTA should be reviewed to determine whether it is (i) fair and reasonable, (ii) can be renegotiated and (iii) can allow for integration with the operations of the Water Board;
- Funding is required to support the Water Boards expansion plans for rural water;
- Developing a mechanism or structure to gain access to land for network expansion;
- Development of a new sector policy that addresses rural extension priorities and encourages private sector participation;
- Development of formal CSO policy that ensures that PNG Water Board receives compensation for CSOs; and
- Improving management and asset maintenance systems at PNG Water Board.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Ministry of Finance should lead a review of the BOT contract with JC-KRTA. Other members of the review team could include the IPBC works Ministry. The review should look at the underlying contractual arrangements to first identify the rights and obligations of the parties to the agreement. The questions to address are; (i) are there any rights to review or renegotiate aspects of the agreement prior to the expiration of the 22 year term (ii) does the agreement create the correct incentives to encourage the operator to

ensure service delivery is optimized (low cost, high quality) and the assets are well maintained and handed back to the state at the end of the term in good order (iii) can the agreement be terminated by either or both parties and if so under what conditions and at what cost. TA support should not be required.

- The IPBC should instruct Eda Ranu and the Water Board to explore opportunities to integrate or interconnect their systems with the intention of creating cost, operational or performance gains. If integration or interconnection is possible the IPBC should work with the ICCC and the two water utilities to develop interconnect rules. No TA support should be required for the first part of this review, but TA support may be required to develop the interconnection codes and rules.
- The Ministry of Finance should explore options to source funding to facilitate the Water Board's plans to extend services to the eighty district centers, as indicated above. The provision of donor funding should also be examined. Additional TA support is not required at this stage. Furthermore, the Government should appoint a Task Force to develop a new sector policy which addresses rural extension priorities and encourages private sector participation
- The IPBC should establish a requirement in the SCIs for both Eda Ranu and the Water Board that they review their activities and proactively identify opportunities to contract out. The requirement could be incorporated into the 2008/09 SCIs with a report back date by midway through the financial year. The SCI should state the expectation that the corporation will contract out unless it can be shown that it is more cost effective to undertake the activity in-house.
- The IPBC in conjunction with the ICCC and the two corporations should jointly draw up a brief for the proposed quality and performance regulator and a recommendation as to which institution should be designated as the regulator. Ministries with health and/ or works responsibilities would be logical candidates. Once the proposed regulator is identified it should draft codes of practice and set health and performance standards, in consultation with the two Corporations (and any other major stakeholders in the water and wastewater sectors). The ICCC should also be consulted on the proposed health and performance standards. In drafting the standards the proposed regulator should have access to the benchmarking results held by the two Corporations. TA support may be needed once the proposed regulator has been identified to assist in drafting the standards. This work should commence as a matter of priority and targeted for completion by the end of the first quarter in 2008.
- The Water Board supports the formation of a landowners trust as a means to address land issues and as a way to engage landowners closely in the identification of needs for land and in the negotiation process. Lessons from recent efforts in Samoa, the Cook Islands, and Fiji to confront and resolve land issues may be a means to deal with the situation in PNG. The use of standard and financially negotiable lease agreements, that provide for a significant landowner stake in the enterprises/activities being developed and which are protected under new legislation, could have useful application in PNG. The Team recommends that the Ministry of Finance in conjunction with the Water Board (and with Eda Ranu participation) undertake a review to identify a suitable arrangement to deal with land issues that may impede the

development of, particularly, rural water and wastewater infrastructure. The review should look at experiences in other jurisdictions with similar land tenure arrangements as those found in PNG, particularly those in the Pacific area. This review would be supported by a TA and should commence early 2008. It should be a highly consultative process, involving as much as possible groups that represent land owners, to ensure that the recommendations have a significant buy-in. An outcome of the review would be a recommended structure/process to secure access to land supported by draft legislation.

- Government to seek TA to review management and asset maintenance systems at PNG Water Board
- Government to seek TA to develop a formal CSO contracting mechanism, perhaps as part of a larger SOE-wide CSO framework development

4 Power

4.1 Sector Structure and Service Quality

The power sector is under PNG Power Ltd, which corporatized in 2002 from the former Electricity Commission (Elcom). PNG Power is an integrated generation, transmission, and retail distribution electricity supply company. It is 100% government-owned and a member of the IPBC. PNG Power holds a monopoly on all power generation, transmission and distribution within a 10 km radius of its existing grid. Only one other company has recently been granted a license to generate and distribute power outside of the PNG Power grid: PNG Sustainable Energy (PNGSEL, see below).

Tariffs are regulated under a long term contract with the ICCC. Hydro power makes a substantial contribution to the generation mix in all of the major grid centers (Port Moresby, Ramu and the Highlands, Gazelle, and Kimbe) supplemented as needed by diesel. Isolated provincial power centers are predominantly diesel.

In the Port Moresby system, Elcom in 1997 signed a long term contract with the Korean IPP (independent power producer) Hanjung Power Limited (a joint venture of Korea Heavy Industries and Daewoo) to purchase power from a 24 MW baseload diesel plant. The purchase agreement is expressed in US dollars apparently on a take-or-pay arrangement resulting in substantial exchange losses suffered in the face of the kina's devaluation since 2000; the purchase price reportedly now exceeds, or in the past has exceeded, the retail electricity price. PNG Power would like to get out of the agreement and has considered purchasing the plant from the IPP; however, engineers have expressed reservations about the plant's technical soundness and no moves are presently underway to alter the status quo.

In the early 1990s, Elcom was a sound and reasonably profitable utility, but conditions rapidly eroded in the face of capacity shortages and crippling droughts which greatly increased reliance on diesel for generation in the major centers, particularly as the tariff was not increased to accommodate rising costs. By 2001, Elcom was in serious financial trouble, maintenance funds were scarce and assets had deteriorated. Rolling blackouts in the major centers were common. Management services also declined; accounts were not updated or issued for 3-4 years. High levels of overseas debt (US\$60 million) incurred high exchange losses after 2000.

Since 2001, however, management has shored up financial control and reporting functions and greatly increased gross revenues (from K108 million in 2001 to K405 million expected in 2007) due largely to the acceleration in coverage of pre-paid metering in the major centers. Of the approximately 75,000 PNG Power customers nation-wide, 45,000 or 60% are presently on pre-paid meters, including virtually all of Port Moresby, Gazelle, Lae, and Madang. Some 95% coverage of pre-paid meters is targeted over the next two years.

Total staff has been reduced from 2,300 in 2001 to 1,750 now. Elcom's technical training capacity, which was the envy of Pacific power utilities in 1990 but went into serious decline and collapse by the end of that decade, has now been revived by PNG Power.

Overseas debt has been converted to local debt and exchange losses on debt are no longer a serious risk. A consortium of 3 commercial banks has made a K331 million financing facility available to PNG Power for asset rehabilitation. Current projects

include upgrading of the Rouna hydro facilities in Port Moresby (K80 million), installation of a toe-of-the-dam hydro generating station at Yonki in Ramu (cost unknown), and improvements to diesel plant throughout the provinces (K80 million). The company is self-sufficient in its capital and current budgets.

Recently, the ICCC approved a 12.5% electricity tariff increase, based on a prospect of privatization which will now not be implemented; as a result, PNG Power has (voluntarily) taken up only a 2.5% increase. At the current tariff averaging approximately K0.44/kWh (about US\$0.14/kWh), the electricity tariff in PNG is the lowest in the Pacific islands region.

The company's power system in Port Moresby has recently suffered the temporary loss of a portion of capacity at the Rouna (hydro) and Moitaka (heavy diesel) power stations due to maintenance problems and a schedule of rolling blackouts in the capital occurred during 2007. Once this capacity has been restored, however, the company does not foresee a need for substantial investment in new generating capacity in any of the major load centers, despite the economic boom that PNG is presently enjoying. Accordingly, no provisions for capital expenditures to increase generation capacity have been planned for the next 15 years. The ICCC agrees that PNG Power is not in a position to extend services in rural areas and that present capacity to serve urban areas is sufficient to meet future needs.

Rural Power: PNG Sustainable Energy, a subsidiary of PNG Sustainable Development has a number of rural electrification projects ongoing, most of which are designed to provide access to rural households for at least a portion of the planned generation capacity. Perhaps the most impressive of these projects is the Stanley Power Project which is a 70 MW power generation plant using combined cycle gas turbine technology, eventually projected to cost around US\$100 million. The base load plant will be sited in the Western Province, with approximately 80% of its capacity pre-sold on a take or pay basis to a mining concern operating across the border in Irian Jaya (Indonesia). PNG SDL is also looking at the feasibility of running a gas pipeline, electricity and telephone cables along a planned road from Kiunga to Daru.

PNGSEL has been granted a license to operate electricity generation and distribution in the Western Province.

In Papua New Guinea (PNG), 90% of the population (mostly rural dwelling) has no electricity and relies on biomass and non-commercial energy for their energy needs. There are some 90 minor diesel power generation centers called C-Centers dotted around rural PNG. They are funded by the Ministry of Finance and service primarily the local rural administrator but some power is made available to local communities at no charge. Likewise, rural primary and secondary schools make power generated from their small scale diesel generators available for local community use at no charge.

A Government-appointed Electricity Sector Task Force has formulated a strategy for the development of the sector, with support from Frontier Economics. This strategy, finalized in August 2007, has yet to be publicly released. An ADB TA (late 2007) is intended to build upon this strategy and prepare a PNG power sector development plan.

4.2 Community Service Obligations

PNG Power receives a subsidy of some K85 million/year for rural electrification. The provision of these CSOs is defined in the regulatory contract with ICCC.

Price cross subsidization is built into the regulated prices of PNG Power.

4.3 Regulatory Arrangements

Tariffs are regulated under a 10 year regulatory contract (akin to a general tariff order) issued by the Treasurer and administered by the ICCC.

The ICCC is also the technical regulator in the industry. It will delegate its technical functions to the Department of Petroleum and Energy as part of a new industry policy recently announced by the government.

4.4 Maintenance Issues

Maintenance was poor through the 1990s but is improving now following corporatization and the structuring of appropriate cost reflective tariffs by the ICCC since 2002.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

Many of the improvements achieved by PNG Power over the past few years are ascribed by management to the salutary effects of good regulation from the ICCC. Regulatory intervention with a long term tariff agreement has motivated the company to recruit needed management skills and implement reforms that have strengthened performance in accordance with the agreement's conditions. (The ICCC has prepared draft service standards for the power sector but these are not yet part of the agreement with PNG Power.)

At present an industry policy is currently being developed by the government for the industry, which will seek to provide an overall framework for the introduction of competition in the generation sector, the CSO framework for the industry the overall regulatory and policy objectives going forward.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Lack of competition in the sector inhibits innovation; very limited private sector participation reduces efficiencies. Absence of a formal CSO framework leads to inefficiencies and poor service delivery in the rural areas. A poorly-negotiated PPP for power generation is a drain on PNG Power's finances.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Developing a regulatory framework that facilitates private sector participation, particularly in rural power provision.

- Under the current industry policy, which is in its draft stage, greater contestability will be introduced in the generation segment of the industry through the structuring of feed-in tariffs. Accordingly, the ICCC will need to quickly draft up an overall third party access regime including the development of the specific access codes for the industry.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Adoption of a new sector development policy that encourages private sector participation and competition
- Development and implementation of comprehensive corporate governance reforms at PNG Power, including the development of statements of corporate intent and formal CSO contracting frameworks to reduce the risks of political interference.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Finalize, with support from ADB, a new sector development plan which fully integrates the role of the private sector.
- PNG Power to agree with IPBC to launch a corporate governance strengthening TA.
- ICCC to strengthen its power sector regulatory capacity.

5 Roads

5.1 Sector Structure and Service Quality

The roads sector has been restructured with the recent establishment of the National Roads Authority (NRA), intended to take over the road maintenance responsibilities of the Public Works Department (PWD) and financed by a national road fund. Revenues of the road fund are composed of fuel taxes and vehicle registration fees (calibrated to recover the expected road damage per vehicle based on weight). The NRA is not yet fully established and funded and as such the PWD is responsible for all road maintenance, which since 1996 is entirely contracted out to the private sector.

In parallel with the reforms mentioned above improvements in the government budget have resulted in much higher allocations to road maintenance (reportedly close to 100% of the estimated annual need in excess of K100 million) from the consolidated general fund. Currently, the NRA has yet to assume these responsibilities and road maintenance is still managed by the PWD.

The transport sector in PNG is strongly supported by AusAID under the Transport Sector Support Program (TSSP) launched this year. The TSSP is funded at A\$50 million annually, covering maintenance of roads, marine ports, and airports, and relevant public sector reform activities. The TSSP will support rehabilitation and maintenance activity through the PWD, but not new development (e.g., new roads). The next 6 months will be a planning phase, followed by an initial 5-year implementation contract with the government. AusAID has long argued⁵ that the solution to poor roads maintenance in PNG need not be 'structural' i.e., require the establishment of a new agency such as the NRA or a corporatization process, but might be accomplished just as well through strengthening of existing institutions (the PWD). In this view, the NRA would function as a fund manager and supervisory/regulatory agency, with PWD retaining responsibility for direct maintenance work and contracting. AusAID reports that the PWD has begun to function much better than in the past, due to the greater budget allocations made to it. To improve harmonization among development partners concerned with transport in PNG, AusAID suggests that partners support activities under the TSSP framework.

The PNG Sustainable Development Ltd (PNGSDL) has begun work on roads rehabilitation and maintenance in the Western province and is planning a road from Kiunga to Daru.

5.2 Community Service Obligations

Until the NRA is fully established and funded fuel taxes and vehicle registration fees, the road network is directly funded by allocation from the Government's general budget.

⁵ See, for example, *Papua New Guinea – The Road Ahead*, Australia Department of Foreign Affairs and Trade and AusAID, 2004

5.3 Regulatory Arrangements

When established the NRA will have access to and control over the road infrastructure database, Road Asset Management System (RAMS) which was established with ADB support. It has been suggested that the data base has not been well maintained, but it does provide good source data on the state of the road network.

There is no external quality control in relation to road maintenance and construction.

5.4 Maintenance Issues

Maintenance of the national highway system has been a chronic issue but this is now being addressed through AusAID transport sector support program (A\$50m/year). Furthermore, the new corporatized National Roads Authority has been established but is still awaiting formal gazettal and funding. A crucial next step will be the introduction of performance-based road maintenance contracts (PBMCS) which will be made possible by the existence of secure funding through a road fund. This can be expected to address past maintenance issues.

Rural roads maintenance is being assisted by private sector PNGSIL.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

The establishment of the NRA will address a number of the issues associated with the historic poor maintenance. The fact that road maintenance will also be funded from a separate and identifiable source will also ensure that sufficient funding will be available.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

It is a concern that the NRA has not yet been fully operationalized. Furthermore, in order to ensure that the road network is being adequately maintained and in a timely manner, it is necessary that the NRA has access to good source data on the network. Bringing the RAMS data base up to date should be a matter of priority.

Lack of contracting out and contestability for road maintenance and construction is also a concern. The Samoan experience has shown that competitive contracting and outsourcing can result the same amount of funding achieving a six-fold increase in productivity.

5.7 Key Regulatory Challenges

None identified.

5.8 Priorities for Improving Service Delivery

Reform has already commenced in this area with the decision to establish the NRA. It is difficult for the RETA team to recommend further priorities for improving service delivery until the NRA has established its own policies and priorities. However the

RETA team would recommend the following as areas that the NRA should focus upon as high priorities:

- Updating the RAMs;
- Develop strategic linkages with private sector parties such as the PNGSDP that have expressed an interest in road maintenance and construction;
- Develop a long-term road maintenance and construction programme in consultation with key stakeholders and establish policies and procedures for developing and tendering PBMCs. The plan should be consistent with the anticipated funding flows going into the dedicated road fund;
- Develop a consultation plan to deal with land owners that will have an interest in road maintenance and construction;
- Formalize and Gazette the Road Fund;
- Establish contracting unit within the new NRA or PWD; and
- Development of contract monitoring capabilities within NRA or PWD.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

- Government to agree on policy concerning road maintenance responsibility (NRA/PWD) and funding going forward;
- Once agreed, institutional responsibilities must be immediately gazetted so that they can be operationalized;
- NRA/PWD to seek TA support to develop a “contracting office” to develop rules, procedures, guidelines and standard contracts to facilitate tendering and contracting and monitoring road maintenance;
- Consider twinning NRA/PWD staff with Samoa MWTI road maintenance staff to share knowledge; and
- If applicable, recruit needed additional staff at NRA/PWD.

6 Ports

6.1 Sector Structure and Service Quality

Though the PNG Ports Corporation (previously the PNG Harbours Board) has taken the same path as many other SOEs (corporatization and change of name; under the supervision of the IPBC; economic regulation by ICCC), it appears not to be progressing as well as, say, water and power. According to management, the Board of Directors is still subject to undue political influence, legislation remains unclear in respect of the rights and duties of the Corporation, and ports fees (regulated by ICCC) are not adequate to cover costs.

There is a large amount of rehabilitation work and backlog maintenance to be done, including in the two main revenue-generating ports of Port Moresby and Lae. Shippers complain of poor infrastructure (substandard wharf surfaces and inadequate storage facilities), high costs, and low throughput.⁶ In addition to Port Moresby and Lae, the ports of Kimbe, Rabaul, and Wewak are financially break-even or marginally profitable. There are a further 11 minor ports that operate at a substantial financial loss. Stevedoring is outsourced to 3 companies in Lae and 2 in Port Moresby. These companies, however, are reportedly entrenched (at least one is integrated with an international shipping company) and competition is limited.

An upgrade of the wharf surface and the storage facilities and extension of one of the international berths at the Lae port is planned, to be internally financed. Traditionally, dredging has not been needed in PNG's main ports. However, due to what are suspected to be man-made causes (shoreline construction), coastal currents have shifted in Lae and a K300-400 million dredging program is now required. A project for this has been identified in the Lae Tidal Basin that is expected to be financed by the ADB. An additional berth at Wewak with an estimated cost of K80 million has been designed but is not funded. The Corporation recognizes that substantial rehabilitation work is required in all ports but costs have not been estimated nor funds identified. It appears that the rehabilitation work needs to be completed before the government's plans to sell ports assets to the private sector can be progressed or shipping costs reduced.

PNG SDP is planning to construct a wharf in Daru.

6.2 Community Service Obligations

There are no contracted CSOs in place although it is noted that of the sixteen ports, two appear to provide a reasonable return, three are just breakeven and the balance (11) are all loss making. There would appear to be a significant level of cross subsidization.

Current tariff arrangements administered by the ICCC reflects to a larger extent, internal price cross subsidization between the various ports.

⁶ *ibid.*

6.3 Regulatory Arrangements

ICCC are responsible for economic regulation which is regarded as problematic by Port company management, as ports fees are set subject to conditions that the Corporation does not feel it can achieve. The issue may however be that they are reliant on making using profits from Port Moresby and Lae to support that balance of the Ports that are either breakeven or loss making.

6.4 Maintenance Issues

Serious maintenance issues in the major ports of Lae and POM; many small Provincial ports are dilapidated. The PNG Ports Corporation remains under-funded and not yet functioning effectively.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

As this report indicates, the port sector is lagging behind others sectors in achieving service delivery improvements. There has been an improvement in maritime safety following the ADB project to upgrade the navigation aid system and restructure the Maritime Safety Authority.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The key factors limiting improvements can be listed as;

- High level of political interference in the operation of the Ports Corporation. A Minister sits on the board and the team has been informed that there is a high level of political involvement in operational decisions.
- The lack of formal CSO contacts for the non profitable ports and the resulting cross subsidies make it virtually impossible for management to be able to make investment or operational decisions with any confidence.
- Limited private sector participation.
- Historic lack on maintenance will result in higher operating costs and lower quality service levels.
- The Port Corporation appears to lack management and technical skills in a number of areas.
- The Port Corporation does not undertake benchmarking.

6.7 Key Regulatory Challenges

While the ICCC regulates price including the minimum service standards and capital expenditure requirements of PNG Ports, the safety regulations covering port activities are vested with the National Maritime Safety Authority.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Improve the Ports Corporation Governance structure by removing elected officials from the board;
- Develop formal CSOs for those activities undertaken by the Ports Corporation that are not commercial;
- Develop a long-term fully costed asset management plan covering ongoing maintenance, replacement and new investment requirement. The period of the plan should be at least five years;
- The Ports Corporation should review all activities and identify opportunities to contract out non-essential services;
- The Port Corporation should undertake a human resource audit to identify where there may be skill gaps;
- There should be a regular benchmarking exercise undertaken; and
- Port operations should be subject to quality and safety regulations.

6.9 Proposed Strategy for Achieving the Reform Priorities Above

It appears that the IPBC does not act as an effective owner monitor. The confused governance around the Ports Corporation is a case in point. A number of the recommendations following should be followed up by the IPBC.

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Ports Corporation should undertake a review of all of its business lines and port operations. The Port Corporation should exit from those operations that are not viable. However if the Government wishes the Ports Corporation to continue to operate non-commercial ports or business lines, then there should be a clear commitment from the Government which should be documented through a CSO. This will be a major exercise and will require TA support, particularly in regards to the review of port operations. A task force should be established comprising official from the Ministry of Finance, ICCC and IPBC to manage the review process and to which the TA experts will report. A formal CSO policy is not required prior to commencing this review as the ToR for the review will set out the process and criteria to be applied if the Government elects to consider supporting a port through a CSO contract. This process should commence as quickly as possible as the other initiatives will be effected by the outcome of the review.
- As part of the review described above the Ports Corporation should examine all of its activities and identify opportunities to contract out. The emphasis should be that the Ports Corporation must justify why an activity should not be contracted out. The results of this review should be reported to the task force established under point one above.
- The Government should undertake a review of the Ports Corporation board with the aim of (i) removing any elected representatives from the board, (ii) reviewing the skill mix on the board with reference to the key issues the board

and Corporation will have to deal with over the next three years, (iii) develop a skill gap profile (iv) seek to appoint directors that have the requisite skills as demonstrated by the skill gap profile. The ADB could provide governance assistance to develop a “best skilled” appointment process.

- The Government should identify as a matter of urgency a suitable quality and safety regulator. The logical “quality” regulator would be the IPBC, but as observed above the IPBC does not appear to have undertaken the role of ownership monitor with any real focus to date. It is also recommended that the Ports Corporation undertake a benchmarking exercise (which should be regularly updated). The benchmarking exercise should be undertaken contemporaneously with the other reviews mentioned above and would be a useful input into the structural review. The benchmarking exercise would also assist in identifying “benchmark” quality and safety standards to assist in informing the identified regulator. The quality regulator should logically be the IPBC, provided they indicate have the resources to undertake the role, and the safety regulator should be the Ministry responsible for maritime activities. TA support may be required to undertake the benchmarking activity, but the IPBC and line Ministry can define and enforce the standards, once identified.
- Once the review mentioned in bullet points one and three are complete the newly reconstituted Ports Corporation board should undertake a review of the staffing and management requirements for the Corporation going forward. An external expert should be used. Management should not manage the process, the external expert should report directly to the board. TA support should not be required.
- The Government should evaluate the benefits of entering into a PPP for the management and development of PNG Ports Corporation.

7 Shipping

7.1 Sector Structure and Service Quality

There is limited competition in the coastal shipping sector, which is dominated by three companies, of which a third is owned by the other two. There is no government shipping service. Rates for coastal shipping are regulated by the ICCC, which earlier this year issued new guidelines for the licensing of coastal shippers with the aim of making the sector more competitive and entry/exit procedures more equitable and transparent. As part of this review, the ICCC has highlighted the need to rehabilitate port infrastructure throughout the country (noted above) as a way to reduce shipping costs.

If the responsibility for licensing is transferred to the ICCC, as currently expected, this action may eventually enable the development of a more favorable competitive environment for provision of shipping services.

7.2 Community Service Obligations

There are no CSOs identified.

7.3 Regulatory Arrangements

Rates for coastal shipping are regulated by the Department of Transport. It is however expected that the ICCC will have responsibility for licensing coastal shipping companies going forward should the government implement the recommendations from a recent review undertaken by the ICCC into this industry.

7.4 Maintenance Issues

Domestic shipping sector is aligned with international shipping companies. Significant maintenance issues are not evident.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

The domestic shipping sector is operated by private sector companies. The team could not identify any significant initiatives that have led to service delivery improvements.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The interlinked ownership between the private sector operators inhibits competition and hence drivers for improvements in service quality and capability.

Revised rules and greater regulatory control over the licensing of operators (as proposed by the ICCC) should create opportunities for more competition and further private sector participation.

7.7 Key Regulatory Challenges

The proposal that the ICCC should control the licensing of ship operators will have benefits as noted above.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Increased competition through the introduction of a more robust licensing arrangement administered by the ICCC; and
- The license arrangements could cover such matters as limitation (or even prohibitions) on cross shareholding amongst shipping companies servicing the same routes.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

The team understands that the ICCC is to take over responsibility for licensing and if that is the case, the recommended strategy will have been achieved.

8 Annex: Country Consultation Report

The RETA team visited Port Moresby from 14 through 25 June 2007. Discussions were held with (not in order):

- Department of National Planning and Monitoring (DNPM)
- Department of the Treasury
- PNG Sustainable Infrastructure Ltd (PNGSIL)
- PNG Ports Corporation Ltd
- PNG Power Ltd
- PNG Water Board
- Independent Consumer and Competition Commission (ICCC)
- Independent Public Business Corporation (IPBC)
- Digicel (PNG) Ltd
- AusAID

Highlights:

Since 2002, PNG has enjoyed sustained economic growth due largely to increased export commodity prices, especially minerals and oil and gas. The government budget is much healthier than in the past, and allocations to essential services and maintenance functions have greatly increased. There are signs also that the country is coming to grips with longstanding governance, corruption, and regulatory issues. The present government has remained in office for a full 5-year parliamentary term. A national election is in the offing (June 2007).

Infrastructure services in PNG are strengthening in a number of ways (experimentally in some cases) highlighted below.

The PNG Sustainable Development Program Ltd (PNGSDP) is the majority (52%) shareholder of Ok Tedi Mine Ltd (OTML) in the Western Province, having taken over BHP's shares in 2001. The balance of Ok Tedi is owned by the national and western provincial governments and landowners (30%) and a Canadian firm (18%). PNGSDP's Board has 3 Directors appointed by BHP, 3 by the national government (1 each from the Bank of PNG, the Chamber of Commerce, and Treasury), and 1 from Singapore, where the company is registered. The purpose of PNGSDP is to invest 33% of its dividend income in rural infrastructure; the balance of dividend income is invested in long term funds. Of the 33% of income earmarked for projects, 33% is spent in the Western Province and 67% in the rest of PNG. PNGSDP has two subsidiaries to carry out project implementation: PNG Sustainable Infrastructure Ltd (PNGSIL) to focus on transport infrastructure (roads, ports, and airstrips) and on water and sanitation, and PNG Sustainable Energy Ltd (PNGSEL) to focus on rural electrification. Dividends paid to PNGSDP are reported to average around K300 million per year, implying a flow of some K100 million per year to development projects. OTML currently expects that the mine will remain open through 2013, with a longer period considered probable⁷. PNGSDP has been engaged as the project manager of a World Bank-funded roads sector project and is contributing funds to the investment.

⁷ Depending on future copper prices.

Though PNGSDP project investments are made in addition to, not in lieu of, taxes paid to the national and provincial governments, the company apparently expects to make little or no income from them. (For example, many of the infrastructure projects concern the rehabilitation and maintenance of provincial and national roads.) PNGSIL maintains that their long term goal is to provide for sustained rural investment in infrastructure through creation of a trust fund that would generate income and to which the provincial and national governments would continue to contribute after the mine closes. The trust fund would contract with local landowners for long term maintenance services. Current plans call for the construction of a road from Kiunga to Daru and port facilities in Daru. Though starting in the Western Province, the clear intention is to extend a successful model nationwide. In other parts of the country, PNGSIL has already begun to work on roads rehabilitation and maintenance in conjunction with oil palm producers, demonstrating that the model need not depend on Ok Tedi or even on minerals.

Admittedly, the model arises from the unusual, even unique, circumstances of OTML (i.e., majority shareholding of a profitable mine turned over to an infrastructure investment company, apparently for other than immediate commercial interest), but it does successfully marry resource development/extraction activity to useful rural investment. The model provides three elements of vital interest to infrastructure, through the private sector: (i) an identified source of long term funding, (ii) expertise for efficient funds and project management, and (iii) relative transparency and autonomy from undue political influence. Moreover, the model provides *additional* resources to the rural scene, rather than substituting for public funds as an investment-in-lieu-of-taxes scheme would. None of the elements is guaranteed, and depends on the fortunes of the concerned commodity markets in the long term. But in PNG, a country wealthy in natural resources and reasonably stable export markets (minerals, agriculture, and oil and gas), the model may provide a promising alternative path to rural development, one that is boot-strapped by income from resource extraction and imposes little on the public sector. To become generally applicable to the mining, energy, and agricultural sectors in PNG, the model would have to be modified through legislation and licensing outcomes to provide appropriate incentives and regulations to commercial producers to support infrastructure.

The national regulator, the Independent Consumer and Competition Commission (ICCC) recently issued a license to PNGSEL to launch a rural electrification program in the Western Province, concentrating around the Fly River. Seven villages have been identified to start the program, which is to be managed by PNGSEL as a commercial venture.

The roads sector has been restructured with the recent establishment of the National Roads Authority (NRA), intended to take over the road maintenance responsibilities of the Public Works Department (PWD) and financed by a national road fund. Revenues of the road fund are composed of fuel taxes and vehicle registration fees (calibrated to recover the expected road damage per vehicle based on weight). In parallel, however, improvements in the government budget have resulted in much higher allocations to road maintenance (reportedly close to 100% of the estimated annual need in excess of K100 million) from the consolidated general fund. Currently, the NRA has yet to assume these responsibilities and road maintenance is still carried out by the PWD.

The transport sector in PNG is strongly supported by AusAID under the Transport Sector Support Program (TSSP) launched this year. The TSSP is funded at A\$50 million annually, covering maintenance of roads, marine ports, and airports, and

relevant public sector reform activities. The TSSP will support rehabilitation and maintenance activity through the PWD, but not new development (e.g., new roads). The next 6 months will be a planning phase, followed by an initial 5-year implementation contract with the government. AusAID has long argued⁸ that the solution to poor roads maintenance in PNG need not be 'structural' i.e., require the establishment of a new agency such as the NRA or a corporatization process, but might be accomplished just as well through strengthening of existing institutions (the PWD). In this view, the NRA would function as a fund manager and supervisory/regulatory agency, with PWD retaining responsibility for direct maintenance work and contracting. AusAID reports that the PWD has begun to function much better than in the past, due to the greater budget allocations made to it. To improve harmonization among development partners concerned with transport in PNG, AusAID suggests that partners support activities under the TSSP framework.

The Independent Public Business Corporation (IPBC) was created in 2002 as a holding company of State Owned Enterprises (SOEs), to replace the previous Privatization Commission. Under the Privatization Act of 1999, policy had been to sell all SOEs to the private sector as soon as practicable. This has been modified by the present government to an incremental process aimed at partial privatization and public-private partnerships in combination with better monitoring of SOE performance and rehabilitation of assets as needed for eventual sale. Under partial privatization, the Government will retain a share of ownership, and private investors will be required to expand services in accordance with a Community Service Obligations (CSO) Agreement between them and the ICCC. Utilities of relevance to the RETA that are presently under the IPBC umbrella include PNG Ports Corporation, PNG Power Corporation, Eda Ranu Ltd (water company serving the National Capital District), the PNG Water Board (water company serving other urban centers nationally), Air Niugini, and Telikom PNG.

Though the PNG Ports Corporation (previously the PNG Harbours Board) has taken the same path as many other SOEs (corporatization and change of name; under the supervision of the IPBC; economic regulation by ICCC), it appears not to be progressing as well as, say, water and power (see below). According to management, the Board of Directors is still subject to undue political influence, legislation remains unclear in respect of the rights and duties of the Corporation, and ports fees (regulated by ICCC) are not adequate to cover costs. ICCC regulation is regarded as problematic by management, as ports fees are set subject to conditions that the Corporation does not feel it can achieve. There is a large amount of rehabilitation work and backlog maintenance to be done, including in the two main revenue-generating ports of Port Moresby and Lae. Shippers complain of poor infrastructure (substandard wharf surfaces and inadequate storage facilities), high costs, and low throughput.⁹ In addition to Port Moresby and Lae, the ports of Kimbe, Rabaul, and Wewak are financially break-even or marginally profitable. There are a further 11 minor ports that operate at a substantial financial loss. Stevedoring is outsourced to 3 companies in Lae and 2 in Port Moresby. These companies, however, are reportedly entrenched (at least one is integrated with an international shipping company) and competition is limited.

An upgrade of the wharf surface and the storage facilities and extension of one of the international berths at the Lae port is planned, to be internally financed. Traditionally,

⁸ See, for example, *Papua New Guinea – The Road Ahead*, Australia Department of Foreign Affairs and Trade and AusAID, 2004

⁹ *ibid.*

dredging has not been needed in PNG's main ports. However, due to what are suspected to be man-made causes (shoreline construction), coastal currents have shifted in Lae and a K300-400 million dredging program is now required. A project for this has been identified in the Lae Tidal Basin that is expected to be financed by the ADB. An additional berth at Wewak with an estimated cost of K80 million has been designed but is not funded. The Corporation recognizes that substantial rehabilitation work is required in all ports but costs have not been estimated nor funds identified. It appears that the rehabilitation work needs to be completed before the government's plans to sell ports assets to the private sector can be progressed or shipping costs reduced.

There is limited competition in the coastal shipping sector, which is dominated by a small number of large and reportedly interlocked private companies. There is no government shipping service. Rates for coastal shipping are regulated by the ICCC, which earlier this year issued new guidelines for the licensing of coastal shippers with the aim of making the sector more competitive and entry/exit procedures more equitable and transparent. As part of this review, the ICCC has highlighted the need to rehabilitate port infrastructure throughout the country (noted above) as a way to reduce shipping costs.

The power sector is under PNG Power Ltd, corporatized in 2002 from the former Electricity Commission (Elcom). PNG Power is an integrated generation, transmission, and retail distribution electricity supply company, is 100% government-owned and a member of the IPBC. Tariffs are regulated under a long term contract with the ICCC. Hydro power makes a substantial contribution to the generation mix in all of the major grid centers (Port Moresby, Ramu and the Highlands, Gazelle, and Kimbe) supplemented as needed by diesel. Isolated provincial power centers are predominantly diesel.

In the Port Moresby system, Elcom in 1997 signed a long term contract with the Korean IPP (independent power producer) Hanjung Power Limited, a joint venture of Korea Heavy Industries and Daewoo, to purchase power from a 24 MW baseload diesel plant. The purchase agreement is expressed in US dollars apparently on a take-or-pay arrangement resulting in substantial exchange losses suffered in the face of the kina's devaluation since 2000; the purchase price reportedly now exceeds, or in the past has exceeded, the retail electricity price. PNG Power would like to get out of the agreement and has considered purchasing the plant from the IPP; however, engineers have expressed reservations about the plant's technical soundness and no moves are presently underway to alter the status quo.

In the early 1990s, Elcom was a sound and reasonably profitable utility, but conditions rapidly eroded in the face of capacity shortages and crippling droughts which greatly increased reliance on diesel for generation in the major centers, particularly as the tariff was not increased to accommodate rising costs. By 2001, Elcom was in serious financial trouble, maintenance funds were scarce and assets had deteriorated. Rolling blackouts in the major centers were common. Management services also declined; accounts were not updated or issued for 3-4 years. High levels of overseas debt (US\$60 million) incurred high exchange losses after 2000.

Since 2001, however, management has shored up financial control and reporting functions and greatly increased gross revenues (from K108 million in 2001 to K405 million expected in 2007) due largely to the acceleration in coverage of pre-paid metering in the major centers. Of the approximately 75,000 PNG Power customers nation-wide, 45,000 or 60% are presently on pre-paid meters, including virtually all of

Port Moresby, Gazelle, Lae, and Madang. Some 95% coverage of pre-paid meters is targeted over the next two years.

Total staff has been reduced from 2,300 in 2001 to 1,750 now. Elcom's technical training capacity, which was the envy of Pacific power utilities in 1990 but went into serious decline and collapse by the end of that decade, has now been revived by PNG Power.

Overseas debt has been converted to local debt and exchange losses on debt are no longer a serious risk. A consortium of 3 commercial banks has made a K331 million financing facility available to PNG Power for asset rehabilitation. Current projects include upgrading of the Rouna hydro facilities in Port Moresby (K80 million), installation of a toe-of-the-dam hydro generating station at Yonki in Ramu (cost unknown), and improvements to diesel plant throughout the provinces (K80 million). Apart from the subsidy of some K85 million/year for rural electrification that PNG Power receives from the national government, the company is self-sufficient in its capital and current budgets.

Many of the improvements achieved by PNG Power over the past few years are ascribed by management to the salutary effects of good regulation from the ICCC. Regulatory intervention with a long term tariff agreement has motivated the company to recruit needed management skills and implement reforms that have strengthened performance in accordance with the agreement's conditions. (The ICCC has prepared draft service standards for the power sector but these are not yet part of the agreement with PNG Power.) Recently, the ICCC approved a 12.5% electricity tariff increase, based on a prospect of privatization which will now not be implemented; as a result, PNG Power has (voluntarily) taken up only a 2.5% increase. At the current tariff averaging approximately K0.44/kWh (about US\$0.14/kWh), the electricity tariff in PNG is the lowest in the Pacific islands region.

The company's power system in Port Moresby is now suffering the temporary loss of a portion of capacity at the Rouna (hydro) and Moitaka (heavy diesel) power stations due to maintenance problems and a schedule of rolling blackouts in the capital has commenced. Once this capacity is restored, however, the company does not foresee a need for substantial investment in new generating capacity in any of the major load centers, despite the economic boom that PNG is presently enjoying. Accordingly, no provisions for capital expenditures to increase generation capacity have been planned for the next 15 years. The ICCC agrees that PNG Power is not in a position to extend services in rural areas and that present capacity to serve urban areas is sufficient to meet future needs.

The water supply and sanitation sector is under two corporatized entities, both members of IPBC: (i) Eda Ranu, which provides water supply and sewerage collection and treatment services in Port Moresby and (ii) and the PNG Water Board which provides the same services for provincial capitals and (in the future) district centers. (Technically, there is a third entity, the Goroka Town Council, which provides water and sanitation in Goroka.) Each company serves about 25,000 customers in their respective jurisdictions. The technical efficiency of operations in both companies is high relative to other Pacific island countries, with Unaccounted For Water (UFW, i.e., losses) only about 32% of the gross treated volume compared to 50% often found elsewhere. The Water Board aims to reduce UFW further to 20-25%.

Both companies are financially self sustaining, but expansion of services outside of the national capital, which are under the responsibility of the Water Board, is constrained by lack of finance and by land issues. In accordance with its agreement

with the ICCC, the Water Board plans to extend services with private sector participation to more than eighty district centers in addition to the 15 or so provincial capitals it now serves, at an estimated cost of K1 billion. To date, the extensions are unfunded, and it appears that no assistance from the government budget is likely, as rural water and sanitation services are not identified as priorities in the government's Medium Term Development Strategy. JICA recently funded a pilot water supply project in 3 district towns, but this assistance has ended; discussions with the EU for project assistance have commenced. The Water Board recognizes the need to raise the profile of the water/sanitation sector in government planning processes.

The Water Board is also responsible for the technical regulation of quality and performance standards for water/sanitation throughout PNG but is uncomfortable in its dual role as regulator and provider. The company has recommended to the ICCC that a separate body be established for technical regulation. To address land issues, the Water Board supports the formation of a landowners trust as a way to engage landowners closely in the identification of needs for land and in the negotiation process. Lessons from recent efforts in Samoa, the Cook Islands, and Fiji to confront and resolve land issues, in which standard and financially negotiable lease agreements that provide for a significant landowner stake in the enterprises/activities being developed are protected under new legislation, will have useful application in PNG.

The telecom sector has until recently been dominated by the government monopoly provider, Telikom PNG. The government has made strenuous, but so far unsuccessful, efforts to privatize the company. In the meantime, the main news in the sector is the arrival, in November 2006, of Digicel, the same Irish company established in the Caribbean that has been part of pervasive changes in the mobile and internet markets in Samoa and Fiji. Digicel now claims that they are established in *all* Pacific island countries except Tuvalu and Tokelau, underscoring the RETA's observation in other countries that Digicel is not deterred by either small markets or high risk.

Digicel's approach in the Pacific is to appoint a nearly 100% local staff in each country (they've hired about 1000 in PNG), supported by a roving management team of approximately 10. Expatriate staff arrive 6 months before launch and earn a 30% bonus for rapid skills transfer; they "hire for attitude, train for skills" with apparent success. Digicel occupies a complex of former warehouses in Gordons in Port Moresby that they have converted to open-floor office space; the RETA team's impression on entering was that a large portion of the 1000 local staff were all there, working in a bee-hive like atmosphere.

The hallmarks of Digicel's entry into the Pacific have been speed, technical quality, and coverage. The incumbent (usually monopoly) telecom providers have typically reacted first with legal action and then with stepped-up investment to try to match Digicel's product. In PNG, Digicel plans to launch in July 2007 with 100-150 stations (against Telikom's 40 stations) and subsequently to cover the country with a total of 600 stations. To support this, they are also building their own network rather than riding on Telikom's existing one. The amount that Digicel plans to invest in PNG is not known to the RETA team but it is clearly enormous. Teledensity in PNG is currently very low (~2%) – Digicel's investments will create markets for 21st century services in some very remote places. Digicel is, to an astonishing degree, undeterred by the attendant risks; they cite their successful against-all-odds entry in Haiti, one of the poorest countries in the world, as evidence that the model works.

A new entrant to an untested market might reasonably insist on (i) favorable government attitudes and legislation supporting liberalization of the market where the incumbent is a monopoly and (ii) a sound regulatory environment, before deciding to invest. Digicel claims that they don't actually insist on both of these; one or the other is necessary and sufficient. In PNG, according to management, Digicel's entry was assisted crucially by the impartial regulatory environment provided by ICCC; lack of a clear government telecom policy or legislation has not helped but has not hindered them.

The ICCC has issued a telecom license to a new company called GreenComm in addition to Digicel. Telikom PNG has raised a legal challenge to both licenses arguing that ICCC does not have the authority to terminate its monopoly. The ICCC is concerned at the number of recent court cases and the budget and capacity demands imposed on them as a result.

Summary of Key Findings

In contrast with much of the rest of the Pacific region, tourism in PNG is undeveloped and a rapid expansion in that sector is not in prospect, due largely to limited infrastructure outside of the main urban centers and persistent public safety concerns. However, PNG is wealthy in other natural resources and these are driving a sustained economic boom and a substantial improvement in the government's fiscal health. Allocations to asset maintenance and infrastructure service delivery have greatly increased in recent years. The country is in an enviable position of being able to experiment with different approaches to funding infrastructure investment and service delivery, based on its wealth of resources and a large but so far untapped domestic market potential. In hopes of realizing this potential, the private sector and to some extent the public sector are beginning to take more investment risks, outstandingly in telecommunications but also in transportation. Facilitating this development in no small measure has been the creation of a sound regulatory environment through establishment of the ICCC, which since 2003 has gained a reputation for impartiality and effectiveness. Management improvements evident in the SOEs for electricity and water supply are either caused by good regulatory influence or have been strengthened by it. Similar improvements in maritime and road transport can and, it seems, ultimately will result from the same influence (though the challenges in this regard seem to be steepest in marine ports due to an exceptionally long history of neglect).

In comparison with many other PDMCs, there is relatively little indication of the expected policy initiative or other pre-cursors of reform in the infrastructure sectors of PNG. Government officials and utility personnel did not express the perception of a need for structural reform. Typically, a core public management initiative to support the reform process is emergence of the Ministry of Finance as a champion and coordinator of infrastructure reform working with other key agencies in Ministries related to the sector. The RETA has aimed to reinforce this in most countries by working through an infrastructure committee, but this didn't work in PNG. It is possible that strong political intervention in PNG infrastructure contributes to this environment. Often, the need for reform is apparent through actual or perceived crises in the sector, but these may be masked in PNG by external grant assistance enabling the government to avoid making hard choices to improve the quality of infrastructure services.

The experience of PNGSDP shows that initiatives from outside the public sector that have clear objectives and adequate corporate governance standards have a good chance of success simply because channels for government intervention are limited. In the PNG context, such methods are promising for achieving positive outcomes.

Despite the current difficulties faced by ICCC in the liberalization of the telecom sector¹⁰, the creation of this independent regulatory authority contributes strongly to the reform process. While the authority of the ICCC is currently being tested in the courts, it is the fact that this agency is established under its own law¹¹ and is not subject to direction from the government, that has allowed licenses to be granted to two entrants to the telecom market as well as to PNGSEL to operate electricity generation and distribution in the Western Province. ICCC is a new agency and has significant capacity constraints that it is addressing through training and recruitment.

The RETA team heard comments that structural solutions to infrastructure sector reform are not working in PNG. For example, PNG Ports, despite corporatization and two changes in name, continue to base ports development on continued reliance on grant assistance from government and donors, with limited awareness of Ports' role in progressing the maritime sector, particularly with regard to passenger shipping. A lack of faith in the newly established Roads Authority was expressed by a number of stakeholders, including donors. The Independent Public Business Corporation, ostensibly created to support the commercialization of public enterprises, is apparently being used by the government to implement a telecom policy to split networks and operations as two separate, government owned entities, thus hobbling sector liberalization and reform.

Strengthening policy development, coordination and implementation is a key strategy for improving the delivery of infrastructure services in the Pacific. In the case of PNG, the RETA team believes that the absence of this has constrained the success of previous structural reforms. Without effective policy management, the identification of the need for reform, and the establishment of a mechanism for the coordination and implementation of reform, it is likely that structural solutions will continue to be ineffective in PNG.

¹⁰ The issuance of 2 telecom licenses by ICCC has been challenged in the courts. As at July 2007, the court has ruled against ICCC but it is expected that they will challenge this decision.

¹¹ Independent Consumer and Competition Commission Act 2002

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Samoa, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

Samoa has achieved outstanding success in liberalizing a key sector – telecommunications – that has resulted in immediate benefits to consumers in the form of increased coverage and reduced cost. In combination with much improved air services into and out of Samoa (again resulting in more service at reduced cost), the country's economy and opportunities for productive private investment have been positively transformed.

The liberalization of both telecommunications and air transport has resulted from a concerted 'push' from the top down by the government of Samoa underpinned by a timely study of sector reform potential by a development partner, and motivated by an accurate vision of economic opportunity. Another impressive area is in roads maintenance, in which the private sector has been engaged in construction and maintenance for a number of years, under well-managed contracts with the Ministry of Works (which has successfully adjusted to a focused regulatory/supervisory role).

Other sectors in Samoa, especially water, power, and ports, while showing signs of improvement, could benefit from a similar mindset of reform as that which has been applied to telecommunications and roads. The water sector has undertaken extensive investment in rural water supply and, in an effort to come to grips with the more extensive demands on management, has begun to implement a well-structured rural performance monitoring capability that can now be expanded to embrace the urban water systems as well. There exists, however, much larger scope for private sector involvement in operation and maintenance than is currently utilized in rural and urban operations, and in upcoming sewage collection and treatment operations. A similar comment applies to the power sector, where steps are just beginning to bring the private sector into operations such as pole erection. Much more can be done, and the track record of bold sector reform in Samoa supports confidence in the outcome.

A tabulated summary of the strategy follows. The detailed strategy is outlined in the subsequent sections, presented by sector. The country consultation report is presented as an Annex.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>SamoaTel, a corporatized SOE has an exclusive license for fixed line access which expires in 2009.</p> <p>There are 2 competitive licenses for mobile (Digicel and SamoaTel). Internet service is provided by three private companies.</p> <p>Fixed lines: 8.6 lines per 100 people, mobile subscribers: 49 per 100 people</p> <p>Internet access growing 35% per year.</p>	<p>Corporatized Samoa Water Authority (SWA) supplies 85% of the population, remaining 15% of population serviced by village-operated schemes. SWA is not financially viable and operates under considerable political influence. SWA revenues cover only 60–65% of its operating costs on average. Commercial water tariffs remain well below cost-recovery.</p> <p>Sewage is managed through individual septic systems. Samoa's first sewage treatment plant is to be built in Apia in 2008.</p>	<p>Corporatized Government-owned Electric Power Corporation (EPC). Approximately 95% of the population of Samoa is connected to EPC-supplied power.</p> <p>Tariffs do not recover full costs and operations and maintenance are constrained financially.</p>	<p>The roads sector is the responsibility of the Ministry of Transport, Works and Infrastructure (MWTI), which is not corporatized. MWTI now plays a regulatory and supervisory role and enforces safety standards.</p> <p>Planned to establish a Land Transport Authority (LTA) in 2007 for road maintenance supervision, vehicle and driver licensing, and road safety, similar to the Fiji model.</p> <p>More investment in rural roads is desired – some areas of the two main islands remain inaccessible.</p>	<p>The ports sector is under the Samoa Ports Authority (SPA), corporatized since 1998. The SPA is 100% government owned and the Board is chaired by the responsible Minister.</p> <p>The international port is at Apia, and there is a major port at Savai'i.</p>	<p>The Samoa Shipping Corporation (SSC) is the sole domestic shipping company; a 100% government owned corporatized entity.</p> <p>Vessels (2 ferries to American Samoa, 3 ferries between Upolu and Savai'i) are largely grant-aid financed (Australia and Japan). It is likely that Japan will grant-finance a new replacement vessel (timing unclear).</p>
Community Service Obligations	<p>No defined CSOs, though the 2005 Telecoms Act requires CSOs to be defined by Government and funded by users and providers (licensees) of telecommunications.</p>	<p>The SWA has aggressive investments in rural water supplies. Management responsibility for rural water supplies is borne by the beneficiary communities.</p> <p>CSOs include provision of electricity for rural boreholes, maintenance of fire hydrants, and capped rates which do not allow full cost recovery. CSOs are compensated on ad hoc basis.</p>	<p>Under Government direction through the 1990s, the EPC invested heavily in rural electrification resulting in near-universal access to centralized electricity but EPC is now financially burdened by many uneconomic lines.</p>	<p>No contracted CSOs.</p>	<p>No contracted CSOs</p>	<p>No contracted CSOs</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	Independent regulator was appointed in July 2006 with jurisdiction presently limited to telecom. Potential expansion to multi-sector regulatory capacity (to power, then to water) is under discussion. Supporting staff for the regulator at present minimal.	SWA required to comply with the Public Bodies Act, but not enforced by an independent regulator. The Minister of MWTI chairs the Board. The water tariff is passed to Cabinet for approval. Key issues are lack of effective independent technical and economic regulation of the sector, and lack of capacity in key maintenance areas.	EPC required to comply with the Public Bodies Act, but not enforced by an independent regulator. Tariff is approved by Cabinet and is thus politicized, but became subject to a fuel surcharge for the first time in January 2007. Key issues are lack of effective independent technical and economic regulation of the sector, and lack of capacity in key maintenance areas.	No direct fees (tolls) charged for road use and roads not presently regulated. The MWTI is presently responsible for contracting/supervision and for regulation of performance and enforcement of road (safety) standards. If an LTA is formed, contracting/ supervision will be separated from regulation functions of the MWTI. Cabinet has determined that Samoa will switch to driving on the left in 2008.	Sector is unregulated. Ports rates are set by Cabinet. The Board is under direct political influence (chaired by a Minister).	Sector is unregulated. Fares set by government, and are low (below cost). However, SSC is profitable because of charter services to Tokelau, American Samoa, and Savai'i, for which commercial cargo rates are charged without government control.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	High urban water table and frequent flooding, salt contamination, etc., causes high maintenance of fixed lines. No significant maintenance issues in the mobile or wireless internet sectors.	Inadequate maintenance and metering systems in SWA's urban operations; high unaccounted for water losses of 40%. A new maintenance regime and benchmarking effort for rural water systems will be gradually extended to the whole of SWA operations.	EPC operates at less than full cost recovery and faces high operating costs. These factors lead to a constrained maintenance budget, though maintenance issues are reportedly not significant at present. Scope for substantially increased outsourcing in O&M processes.	Expenditures on maintenance are close to assessed needs. Road construction and road maintenance is fully outsourced. Competitive outsourcing of roads maintenance (and of ports) has been a success – private sector companies have formed to enter a well-operated and predictable market, and have privately financed purchase of heavy equipment. Private sector capacity has grown with the need, and Samoa has built up valuable experience in contract management and supervision.	No significant maintenance issues. The ports appear to be efficient and well-maintained. However, dredging is a constant maintenance challenge; deepening of the channels is now required and this will increase the channel maintenance needs. Operation and maintenance of the ports is outsourced. There are three stevedoring companies. Ports are a highly mechanized; the Ports Authority claims a throughput rate of 25 containers/hr (equal or better than NZ).	No significant maintenance issues.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	<p>Successful drive by government to liberalize the sector. Regulatory reform adopted energetically by the government to introduce competition resulting in 50% drop in mobile telephone charges and massive increase in number of mobile subscribers (around 90,000)</p> <p>6-7 ISPs and two full international gateways will soon be operating competitively in Samoa. Samoa market liberalization could be used as a model for other countries.</p>	<p>Improved maintenance and benchmarking systems are gradually being extended to the whole of SWA's operations</p> <p>The first centralized sewage treatment plant in Samoa built in Apia in 2008 with ADB loan finance.</p>	<p>Disconnections and meter reading are presently outsourced. Power pole installation outsourcing could also proceed quickly.</p> <p>Fuel adjustment clause added to the tariff structure in January 2007, making tariff adjustments easier and more cost-responsive.</p> <p>Performance benchmarking has been carried out for several years.</p> <p>A power expansion study is underway (ADB/ AusAid/ Government), specifying priorities for investment and institutional reform to allow competition and PSP in generation.</p>	<p>See Maintenance Issues. Raising the budget priority of road maintenance close to assessed needs and competitive outsourcing have raised the quality of roads and made the maintenance problem easier to manage. The planned establish of a Land Transport Authority this year will further consolidate these gains.</p>	<p>Outsourcing of ports O&M has been successful and effective in maintaining high standards of throughput.</p> <p>New wharf extensions are opening in Savai'i now, upgrading wharves in both ports to meet the changing demands of international shipping.</p>	<p>Investment costs have been low as vessels have been largely grant-aid financed.</p> <p>Charter rates are not regulated and are set by the company. Thus private contracting for cargo is profitable and this has financially underwritten expenditures on vessel maintenance and service quality.</p> <p>An AusAid funded transport study has recommended privatization of SSC, endorsed by the Ministry of Finance.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<ul style="list-style-type: none"> Limited satellite capacity. Competition constrained by SamoaTel's exclusive access to the fixed-line international gateway. 	<p>Lack of effective independent technical and economic regulation. SWA is dependent primarily on surface water – access to raw water sources is getting progressively more difficult as disputes with local landowners over water rights intensify. Currently quite limited use of the private sector in O&M, but increased outsourcing is a priority for the future.</p>	<p>Lack of effective independent technical and economic regulation. Quite limited use of the private sector in operation and maintenance. No direct private sector investment in the power sector (grid-connected) to date. The ADB TA currently underway (see above) is examining potential of this option.</p>	Not applicable.	<p>High stresses on ports and governments to arrange rapid increases in upgrading ports and harbor facilities. No formal benchmarking exists for the sector. Need to deepen channels to accommodate 15m-16m drafts. For economic survival, need to diversify services; more cruise ship and fishing fleet traffic is targeted. Container traffic growing at 5%/year, with weight of traffic shifting towards SE Asia and away from Australia/NZ. A built-in high cost from chronic excess capacity out-going because of fundamental imbalance in visible trade (universal problem in the Pacific).</p>	<p>There is no competition in the domestic shipping sector. There is considerable political influence at the Board level and in tariff-setting for scheduled services.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> Strengthen capacity in the Office of the Regulator Establish rules for Community Service Obligations. 	<ul style="list-style-type: none"> The sector is not currently independently regulated. Considerable political interference in the sector's operations, budget determination, and tariff setting processes. 	<ul style="list-style-type: none"> The sector is not currently independently regulated. Considerable political interference in the sector's operations, budget determination, and tariff setting processes. 	<ul style="list-style-type: none"> Road maintenance functions and regulatory functions currently reside together in MWTI. Establishment of the planned LTA will allow separation of these. 	<ul style="list-style-type: none"> The ports sector needs to be fully corporatized with direct political influence on operations removed, under independent regulation. There is at present no strategy to provide for independent regulation of the ports sector. Such regulation as exists is done by the SPA, which is also responsible for policy and operations; regulatory/policy and operations functions should be separated with the former housed in an independent agency. Routine benchmarking around agreed key performance indicators should be included as part of the regulatory process. 	<ul style="list-style-type: none"> Shipping sector needs to be fully corporatized with direct political influence on operations removed, under independent regulation. There is at present no strategy to provide for independent regulation of the shipping sector. Routine benchmarking around agreed key performance indicators to be included as part of the regulatory process.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> Establish multi-sector regulator by extending the jurisdiction of the Regulator beyond telecom to power, water, and in time other sectors; Conduct a study of future cable and satellite access options and a feasibility study of the financially most attractive option(s); Complete restructuring and privatization of SamoaTel. 	<ul style="list-style-type: none"> Extend Regulator to multi-sector covering power and water; Review appointments to the SWA Board to eliminate political interference in SWA's operations and tariffs; Increase outsourcing; Extend benchmarking and asset maintenance associated with new rural water supply installations to the whole of SWA; benchmarking to be made part of regulatory compliance; Finalize CSO policy applicable to the water sector. 	<ul style="list-style-type: none"> Extend Regulator to a multi-sector covering power and water; Examine options to reduce generation costs; Review appointments to the EPC Board to eliminate political interference in EPC's operations and tariffs; Increase outsourcing; Private sector investment (through IPPs) should be encouraged. Clarify and contract CSO obligations 	<ul style="list-style-type: none"> Land Transport Authority to handle road user fees collections and contracting; MWTI to retain regulatory functions. Formalize routine benchmarking system for the roads sector based on performance monitoring by the MWTI and regular collection and reporting of data as a management tool. 	<ul style="list-style-type: none"> SPA to complete the corporatization process; Direct political influence on ports operations to be removed by replacing Ministers on the Board with civil servant and private sector representatives; Regulatory arrangements for the sector to be established, either through the MWTI, a multi-sector regulator, or a new agency; The private sector to help with finance for ports investment, either through privatization of the ports or access to long term pension funds. 	<ul style="list-style-type: none"> SSC to complete corporatization process; Direct political influence on shipping operations to be removed by replacing Ministers on the Board with civil servant and private sector representatives; Regulatory arrangements for the sector to be established, either through the MWTI, a multi-sector regulator, or a new agency.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • Develop a Business Plan and legislation for divestiture of SamoaTel; • Develop a time-bound plan to establish the Office of the Regulator as a multi-sector regulator the Regulator to stipulate routine collection and reporting of data on key performance indicators by all service providers; • Develop a multi-sector policy defining CSOs, including telecoms, power, water/sanitation, and shipping. • Conduct comparative study of options to increase access to satellite and/or undersea cable capacity for international and inter-island communications. 	<ul style="list-style-type: none"> • Multi-sector regulation and CSO policy: refer to proposed strategy for telecoms; • Review SWA governance to reduce political influence in sector operations and tariffs. Political-level representation on the Board should be eliminated. • SWA to determine realistic schedule for increasing outsourcing. • SWA to extend good-practice benchmarking and asset maintenance to the whole of SWA operations for completion by mid-2008. Obtain concurrence from the Regulator of the key performance indicators to be reported as part of regulatory compliance. 	<ul style="list-style-type: none"> • Multi-sector regulation and CSO policy: refer to proposed strategy for telecoms; • Review EPC governance to reduce political influence in sector operations and tariffs. Political-level representation on the Board should be eliminated. • EPC to determine realistic schedule for increasing outsourcing. 	<ul style="list-style-type: none"> • Complete establishment of the LTA as currently planned. • Institute a formal and routine benchmarking system as a management and regulatory tool. 	<ul style="list-style-type: none"> • Political-level representation on the SPA Board to be eliminated; • Examine (i) the SPA to identify gaps in staffing, skills and training, and (ii) options to provide regulatory oversight of the ports sector; • Draft legislation for the regulation of ports as required; Define the institutional structure and resource requirements for sector regulation; • Prepare a manual of port monitoring procedures, with collection and reporting of agreed key performance indicators; • Assess the potential of (i) allowing private shareholding or fully privatizing the SPA and (ii) seeking finance for ports investment through private funds. 	<ul style="list-style-type: none"> • Political-level representation on the SSC Board to be eliminated; • Examine (i) the SSC to identify gaps in staffing, skills and training and (ii) options to provide regulatory oversight of the shipping sector; • Draft legislation for the regulation of shipping as required; Define the institutional structure and resource requirements for sector regulation; • Prepare a manual of shipping monitoring procedures, with collection and reporting of agreed key performance indicators.

2 Telecoms

2.1 Sector Structure and Service Quality

SamoaTel is a corporatized SOE and holds a monopoly on fixed line communications; competition exists in the mobile sector with two licenses issued (one to Digicel, one to SamoaTel) and the regulator is considering issuing a third (an impact analysis to be conducted later this year).

Internet service is provided by three private companies, but all must access satellites via SamoaTel. ADSL (a phone line based broadband technology) does not yet exist in Samoa because of issues involving competitive ISP access to SamoaTel's copper. SamoaTel's exclusive license for fixed line access expires in 2009. Two underwater cable projects are under consideration, a decision to proceed with either of which could precipitate the end of SamoaTel's exclusivity on fixed line gateway access.

Fixed line penetration is limited to 16,000 lines (8.6 lines per 100 people), while mobile subscribers now total over 90,000 (49 per 100 people), one of the highest penetration rates in the Pacific. Internet access is also growing very rapidly, at an estimated rate of 35% per year.

2.2 Community Service Obligations (CSOs)

There are no defined community service obligations, although the Telecommunications Act of 2005 states that CSOs should be defined by Government and funded by users and providers (licensees) of telecommunications services. SamoaTel does provide some service obligations such as postal services and extension of land lines to remote villages, but these are not formally recognized as CSOs in its budget. The provision of these CSOs will be subject to a formal contracting process as part of the planned privatization of the company and will be taken up by the other private service providers once they are defined by government.

The Public Bodies Act sets out the procedural requirements for SOEs to undertake CSOs, it is however generally not being followed. Cabinet has recently approved a paper, prepared by the SOEMD (a division of the Ministry of Finance) which is intended to clarify the application of the CSO policy. What is now required is that the process be operationalized through the preparation of practical rules and guidelines and the boards and management of the SOEs be given assistance in learning how to identify, document and negotiate CSOs. It is intended that an ADB funded consultant will work with the SOEMD during late 2007 and early 2008 to develop operational guidelines, as required.

2.3 Regulatory Arrangements

An independent regulator was appointed in July 2006 (Telecommunications Act of 2005) with jurisdiction presently limited to telecom. Potential expansion to multi-sector regulatory capacity (to power, then to water) is under discussion. The regulator is fully independent – his decisions cannot be overruled (even the Supreme Court can at best ask that a decision be 'reconsidered'). However, supporting staff for the regulator at present is minimal, requisite skills for the office can't be found in Samoa and recruitment of qualified staff is expected to remain difficult.

2.4 Maintenance Issues

High urban water table and frequent flooding causing salt contamination, etc., drastically shorten the life of the urban copper system, which needs constant replacement. SamoaTel, however, appears to keep up with such maintenance needs quite well. There are no significant maintenance issues in the mobile or wireless internet sectors, operated by SamoaTel and private companies.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

The telecommunications market has been strengthened for the benefit of consumers in Samoa by a successful drive by government to liberalize the sector. Regulatory reform was recommended in a 2002 World Bank study, adopted energetically by the government with new legislation to introduce competition in the mobile market in 2005. This resulted in a 50% drop in mobile telephone connection charges and a massive increase in number of mobile subscribers (from 7,000 in 2005 to over 90,000 in 2007), due to substantial new investment by the incoming private mobile firm (Digicel).

The establishment of independent regulatory authority in 2006 strengthened the confidence of potential bidders in market transparency and in the creation of a level playing field: it is expected that 6-7 ISPs and two full international gateways will soon be operating competitively in Samoa, despite the small market size. Samoa leads the region in legislation facilitating regulation and in the creation of the office of the regulator, and could be used as a model for other countries.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Telecom capacity in Samoa and nearly everywhere in the Pacific is constrained by limited satellite capacity. Bandwidth would be substantially improved if Samoa could access a submarine cable, and two such projects are currently under consideration (though in general, access to undersea cable is enormously costly to any Pacific island country, including Samoa, but might be affordable under transnational investment agreements). Competition is constrained by SamoaTel's exclusive access to the fixed-line international gateway.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Recruitment and training of appropriate staff in the Office of the Regulator to handle current and progressively broader responsibilities.
- Formal establishment of the rules for Community Service Obligations (including contracting).

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Establish a multi-sector regulator in Samoa by extending the jurisdiction of the Office of the Regulator beyond telecom to power, water, and in time possibly other sectors;
- Finalize CSO policy applicable to all telecom service providers;

- Conduct a study of future cable and increased satellite access options and a feasibility study of the financially most attractive option(s);
- Continue to work with parties looking at cable options and attempt to influence an outcome in Samoa's best interests.
- Complete implementation of the restructuring and privatization of SamoaTel.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Ministry of Finance to develop a Business Plan and draft necessary legislation for the divestiture of SamoaTel by mid-2008; divestiture by mid-2009 (TA not needed);
- The Ministry of Finance, working in collaboration with the Office of the Regulator, to develop a time-bound plan by mid-2008 to establish the Office of the Regulator as a multi-sector regulator in Samoa, covering power in the first instance followed by extension to water and sanitation, and eventually to ports and shipping (TA not needed); the Office of the Regulator will focus on matters affecting competition, such as open access requirements, pricing, abuse of monopoly powers etc. The Regulator will not deal with safety or operational performance issues which should be reviewed/regulated by the line Ministry or the SOEMD through the Corporate Plan and monitoring process;
- The Ministry of Finance, through the SOEMD has prepared a Cabinet paper which provides guidelines on what constitutes a CSO, which Cabinet has recently approved. The next step is for the SOEMD to develop operational guidelines to assist the SOEs to implement the policy in accordance with the requirements of the Public Bodies Act. It is intended that a consultant will work with the SOEMD in late 2007/early 2008 to develop a program to operationalize the CSO policy.
- The Ministry of Finance (in conjunction with the Ministry of Communications) to commission a comparative study of options to increase access to satellite and/or undersea cable capacity for international and inter-island communications. A detailed feasibility study to be carried out of the preferred option(s). A TA would be required, to commence in 2008.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

The corporatized Samoa Water Authority (SWA) supplies 85% of the population with a combination of raw and treated water, while the remaining 15% of the population is serviced by 24 village-operated schemes. Though the SWA is a corporatized government enterprise, as currently structured it is not financially viable and operates under considerable political influence. The SWA operates four water treatment plants in Upolu and one in Savai'i which are sufficient to meet the growing demand of the population for at least the next 5 years. With poor payment recovery systems and the added burden of community service obligations, SWA revenues cover only 60–65% of its operating costs on average. Commercial water tariffs remain well below cost-recovery, and at S\$0.53/cubic meters are among the lowest in the region.

Sewage is managed through individual septic systems and industrial wastewater by the producers of the wastewater. Samoa's first sewage treatment plant will be built in Apia in 2008, on a Design-Build-Operate basis.

3.2 Community Service Obligations (CSOs)

The SWA has undertaken aggressive investments in rural water supplies in line with the Samoa Development Strategy goal of 24-hour/day access to clean water throughout Samoa. New distribution systems and water treatment plants (WTPs) have been built in NW Upolu and SE Savai'i. It is intended that much of the management responsibility for rural water supplies in Samoa will be borne by the beneficiary communities, though the specifics of such arrangements are unclear.

SWA's community service obligations include the provision of electricity for rural boreholes, maintenance of fire hydrants and the provision of metered water at capped rates which do not allow full cost recovery. CSOs are compensated in part by the Government but no formal mechanism exists to contract for their provision.

3.3 Regulatory Arrangements

As an SOE, the SWA is required to comply with the Public Bodies Act, with the SOEMD undertaking the ownership monitoring and enforcement. The Minister of Works, Transport, and Infrastructure chairs the Board, appointments to which are politically driven rather than based on a "best qualified" selection process. The water tariff is proposed by management to the Board, and then passed to Cabinet for approval. Key issues are lack of effective independent technical and economic regulation of the sector, and lack of capacity in key maintenance areas. Though the SWA is nominally autonomous, investment and operating expenditure appears to be influenced by Cabinet.

3.4 Maintenance Issues

Inadequate maintenance and metering systems in SWA's urban operations have resulted in high unaccounted for water losses of 40%. An improved maintenance regime has been designed for new rural water supply systems, in concert with efforts to develop and maintain performance benchmarking for such systems (an Excel-based project performance management system (PPMS) has been created for the new rural systems that provides detailed output, consumption, technical performance, and efficiency information to management). SWA intends that the new maintenance regime and benchmarking effort will be gradually extended to the whole of SWA operations.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

As mentioned, the SWA has undertaken aggressive investments in increasing rural water supplies. Improved maintenance and benchmarking systems are gradually being extended from new rural systems to the whole of SWA's operations, which should result in improved asset protection and performance. The first centralized sewage treatment plant in Samoa will be built in Apia in 2008 with ADB loan finance, and this will help to address groundwater and effluent contamination problems in the urban areas.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Lack of effective independent technical and economic regulation of the sector denies consumers' confidence in water quality or environmental protection issues such as the effects of poor treatment and disposal of wastewater. It also denies the SWA objective means to adjust the tariff, without undue political interference and to recover the resources it needs from users to fund adequate O&M procedures. Lack of regulations also denies the government the opportunity to objectively assess the extent to which water supply and sanitation services are being and ought to be subsidized to meet development and social equity objectives.

SWA is dependent primarily on surface water and will be so for the foreseeable future – access to raw water sources is getting progressively more difficult as disputes with local landowners over water rights intensify. Catchment management is a major issue.

There is currently quite limited use of the private sector in operation and maintenance, but intentions are to outsource operations more heavily (including operation of WTPs) in the future.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The sector is not currently independently regulated in the areas mentioned above.
- There is considerable political interference in the sector's operations, budget determination, and tariff setting processes.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- The Office of the Regulator, created in 2006, provides a model to the region for effective, independent regulation but at present is limited to the telecoms sector. It would be logical to extend the Office to a multi-sector regulator covering the economic regulation of power and water. The Ministry of Finance has expressed interest in doing this, albeit leading with power. Regulation of operational performance is covered by the SOEMD, while quality and environmental regulation could be covered by the appropriate line Ministry (i.e. environment, health etc);

- The Government should review appointments to the SWA Board to eliminate direct political interference in SWA's operations and tariffs at the operational level¹. Board appointments should be made on a "best qualified" basis;
- SWA should expand private sector participation in water/sanitation operations and maintenance through increased outsourcing.
- The extension of good-practice benchmarking and asset maintenance associated with new rural water supply installations to the whole of SWA operations should be completed as soon as possible; key performance indicators to be agreed and reported to the office of the regulator as part of regulatory compliance;
- Operationalize CSO policy applicable to the water sector and contract.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For reforms related to multi-sector regulation and CSO policy, please refer to the proposed strategy for the telecoms sector;
- The Ministry of Finance to lead discussion within Government about the management of SWA (and EPC, see below), to achieve consensus to reduce political influence in sector operations and tariffs. Political-level representation on the SWA Board should be eliminated. Appointments should be made on a "best qualified" basis. TA may be needed to assist in defining best qualified.
- SWA to examine its current and future planned operations and maintenance program to determine a realistic schedule for gradually increasing the involvement of the private sector through outsourcing. Twinning arrangements with neighboring utilities can assist with establishing outsourcing procedures (tendering, supervision) and providing training to SWA staff in such procedures. The examination could be assisted by the Pacific Water Association, which is now headquartered in Samoa. The schedule for outsourcing should be prepared for mid-2008, with first contracts tendered by the end of 2008.
- SWA to extend good-practice benchmarking and asset maintenance to the whole of SWA operations for completion by mid-2008. Once the multi-sector regulator is established with responsibility for the water sector, SWA to obtain concurrence from the Regulator of the key performance indicators to be reported as part of regulatory compliance.

¹ It is accepted that the Government has the role of setting overarching policy for essential services such as water, but that operational decisions should be made by the board of SWA

4 Power

4.1 Sector Structure and Service Quality

Electricity is provided throughout Samoa by the corporatized Government-owned Electric Power Corporation (EPC). Approximately 95% of the population of Samoa is connected to EPC-supplied power. However, tariffs do not recover full costs and operations and maintenance are constrained financially.

4.2 Community Service Obligations

Under Government direction through the 1990s, the EPC invested heavily in rural electrification resulting in near-universal access to centralized electricity in Samoa, but the EPC is now financially burdened by many lines which are uneconomic at current tariffs.

4.3 Regulatory Arrangements

Similar to the SWA in the water sector, the EPC is required to comply with the Public Bodies Act, and this is monitored by the SOEMD. The tariff is approved by Cabinet and is thus politicized – tariff increases are typically delayed until an EPC financial crisis becomes severe, giving rise to infrequent but sudden and substantial jumps. The tariff became subject to a fuel surcharge for the first time in January 2007.

Also in common with the water sector, key issues in the powers sector are lack of effective independent technical and economic regulation, and lack of capacity in key maintenance areas. Though the EPC is nominally autonomous, investment and operating expenditure appears to be influenced externally.

4.4 Maintenance Issues

The EPC operates at less than full cost recovery and faces high operating costs due to high dependence on diesel and extensive provision of non-economic service to rural areas. These factors lead to a constrained maintenance budget, though maintenance issues are reportedly not significant at present. There is scope for substantially increased outsourcing in O&M processes, an opportunity that might reduce maintenance costs.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

Disconnections are presently outsourced, with meter reading soon to follow. Outsourcing of power pole installation could also proceed quickly, as no special technical training is required (but line stringing requires certification of private contractors, not presently available in Samoa).

A fuel adjustment clause was added to the tariff structure in January 2007, making tariff adjustments easier and more cost-responsive.

Performance benchmarking has been carried out for several years, and results are sent to the Fiji-based Pacific Power Association.

A power expansion study is underway (ADB/ AusAid/ Government), which will specify priorities for investment and institutional reform, including vertical restructuring of the sector to allow competition and PSP in generation.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The lack of effective independent technical and economic regulation of the power sector is a serious constraint, with effects similar to those facing the water sector. These include inability of EPC to adjust the tariff without undue political interference, to recover the resources it needs from users to fund adequate O&M procedures; and inability of the Government to assess the extent to which power services are being and ought to be subsidized to meet development and social equity objectives.

There is currently quite limited use of the private sector in operation and maintenance, but outsourcing operations more heavily (including O&M in power stations) in the future could help to reduce costs.

There has been no direct private sector investment in the power sector (grid-connected) to date, but introduction of IPPs under suitable arrangements could displace the need for investment by EPC and help to reduce long term costs. The ADB TA currently underway (see above) is examining this potential.

4.7 Key regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The sector is not currently independently regulated.
- There is considerable political interference in the sector's operations, budget determination, and tariff setting processes.

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Extend the Office of the Regulator to a multi-sector economic regulator covering power and water. The Ministry of Finance has expressed interest in doing this. Regulation of operational performance is covered by the SOEMD, while quality and environmental regulation could be covered by the appropriate line Ministry (i.e. environment, energy or commerce etc);
- Options to reduce generation costs need to be examined, including switching diesels to heavy fuel and possible use of coconut oil;
- The Government should review appointments to the EPC Board to eliminate political interference in EPC's operations and tariffs at an operational level. Directors should be appointed on a "best qualified" basis;
- EPC should expand private sector participation in generation and distribution operations and maintenance through increased outsourcing;
- Private sector investment (through IPPs) should be encouraged. Completion of the ADB's TA in the sector will yield much insight into the sector's financial health and opportunities for private sector finance.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For reforms related to multi-sector regulation and CSO policy, please refer to the proposed strategy for the telecoms sector; once the multi-sector regulator is established with responsibility for the power sector, EPC to obtain concurrence from the Regulator of the key performance indicators to be reported as part of regulatory compliance;
- The Ministry of Finance to lead discussion within Government about the management of EPC (and SWA, see above), to achieve consensus to reduce political influence in sector operations and tariffs. Political-level representation on the EPC Board should be eliminated. Appointments should be made on a “best qualified” basis. TA may be needed to help to define “best qualified”.
- EPC to examine its current and future planned operations and maintenance program to determine a realistic schedule for gradually increasing the involvement of the private sector through outsourcing. Twinning arrangements with neighboring utilities can assist with establishing outsourcing procedures (tendering, supervision) and providing training to EPC staff in such procedures. The examination could be assisted by the Pacific Power Association. The schedule for outsourcing should be prepared for mid-2008, with first contracts tendered by the end of 2008.

5 Roads

5.1 Sector Structure and Service Quality

The roads sector is the responsibility of the Ministry of Transport, Works and Infrastructure (MWTI) but the road maintenance activity has been privatized. The MWTI, formed in 2003 when the Ministry of Transport and the Ministry of Works were amalgamated, now plays a regulatory and supervisory role, and enforces safety standards. It is planned to establish a Land Transport Authority (LTA) in 2007 to assume responsibility for road maintenance supervision, vehicle and driver licensing, and road safety, similar to the Fiji model.

More investment in rural roads is desired – some areas of the two main islands remain inaccessible.

5.2 Community Service Obligations

No contracted CSOs.

5.3 Regulatory Arrangements

No direct fees (tolls) are charged for road use and roads are not presently regulated. Under present arrangements, the MWTI is responsible for contracting/supervision and for regulation of performance and enforcement of road (safety) standards. If an autonomous Land Transport Authority is established, contracting/supervision functions will be separated from the regulatory functions of the MWTI.

By Cabinet decision, Samoa will switch to driving on the left, in order to conform to adjacent countries and also enable access to cheaper vehicles (2nd hand market in Japan, Australia and New Zealand).

5.4 Maintenance Issues

Expenditures on maintenance are close to assessed needs. Samoa has been divided into road maintenance zones since 2002; road construction and road maintenance is fully outsourced, with separate contracts covering each zone. Competitive outsourcing of roads maintenance has been a resounding success – private sector companies have quickly formed to enter a well-operated and predictable market, and have managed to access enough private sector finance to purchase heavy equipment. Private sector capacity has grown with the need.

Through this process, Samoa has built up valuable experience in contract management and supervision.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

See above under Maintenance Issues. Raising the budget priority of road maintenance close to assessed needs and competitive outsourcing have raised the quality of roads and made the maintenance problem easier to manage. The planned establish of a Land Transport Authority this year will further consolidate these gains.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Not applicable.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Road maintenance functions (contracting/supervision) and regulatory functions currently reside in one organization, the MWTI. Establishment of the planned LTA will allow separation of these, with regulatory functions retained by the MWTI.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Establishment of the Land Transport Authority to handle road user fees collections and contracting; MWTI to retain regulatory functions.
- Formalization of a routine benchmarking system for the roads sector based on performance monitoring by the MWTI and regular collection and reporting of data as a management tool.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Complete establishment of the LTA as currently planned by end 2008 (no TA needed).
- MWTI, in cooperation with the LTA once it is established, to institute a formal and routine benchmarking system as a management and regulatory tool by mid 2008 (no TA needed).

6 Ports

6.1 Sector Structure and Service Quality

The ports sector is under the Samoa Ports Authority (SPA), corporatized since 1998. The SPA is 100% government owned and the Board is chaired by the responsible Minister. The international port is at Apia, and there is a major port at Savai'i.

6.2 Community Service Obligations

No contracted CSOs.

6.3 Regulatory Arrangements

Fees and service quality in the ports sector are unregulated. Ports rates are set by Cabinet. The Board is under direct political influence (chaired by a Minister).

6.4 Maintenance Issues

There are no significant maintenance issues. The ports appear to be efficient and well-maintained. That said, it is noted that dredging is a constant maintenance challenge; deepening of the channels is now required (see below) and this will increase the channel maintenance needs.

Operation and maintenance of the ports is outsourced to the private sector. There are three stevedoring companies. Ports are a highly mechanized operation with on-shore 40-, 20-, 10-, and 6-tonne lifting capacity; the Ports Authority claims a throughput rate of 25 containers/hr (equal or better than NZ).

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

Outsourcing of ports O&M has been successful and effective in maintaining high standards of throughput.

New wharf extensions have been completed in Savai'i now. Plans call for an additional S\$13.5 million investment in upgrading wharves, to meet the changing demands of international shipping.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Demands on ports in Samoa and the region are changing rapidly, and this places high stresses on ports and governments to manage rapid increases in upgrading ports and harbor facilities.

No formal benchmarking system yet exists for the ports sector in Samoa, though this would be a key management tool for the SPA to monitor its own performance and make it easier to compare performance with ports in neighboring countries.

International shipping trends are towards bigger ships, mergers in shipping companies, and need for larger facilities, even in small countries; Samoa is aware of this and is preparing. There is a need to deepen channels to accommodate 15m-16m drafts. For economic survival, the SPA recognizes the need to diversify services; more cruise ship and fishing fleet traffic is targeted. Container traffic in Samoa is growing at 5%/year, with weight of traffic shifting towards SE Asia and away from Australia/NZ.

A built-in high cost relates to chronic excess capacity out-going because of fundamental imbalance in visible trade (universal problem in the Pacific).

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The ports sector needs to be fully corporatized as an autonomous, commercially-oriented agency with direct political influence on operations removed, and needs to come under independent regulation. Such regulation as exists is done by the SPA, which is also responsible for policy and operations; regulatory/policy and operations functions should be separated with the former housed in an independent agency. Routine benchmarking around agreed key performance indicators should be included as part of the regulatory process. There is at present no strategy to provide for independent regulation of the ports sector.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following.

- SPA to complete the corporatization process as an autonomous, commercially-oriented agency as provided in legislation;
- Direct political influence on ports operations to be removed by replacing Ministers on the Board with independent directors;
- Regulatory arrangements for the sector to be established, either through the MWTI, a multi-sector regulator, or a new agency;
- The private sector to help with finance for ports investment, either through privatization of the ports or access to long term pension funds.

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following. As these are largely the same as those recommended for the shipping sector (see below), the activities in the two sectors should be combined:

- The Ministry of Finance to lead discussion within Government about the management of SPA, to achieve consensus to reduce political influence in sector operations and tariffs. Political-level representation on the SPA Board should be eliminated. No TA needed;
- The Ministry of Finance, through the SOEMD to, review the governance structure at SPA to ensure that (i) directors are appointed who are “best qualified” (ii) the correct accountabilities are in place to ensure that management is acting in accordance with the directions of the board and in the best interests of the shareholders and key stakeholders, and (iii) options to provide regulatory oversight of the ports sector; this could include strengthened capacity within the MWTI, an extension of the multi-sector regulator to cover ports, or an independent maritime regulatory office;

stakeholder consensus of the preferred option to be reviewed by higher authorities of the government as required (end 2008);

- The above Steering Committee to commission the drafting of legislation for the regulation of ports as required, with detailed design of the strategy to achieve the preferred option. Define the institutional and governance structure and ongoing resource and training requirements including twinning arrangements and short internal and external courses to meet training needs. A TA is needed to assist with this and the previous step, with results by mid 2009;
- The new regulatory entity to prepare a manual of port monitoring procedures, with collection and reporting of agreed key performance indicators (end 2009). No TA needed.
- The Ministry of Finance to assess the potential of (i) allowing private shareholding or fully privatizing the SPA and (ii) seeking finance for ports investment through private funds and (iii) opportunities for PPPs to manage port operations (mid 2009); no TA may be needed.

7 Shipping

7.1 Sector Structure and Service Quality

The Samoa Shipping Corporation (SSC) is the sole domestic shipping company in Samoa and is a 100% government owned corporatized entity, founded in 1974. Until recently, the Ministry of Finance owned the vessels and leased them to SSC, but ownership has now been transferred to SSC.

Vessels (2 ferries to American Samoa, 3 ferries between Upolu and Savai'i) are largely grant-aid financed (Australia and Japan). It is likely that Japan will grant-finance a new vessel (timing unclear).

7.2 Community Service Obligations

Not applicable.

7.3 Regulatory Arrangements

There is no independent regulation of domestic shipping in Samoa. Fares are set by government, and are low (below cost). However, SSC is profitable because of charter services to Tokelau, American Samoa, and Savai'i, for which commercial cargo rates are charged, not under government control.

7.4 Maintenance Issues

No significant maintenance issues.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

Investment costs have been low as vessels have been largely grant-aid financed, though it is not clear how long grant finance for such investment will be sustained.

Though rates for scheduled services between Upolu and Savai'i are held by government below-cost, charter rates are not regulated and are set by the company. Thus private contracting for cargo is profitable and this has financially underwritten expenditures on vessel maintenance and service quality.

An AusAid funded transport study has recommended privatization of SSC, endorsed by the Ministry of Finance.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There is no competition in the domestic shipping sector, which is served by a 100% government-owned company.

The SSC is not regulated but there is considerable political influence at the Board level and in tariff-setting for scheduled services.

7.7 Key regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Like the ports sector, the shipping sector needs to be fully established as an autonomous, commercially-oriented company with direct political influence on operations removed, and needs to come under independent regulation.
- Routine benchmarking around agreed key performance indicators should be included as part of the regulatory process. There is at present no strategy to provide for independent regulation of the shipping sector.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- SSC to complete the corporatization process as an autonomous, commercially-oriented agency;
- Direct political influence on shipping operations to be removed by replacing Ministers on the Board with independent directors;
- Regulatory arrangements for the sector to be established, either through the MWTI, a multi-sector regulator, or a new agency.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following.

- The Ministry of Finance, through the SOEMD, to lead discussion within Government about the management of SSC, to achieve consensus to reduce political influence in sector operations and tariffs. Political-level representation on the SSC Board should be eliminated and directors should be appointed on a “best qualified” basis. TA may be needed to assist in implementing a best qualified appointment process;
- The Ministry of Finance to review the need to establish economic regulation of the shipping sector. If regulation is required to then consider placing shipping regulation within a multi-sector regulator. TA support may be required to draft the regulations and any empowering legislation.;
- The new regulatory entity to prepare a manual of shipping monitoring procedures, with collection and reporting of agreed key performance indicators (end 2009). No TA needed.
- The Ministry of Finance to review the options to privatize the Shipping Corporation and to prepare a recommendation for Cabinet approval by mid 2008. A TA would assist in reviewing privatization options and assisting in the preparation of the Cabinet paper, in a similar manner as the recent TA has assisted the Task Force investigating future options for the Samoan Shipping Services.

8 Annex: Country Consultation Report

SAMOA

The RETA Team visited Apia from 27 February through 2 March. Discussions were held with (not in order):

- Ministry of Finance
- Ministry of Works, Transport and Infrastructure (MWTI)
- Ministry of Communications & Information Technology (MCIT)
- Samoa Water Authority (SWA)
- SamoaTel (government-owned telecom company)
- Digicel Samoa (private telecom company)
- Computer Services Ltd (CSL, internet services provider and partner in Digicel Samoa operations)
- Samoa Port Authority (SPA)
- Samoa Shipping Corporation Ltd (SSC)
- ANZ Bank
- Office of the Regulator
- Electric Power Corporation (EPC, government-owned power utility)

Highlights

The Samoa Water Authority was corporatized in 1993, taking over from the water supply division of PWD. As an SOE, the SWA is required to comply with the Public Bodies Act, but this is not monitored and enforced by an independent regulator. The Minister of Works, Transport, and Infrastructure chairs the Board, appointments to which are political. The water tariff is proposed by management to the Board, then passed to Cabinet for approval. Key issues are lack of effective independent technical and economic regulation of the sector, and lack of capacity in key maintenance areas. Though the SWA is nominally autonomous, investment and operating expenditure appears to be influenced externally. Unaccounted For Water (UFW) for SWA is high at around 40 percent.

The SWA has undertaken aggressive investments in rural water supplies in line with the Samoa Development Strategy goal of 24-hour/day access to clean water throughout Samoa. New distribution systems and water treatment plants (WTPs) have been built in NW Upolu and SE Savai'i. It is intended that much of the management responsibility for rural water supplies in Samoa will be borne by the beneficiary communities, though the specifics of such arrangements are unclear. SWA is dependent primarily on surface water and will be so for the foreseeable future – access to raw water sources is getting progressively more difficult as disputes with local landowners over water rights intensify. Catchment management is a major issue.

As part of the rural water supply investments, an Excel-based project performance management system (PPMS) has been created that provides detailed output, consumption, technical performance, and efficiency information to management. The system is presently used only in a small rural area, but expansion of the system to encompass all of SWA is underway. Little other performance benchmarking is currently carried out.

There is currently quite limited use of the private sector in operation and maintenance, but intentions are to outsource operations more heavily (including operation of WTPs) in the future. Private contractors now used mainly for project construction and some design work; SWA has made outsourcing of O&M of the rural water supplies a high priority, but

need to strengthen monitoring and supervision capacity is acknowledged. A current ADB-financed investment project (the Samoa Sanitation and Drainage project) will design and build sewage treatment plants (STPs) and a sewage collection system for the Apia urban area. It is planned to outsource the operation and maintenance of the STPs.

Government tendering procedures have markedly improved following recent reforms. Procedures are transparent and well monitored. The Tenders Board, chaired by the Minister of Finance (deputy Chair is the Minister of Works) is composed of government Ministers and CEOs. Technical evaluation of tenders is still in the hands of concerned Ministries, with potential vested interests; this is being monitored. Of related interest, there is a Samoan Institute of Directors which is open to school leavers and current private and public employees, which specializes in training in Board-level management. Possibly the first of its kind in the Pacific.

Roads maintenance was discussed with the CEO of MWTI. Samoa has been divided into road maintenance zones since 2002; road construction and road maintenance is fully outsourced, with separate contracts covering each zone. Expenditures on maintenance are close to assessed needs. The MWTI, formed in 2003 as the Ministry of Transport and the Ministry of Works were amalgamated, now plays a regulatory and supervision role, and enforces safety standards. It is planned in 2007 to establish a Land Transport Authority (LTA) to assume responsibility for road maintenance supervision, vehicle and driver licensing, and road safety, similar to the Fiji model.

Outsourcing of roads maintenance (and of ports) has been a resounding success – private sector companies have quickly formed to enter a well-operated and predictable market, and have managed to access enough private sector finance to purchase heavy equipment. Private sector capacity has grown with the need. Through this process, Samoa has built up valuable experience in contract management and supervision. However, more investment in rural roads is desired – some areas of the two main islands remain inaccessible. By Cabinet decision, Samoa will switch to driving on the left, in order to conform to adjacent countries and also enable access to cheaper vehicles (2nd hand market in Japan).

In water/sanitation and power, there is insufficient on-going technical training, with few affordable options available to the public sector to improve training. Outsourcing may be a way to address this, as it would shift the burden of training to the private sector where training may be easier to obtain through international commercial networks. More generally, in most infrastructure sectors, the Samoan workforce has provided good top managers (qualifications, experience), but there is a significant gap in middle-level technical skills.

Land issues have been addressed in a direct and effective way in Samoa (though not fully resolved) with ADB assistance supporting the appointment of a government Task Force for Promoting the Economic Use of Customary Land in 2004. The Task Force has recommended a new structure for land use regulation and provision for continuous consultation with landowners, including institutionalizing long term lease arrangements for approved types of development and allowing land leases to be used by developers in finance agreements. The ANZ Bank reports robust growth in both private and public sector loans, private loans to developers increasingly secured by land leases. 'Good' public sector projects no longer require government guarantees. Financial intermediation seems to be generally improving in Samoa, reducing a major traditional impediment to investment.

There is an urgent need for cross-sector coordination of infrastructure installation along roads. Substantial economies in disruption times and investment costs are available from coordinating laying of electric cables, water/sewer lines, and telephone cables in a single trenching operation.

In the power sector, disconnections are presently outsourced, with meter reading soon to follow. Outsourcing of power pole installation could also proceed quickly, as no special technical training is required (but line stringing requires certification of private contractors, not presently available in Samoa). The tariff is approved by Cabinet and is thus politicized – tariff increases are typically delayed until an EPC financial crisis becomes severe, giving rise to infrequent but sudden and substantial jumps. The tariff became subject to a fuel surcharge for the first time in January 2007. EPC invested heavily in rural electrification under government direction in the past, and is now burdened by many uneconomic lines. Options to reduce costs include switching diesels to heavy fuel and possible use of coconut oil. Performance benchmarking has been carried out for several years, and results are sent to the Fiji-based Pacific Power Association. A power expansion study is underway (ADB/ AusAid/ Government), which will specify priorities for investment and institutional reform, including vertical restructuring of the sector to allow competition and PSP in generation.

In telecommunications, the market has been strengthened for the benefit of consumers in Samoa by a successful drive by government to liberalize the sector. Regulatory reform was recommended in a 2002 World Bank study, adopted energetically by the government with new legislation to introduce competition in the mobile market in 2005. The mobile service in Samoa at the time used outdated equipment and had limited coverage (essentially just Apia), and there was little landline service in rural areas; extending coverage through a mobile service made sense.

Three mobile service licenses were tendered; 5 bids were received. Digicel in a joint bid with local company CSL won, signed an agreement in April 2006 and began operating a mobile service in November; it now has about 60,000 subscribers, utilizing some 42 base stations providing 95 percent coverage of the two main islands plus Apolima and Manono. (Digicel has encountered no land problems for these stations (15m x 15m) because they proactively engaged the landowners in pursuing agreements and pay a rental rate far in excess of the rate recommended by the government.) Digicel operations in Samoa are praised for high quality and affordable cost. Telecom Samoa Cellular, an analog service owned by NZ Telecom, was assumed to remain as a competitor in the liberalized market, but they were instead bought out by Digicel; thus there are now only two licenses active in Samoa. (Digicel now operate in Samoa and PNG, with operations in Fiji likely soon; negotiations continue in the Solomons. The team understands that Digicel are likely to invest in TCC in Tonga, following rejection of their offer to buy Tonfon in Tonga.) Digicel has taken substantial staff from SamoaTel, and claims to have 20% of the staff level but similar revenues. Digicel has become the new yardstick of telecom performance in Samoa.

The government-owned SamoaTel owns and operates the landline system (16,000 subscribers) throughout the country (the ‘copper’) and is the international gateway for internet data and voice. (Digicel has very recently been granted an international gateway for voice only; SamoaTel have an exclusive license for voice-to-fixed line). Internet Service Providers (ISPs) must at present operate through SamoaTel. ADSL (a phone line based broadband technology) does not yet exist in Samoa because of issues involving competitive ISP access to SamoaTel’s copper. The Ministry of Finance and the regulator (see below) are keen to privatize SamoaTel as soon as possible – a scoping study for this is starting now.

Both companies strongly endorse cross-sector coordination in laying of cable. High urban water table and frequent flooding, salt contamination, etc., drastically shorten the life of the copper system, which needs constant replacement. SamoaTel has also begun operating a mobile phone network (8,000 subscribers), but Digicel dominates that market. No serious gaps in top or middle-management or technical skills. Performance benchmarking is conducted extensively by both SamoaTel and Digicel with data sent to ITU, but both regard the data as highly proprietary.

There are 3 ISPs in Samoa at present. Computer Services Ltd (CSL) is one, now a partner of Digicel. CSL has been in operation for 20 years as an IT company (60% shares held by the National Provident Fund) and has almost fully localized the staff, but finds that recruitment of needed skills locally is very difficult. Training in IT and telecom is urgently needed. CSL claim that SamoaTel has built a S\$7m fiber-optic cable around Upolu but it is not open-access, so competitive ISPs such as CSL do not use it. Internet service in Samoa is slow and fees are high compared to Fiji. CSL is trialing wireless internet to businesses and government, and currently have 80 percent of the government market. Internet volume is growing at 35% per year, despite currently low penetration of personal computers (only 3000 PCs in the Apia Township).

An expatriate regulator was appointed in July 2006, with jurisdiction presently limited to telecom, but expansion to multi-sector regulatory capacity is under discussion. The regulator is fully independent – his decisions cannot be overruled (even the Supreme Court can at best ask that a decision be ‘reconsidered’). The office of the regulator has strengthened the confidence of potential bidders in transparency and a level playing field: it is expected that 6-7 ISPs and two full international gateways will soon be operating competitively in Samoa, despite the small market size; this is widely seen to be due mainly to the new regulatory capacity. Samoa leads the region in legislation facilitating regulation and office of the regulator, and could be used as a model for other countries. However, supporting staff for the regulator at present is minimal, requisite skills for the office can’t be found in Samoa and recruitment of qualified staff is expected to remain difficult.

Telecom capacity in Samoa (and the Pacific) is constrained by limited satellite capacity – the rest of the world is much better covered. Options for addressing this at present are unclear. However, bandwidth would be substantially improved if Samoa could access a submarine cable between Hawaii and New Zealand owned by Telecom NZ, but timing and finance of this is uncertain.

The ports sector (Samoa Ports Authority (SPA)), corporatized since 1998, is 100% government owned and chaired by the responsible Minister. The private sector is handling operation and maintenance. There are three stevedoring companies. Ports are a highly mechanized operation with on-shore 40-, 20-, 10-, and 6-tonne lifting capacity; the Ports Authority claim a throughput rate of 25 containers/hr (equal or better than NZ; way better than Fiji).

New wharf extensions are opening in Savai’i now. Plans call for an additional S\$13.5 million investment in upgrading wharves. International shipping trends are towards bigger ships, mergers in shipping companies, and need for larger facilities, even in small countries; Samoa is aware of this and is preparing. Need to deepen channels to accommodate 15m-16m drafts – constant maintenance problem. For economic survival, The SPA recognize need to diversify services; more cruise ship and fishing fleet traffic is targeted. Container traffic in Samoa is growing at 5%/year, with weight of traffic shifting towards SE Asia and away from Australia/NZ. A built-in high cost relates to chronic excess capacity out-going because of fundamental imbalance in visible trade (universal problem in the Pacific). Ports rates are set by Cabinet.

The Association of Pacific Ports met in Apia on 16-17 April.

The Samoa Shipping Corporation (SSC) is the sole domestic shipping company in Samoa and is 100% government owned, founded in 1974. Vessels (2 ferries to American Samoa, 3 ferries between Upolu and Savai’i) are largely grant-aid financed (Australia and Japan). It is likely that Japan will grant-finance a new vessel (timing unclear). [Surprisingly, this is also true in Tonga, which will receive a new 55m ferry/cargo vessel from Japan in 2009. The donation of new ships may comprise a sizable portion of bilateral grant aid finance in the Pacific.] Until recently, the Ministry of Finance owned the

vessels and leased them to SSC, but ownership has now been transferred to SSC. Fares are set by government, and are low (below cost). However, SSC is profitable because of charter services to Tokelau, American Samoa, and Savai'i, for which commercial cargo rates are charged, not under government control. An AusAid funded transport study has recommended privatization of SSC, endorsed by the Ministry of Finance.

Summary of Key Findings

Samoa has achieved outstanding success in liberalizing a key sector – telecommunications – that has resulted in immediate benefits to consumers in Samoa in the form of increased coverage and reduced cost. In combination with much improved air services into and out of Samoa (again resulting in more service at reduced cost), the country's economy and opportunities for productive private investment have been palpably transformed.

The liberalization of both telecommunications and air transport has resulted from a concerted 'push' from the top down by the government of Samoa underpinned by a timely study of sector reform potential by a development partner, and motivated by an accurate vision of economic opportunity. Another impressive area is in roads maintenance, in which the private sector has been engaged in construction and maintenance for a number of years, under well-managed contracts with the Ministry of Works (which has successfully adjusted to a focused regulatory/supervisory role).

Other sectors in Samoa, especially water, power, and ports, while showing signs of improvement, could benefit from a similar mindset of reform as that which has affected telecommunications and roads. The water sector has undertaken extensive investment in rural water supply and, in an effort to come to grips with the more extensive demands on management, has begun to implement a well-structured rural performance monitoring capability that can now be expanded to embrace the urban water systems as well. There exists, however, much larger scope for private sector involvement in operation and maintenance than is currently utilized in rural and urban operations, and in upcoming sewage collection and treatment operations. A similar comment applies to the power sector, where steps are just beginning to bring the private sector into operations such as pole erection. Much more can be done, and the track record of bold sector reform in Samoa supports confidence in the outcome.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Tonga, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

In telecommunications, Tonga is on the brink of major sectoral changes and technical innovation. Remote area mobile phone coverage seems set to improve with the introduction of WiMax technology, and connectivity internationally has become more convenient with the introduction of roaming agreements; both innovations are from the government-owned TCC. International players with more technology and finance are likely to enter the Tonga telecom markets as TCC intends to sell a minority share, and TonFon their entire operation¹. Other sectors, particularly ports and roads, appear to be stagnating or gradually declining in performance, with lack of training and outsourcing key issues.

Infrastructure regulation is a prime cross-sectoral concern in Tonga. Regulatory capacity at present is low and inadequate to address the rapidly growing demand for and changing structure of infrastructure service delivery in the Kingdom. Regulatory reform, if carried out transparently and with adequate resources for requisite technical and financial skills, has the potential for identifying performance standards and the resource requirements for best-practice service delivery in all sectors and in all areas of the country. Reform is also required to tap the considerable resources of the private sector, in expertise, equipment, and finance, in support of infrastructure services. Coordination of infrastructure planning across sectors is lacking, but could be promoted through development of multi-sector regulatory capacity. The role of the Ministry of Public Enterprises could be considerably enhanced in this regard. The MPE has reportedly stated its intention to remove elected officials for public enterprise boards by the end of 2008.

Regulation is however a contentious political issue in Tonga, and the current government appears not to favor the development of independent regulation for infrastructure, preferring instead that regulatory functions be retained by the respective Ministries, as reflected in comments on a previous draft of this strategy paper and in discussion at the Concluding Workshop of the RETA². Nevertheless, it is a key finding of the RETA that independent regulation (whether single sector or multi sector) is a core element driving much successful infrastructure reform across the Pacific. The RETA team believes that the success of attempts to address other core issues facing infrastructure in Tonga, such as widening the scope for private sector partnership, accessing new sources of finance, and supporting an enabling environment for healthy competition will be constrained by a lack of sound and independent regulation.

¹ Digicel reportedly bought TonFon in late 2007.

² 28-29 November 2007, Wellington, NZ.

Utilization of the private sector in infrastructure is low and severely constrained by lack of transparent regulation and consequent lack of predictable markets for the private sector to participate in. This is perhaps easiest to see in the case of land transport and roads maintenance, now severely constrained by inadequate maintenance funding, no road standards enforcement, and high costs. A step forward has been taken by the formation of a Ministry of Transport and consolidation of roads administration under it. A credible maintenance budget for roads is urgently needed in order to introduce outsourcing of maintenance services to the private sector and potential reduction in costs. It is not clear whether community management of secondary roads in Tonga is an innovative, empowering idea or is simply a fact borne of fiscal necessity; secondary roads are commonly in terrible shape.

There is no postal delivery service in Tonga, and as a consequence utility service providers such as the water authority, power companies and telecommunications companies employ staff to physically read the meter (power and water) and deliver invoices (all three). This is a significant duplication in effort and carries high cost. As the major service providers are all Government owned the Government should investigate a tripartite solution to the billing function. This should also include contracting out these services to the private sector. Some form of electronic bill payment, self read meters and use of mobile phone technology in invoicing and paying could have real operational and cost advantages.

The Minister of Public Enterprises has stated that the GoT has a clear objective to get back to their core functions and to outsource, contract out or privatize non-core functions (including PPPs). This objective will ensure that the people of Tonga receive the greatest range of services at the lowest reasonable cost.

The ADB has commenced the third phase of a TA which looks at the Rationalization of Public Enterprises in Tonga. As a consequence and pending the completion of that TA, this paper makes few comments on possible privatization of Public Enterprises.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>Telecom services are provided by 2 competing companies, the government-owned Tonga Communications Corporation (TCC; land lines, mobiles, and ISP) and Digicel (mobiles and ISP) which purchased TonFon in November 2007.</p> <p>12% of the population has access to land lines. Total mobile use is about 30,000 which is 25% of the population.</p> <p>Digicel and TCC compete as internet service providers (ISPs).</p>	<p>Tonga Water Board (TWB) is established as Public Enterprise under the Public Enterprise Act. The water supplied by the TWB comes entirely from boreholes and is untreated. TWB is generally only responsible for the provision and reticulation of water in the major urban areas. Rural areas have their own water supply.</p> <p>The sanitation sector consists of household and commercial septic tanks monitored by the Ministry of Health;</p>	<p>The power sector has been operated by the private Shoreline Group since 1997, including distribution and retailing which was taken over from the Tonga Electric Power Board (TEPB) in 2003/2004. The Shoreline operation includes services to the Ha'apai and Vava'u island groups.</p> <p>Shoreline has total generation capacity on the main island of 12.5 MW, peak load is 7MW and a base load of 4MW.</p> <p>The Government of Tonga is negotiating the purchase of the shoreline power business.</p>	<p>The Ministry of Works (MOW) handles road transport and maintenance, while the newly formed Ministry of Transport (MOT) handles marine, ports, and aviation.</p> <p>It is intended that roads planning and supervision will transfer to the MOT, but the MOW will retain road maintenance and construction.</p> <p>The MOW is responsible for maintaining primary roads, while secondary and access roads are a community responsibility with government subsidy.</p>	<p>The Ports Authority of Tonga (PAT) was corporatized in 1999. PAT operates only the Nuku'alofa port, which handles 99 percent of all cargo coming into and out of Tonga.</p> <p>The ports on Vava'u and other smaller islands are managed by the Maritime Authority (now under the Ministry of Transport (MoT)).</p>	<p>Domestic shipping industry is comprised of two private sector companies (Tofa Ramsay Enterprises and Uata Shipping Ltd) and one 100% government-owned company (Shipping Corporation of Polynesia Ltd (SCPL)).</p> <p>SCPL provides subsidized services to the Niuaus and is the only shipping services to that area.</p> <p>SCPL will soon receive a new passenger/ cargo vessel from Japan under grant aid.</p>
Community Service Obligations	No contacted CSOs	The price of water in Tonga is not directly subsidized by the Government	There appear to be no explicit or implicit CSOs	The MOW is not corporatized and receives all of its funding from the Government through annual appropriations.	There are no contracted CSOs	SCPL provides subsidized services to the Niuaus group, but it is probable that no formal CSO contract exists.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	Telecom regulation is limited to a small team in the PM's office otherwise there is no independent regulator of telecommunications in Tonga.	There is no price regulation for water. Regulatory control over quality of drinking water and environmental impacts of sewage discharge should be undertaken by the relevant authorities.	Under a new Electricity Act, an Electricity Commission (EC) is to be set up to regulate the sector. It appears that the EC has been set up on the New Zealand model which could mean it is not responsible for regulating price.	The new MoT has a mix of operational and regulatory functions	There is no independent regulation of ports charges or performance	Some benchmarking (fuel/pax/cargo ratios and financial modeling) is currently being undertaken. There is no external regulator for price and quality of services, although there is competition on certain services
Maintenance Issues	There does not appear to be any underinvestment in maintenance	There are no known outstanding maintenance issues	The distribution system needs extensive refurbishment.	Roads maintenance continues to be severely under-funded. Funding is allocated on an annual basis.	Both the international and domestic wharfs require significant upgrades. PAT has developed a US\$40 million expansion plan.	The old SCPL ferry has created maintenance issues. The new vessel is expected reduce maintenance concerns.
Initiatives to Date	The Telecommunications Act and ensuing competition has been the major force behind service delivery improvements	Corporatization of the TWB seems to have delivered the major improvements to service delivery observed thus far. The MPE is reviewing the TWB's governance structure and business/corporate plan	It would appear that service delivery improvements to date have been driven by Shoreline's own commercial imperatives	None identified.	Service delivery gains achieved to date seem to have been driven by corporatization and commercialization	Corporatization of SCPL has introduced commercial disciplines to the provision of shipping services
Inhibiting Factors	No international roaming (yet) Lack of access to increased satellite capacity	The fact that the TWB is not recovering the true cost of services and the apparent lack of external regulatory oversight appear to be limiting the ongoing improvement in service quality and capacity	The proposed purchase of the Shoreline power assets by the Government of Tonga. Underinvestment by Shoreline in the distribution system.	Lack of a medium term road maintenance, construction and funding plan.	Capital funding is a major constraint. Lack of coordination with key customers impedes planning and there needs to be greater price transparency.	Lack of transparency in pricing and old vessels would appear to be the greatest impediments to improvements in service quality.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> • Lack of regulation may impede the entry of additional international providers • Could link into an existing regulatory regime • Should investigate a self-regulatory model 	<ul style="list-style-type: none"> • Regulatory oversight in relation to price, access, quality and environmental impacts appears to be limited • Quality and environmental impact regulation should be undertaken by the relevant ministries 	<ul style="list-style-type: none"> • Pending establishment of the Electricity Commission there is minimal effective regulation. • Electricity Commission such should provide full regulatory cover in all areas other than perhaps price. • If a price regulator is required the Government should consider linking in with a regional regulator, developing a multi-disciplined regulator or developing self regulatory mechanisms 	<ul style="list-style-type: none"> • Establishing road maintenance funding through user charges 	<ul style="list-style-type: none"> • The PAT should be subject to some external review of its fees and charges as well as its ongoing performance measures. 	<ul style="list-style-type: none"> • Poor enforcement of safety standards • No competitive tendering of the Niuas contract. • Sector could benefit from increased price and cost transparency.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Examine options to obtain additional access to satellite capacity • Investigate the need and preferred structure for an independent regulator for the telecommunications sector • Identify any CSOs and ensure that they are documented, costed and contracted • Complete the partial sell down of TCC by mid 2008 • Investigate opportunities to contract out 	<ul style="list-style-type: none"> • The Board should price to fully cover its depreciation charge • Scope for outsourcing of operation and maintenance. • Need to monitor ground water quality. • Outsource billing function 	<ul style="list-style-type: none"> • Regulatory environment needs to be clarified and strengthened so that price, quality and system operation rules and regulations are in place <p>If Shoreline power assets are acquired the Government should immediately commence a process to re-privatize those operations.</p>	<ul style="list-style-type: none"> • Transfer of road ownership to the MOT should create a purchaser/provider split thereby encouraging the MOT to focus on quality and cost of delivery • Greater involvement of the private sector in road maintenance should reduce costs. • Government should develop a medium term road funding strategy. • Government should corporatize the road maintenance and construction activity within the MOW to encourage greater transparency and focus on costs and service delivery. • Coordinate the burying of telephone, electricity, and water supply lines 	<ul style="list-style-type: none"> • PAT should develop an integrated 10 year capital investment plan after consultation with key stakeholders • Port's fees and charges should be subject to external review • The quality of the Port's service delivery outcomes should be subject to external review. • PAT should review all business activities and identify areas where it cannot achieve a commercial return and look to exit or seek CSO funding. 	<ul style="list-style-type: none"> • Contract out the operation and maintenance of the new SCPL Japanese funded vessel. • Subsidized shipping service to Niuaus should be competitively tendered.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • MOF should lead a review of regulatory options for the telecommunications sector. • Government should look for regional solutions to limited satellite capacity and ensure it is informed on developments in possible new cable access. • Ministry of Public Enterprises should ensure that there are no hidden CSOs imposed upon TCC and if there are they should be quantified, costed and contracted. • Government should complete a partial privatization of TCC by June 2008. 	<ul style="list-style-type: none"> • Ministry of Public Enterprises and the Ministry of Finance should review the regulatory oversight of the TWB • TWB should look for options to outsource the billing • TWB and MNE should develop a national Water Policy 	<ul style="list-style-type: none"> • The Electricity Commission should be established as a matter of urgency • The Ministry of Finance should undertake a review to determine how best to regulate price, which could be (i) link into a regional regulator, (ii) develop a multi-sector regulator, or (iii) develop self-regulatory systems. • If the Government acquires the Shoreline power assets it should look to sell down those assets in whole or in part as soon as possible as there appears to be no strategic or operation justification for ongoing ownership 	<ul style="list-style-type: none"> • MOT to undertake an audit of road infrastructure and develop a 5 and 10 year funding plan. • MOT should establish a contracting office to facilitate contracting out road maintenance and construction. • Competitive tenders should be run for road maintenance and construction. • Residual functions of the MOW could be corporatized and possibly privatized. 	<ul style="list-style-type: none"> • PAT should develop a 10 year capital investment plan after consultation with key stakeholders. • Ministries of Finance and Public Enterprise should review the optimum level of regulatory oversight of port charges and pricing and form recommendations for Government approval • PAT should review all of its business activities to identify areas where its revenue is insufficient to cover all costs. PAT should then report to Government with recommendations on exit or identification of alternative funding sources which may include CSOs. • Review of SCI to ensure performance measures are adequate. • PAT must review business lines and identify opportunities for private sector participation. • Consider privatization of PAT 	<ul style="list-style-type: none"> • Ministry of Public Enterprise is reviewing contracting out the operation and maintenance of the new Japanese funded ferry. The review should consider structuring an open tender (i.e. inviting private sector participation) and the necessary regulatory oversight required. • Ministry of Public Enterprises should work with SCPL to document and price the CSO to deliver the service to Niuas. Once documented and priced, the contract to operate the service should be open up for competitive tender with private sector participation. • Government should consider privatizing SCPL once the Niuas CSO has been priced and documented

2 Telecoms

2.1 Sector Structure and Service Quality

Telecom services in Tonga are provided by two competing companies, the government-owned Tonga Communications Corporation (TCC; land lines, mobiles, and ISP) and TonFon (mobiles and ISP) which was bought by Digicel in November 2007. The sector is changing through private sector investment and facilitating policies of government.

TCC was established in 2001, taking over as a government-owned local firm from Cable and Wireless International. TCC now owns and operates 100% of the 'copper system' (landlines) and about 60% of the mobile market, but is the junior competitor in internet services. While only about 12% of the population have access to land lines total mobile use is about 30,000 which is 25% of the population. TCC appears to have about two thirds of the mobile market. There is a requirement in the TCC establishing legislation that at least 10% of the company must be sold.

It is expected that Digicel will offer a roaming service (a capacity to integrate service and billing with other mobile services globally) and TCC is introducing roaming with Vodafone.

As there is no fiber optic network, international and inter-island internet traffic is via satellite, for which TonFon (now Digicel) buys commercial bandwidth (Intelsat). To extend mobile phone coverage in remote areas (Ha'apai and Vava'u), TCC is introducing WiMax, a wide-area wireless technology capable of carrying voice services as well as internet. TCC's planned installation of WiMAX is among the first in the region. A limiting factor for WiMax in remote areas, however, is that it requires a continuous power supply (solar power can be used), whereas landlines do not.

2.2 Community Service Obligations

No contacted CSOs

2.3 Regulatory Arrangements

Telecom regulation is limited to a small office (2 staff) in the PM's Department; otherwise there is no independent regulator for telecommunications in Tonga.

2.4 Maintenance Issues

There does not appear to be any underinvestment in maintenance and the major providers seem able to support future investment plans, for example the possible move from G2 to G2.5, from existing cash reserves.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

Competition has been the major force behind service delivery improvements in the Tongan telecommunications industry and it appears to be driving the introduction of new technology (including WiMax) and international connectivity to greatly improve coverage.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

As is the case in other Pacific Island nations, lack of access to increased satellite capacity is a structural limitation on growth within the Telco sector. Unlike Samoa,

there are no current plans to link into a submarine cable, although a proposal for a new cable linking a number of Pacific Island nations may benefit Tonga.

TCC undertake their own servicing and installations, lay and maintain their own cables and install their own dishes. There would appear to be opportunities for increased levels of contracting out. Increasing focus on achieving adequate returns on capital should encourage management to look for the most cost effective options.

2.7 Key Regulatory Challenges

There are no plans at present to increase regulation in the telecommunications market and competition appears to be strong and delivering the consumer a good quality and reasonably priced mix of services. However, the lack of regulation may impede the entry of additional international providers. While Digicel has shown some interest in entering the Tongan market, it appears to be more focused on buying into existing market participants, rather than in a greenfield investment.

Due to the size of the Tongan economy, there may be some merit in linking into an existing regulatory regime, such as the Samoan telecommunications regulator, or alternatively looking at a low cost “self-regulatory” model. A self-regulatory model could establish required standards of behavior within which participants are to operate and to self regulate and report upon (perhaps to the Ministry of Finance). Performance against these behavioral expectations would be audited from time to time and if breaches were found reasonably severe penalties could be imposed.

2.8 Priorities for Improving Service Delivery

While the Chair of TCC is a Minister, there appears to be minimal political involvement in the operational decision making within the Company. The Minister of Public Enterprises has stated that it is the Government’s intention to remove all elected officials from public enterprise boards by the end of 2008, and that will ensure the ongoing operational independence of the TCC board.

The key reforms and transactions needed to further improve service delivery include the following:

- Attempt to obtain additional access to satellite capacity
- Investigate the need and preferred structure for an independent regulator for the telecommunications sector
- Identify any CSOs and ensure that they are documented, costed and contracted in accordance with the Public Enterprise Act.
- Complete the partial sell down of TCC by mid 2008
- Investigate opportunities to contract out

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Competition has delivered significant gains to the telecommunication sector in Tonga. The strategies for achieving the ongoing reform priorities really centre on locking in the gains already made through supporting increasing competition and greater participation by the private sector

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Ministry of Finance to lead a review of regulatory options for the telecommunications sector. The review should look at (i) leveraging off existing regulatory arrangements within the Pacific, such as the telecommunications regulator in Samoa (ii) creating a cross-industry regulator to deal with not only telecommunications, but also power, water etc and (iii) look at options for self-regulation where that can be justified as being more cost effective. TA support probably required.
- The Ministry of Public Enterprises should lead a review to investigate options to secure satellite capacity. The investigation could be delegated to TCC as it is in their commercial interests to secure additional capacity at the lowest cost. The task and deliverable could be included in TCCs SCI for the year ending June 2009. No TA required. The Tongan Government should also ensure that it remains informed on the projects currently under investigation to increase access to submarine cables. Officials should obtain a briefing from the Samoan Commerce Ministry (if they have not already been made aware of the options being considered) to see if there is any feasible means by which Tonga could like into any expansion of the cable infrastructure.
- The Ministry of Public Enterprises should ensure that there are no hidden CSOs imposed upon TCC and if there are they should be quantified, costed and contracted. To be complete by June 2008. No TA support expected.
- The Government should complete a partial privatization of TCC by June 2008. TA support may be required, depending upon the nature and complexity of the proposed sell down.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

Tonga Water Board (TWB) is established as Public Enterprise under the Public Enterprise Act. All of the water consumed in Tongatapu comes from either boreholes or rain water. The water supplied by the TWB comes entirely from boreholes and is untreated. TWB is generally only responsible for the provision and reticulation of water in the major urban areas. Rural areas have their own water supply.

Testing of groundwater quality is carried out regularly and no serious contamination problems have yet been detected in the raw water going into the mains.

In Tonga around T\$10 million is spent on importing bottled drinking water and the TWB is investigating the opportunity to produce bottled water on a commercial basis for the local market. The estimate is that it could cost T\$2.5 to T\$3.0 million to establish a production facility for bottled drinking water. Most household and commercial connections to the TWB network are metered. Meters are read monthly and as there is no postal service, invoices are hand delivered.

The TWB have secured a Euro 3 million loan from the Government of Denmark to develop more wells and to convert the water pumping from diesel pumps. Since 2002 there has been a 72% increase in fuel costs.

TWB owns the pipe infrastructure and undertake its own pipe laying and maintenance.

The sanitation sector consists of household and commercial septic tanks monitored by the Ministry of Health; many of these are under-sized and in poor repair, leading to rising concerns over groundwater quality in Tongatapu. The ADB-financed Tonga Integrated Urban Development Project loan (2007) includes a component to drill test wells in strategic locations to monitor groundwater quality.

3.2 Community Service Obligations

The price of water in Tonga is not subsidized by the Government and TWB's price is supposed to cover the full costs of production including a 10% margin to cover asset replacement costs, although their actual rate of depreciation is exceeding the 10% margin, which is not surprising considering it is a capital intensive activity. The actual depreciation charge in 2006 was T\$1.6 million.

TWB has made trading losses in the last 5 years due to the depreciation charge. This would imply underpricing and hence an implicit CSO.

3.3 Regulatory Arrangements

There is no price regulation for water, although it is noted that there is competition for the provision of drinking water from bottled water and rain water. It would be expected that the Ministry for Public Enterprises and the Ministry of Finance will monitor the price of water relative to the required return on assets and the need to meet ongoing investment.

A review of the benefits of additional price and access regulation and oversight would be beneficial. Regulatory control over quality of drinking water and environmental

impacts of sewage discharge should be undertaken by the relevant authorities and reported upon in the Board's public accountability documents.

3.4 Maintenance Issues

There are no known outstanding maintenance issues

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

The provision of water and wastewater services in Tonga are reasonably basic as described above. The TWB, as a corporatized entity, does appear to have a strong service delivery focus and is looking at means of providing higher quality, cost effective solutions.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

The fact that the TWB is not recovering the true cost of services and the apparent lack of external regulatory oversight appear to be limiting the ongoing improvement in service quality and capacity.

3.7 Key Regulatory Challenges

Regulatory oversight in relation to price, access, quality and environmental impacts appears to be limited and requires some attention. The Ministry of Public Enterprises and the Ministry of Finance should be able to provide the oversight in relation to price, but it is less clear how access will be regulated. Quality and environmental impact regulation should be undertaken by the relevant ministries.

3.8 Priorities for Improving Service Delivery

The fact that the Board is not covering its reinvestment requirement is both encouraging over-consumption (the true price is not being exposed to the consumer) and creating a future price increase "bubble".

There is scope for expanded investment and outsourcing of operation and maintenance including development of new groundwater sources - but this first requires monitoring of groundwater quality.

It is unclear whether the TWB has an appropriate commercial focus. The proposal to develop a commercial bottled drinking water production operation, while appearing sound, may be better left to the private sector. The Ministry of Public Enterprises should review the operation of the TWB and insure that it is not undertaking activities that are better performed by the private sector.

As indicated elsewhere, there are also opportunities to outsource the billing function.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Ministry of Public Enterprises should critically review the TWBs governance structure and business/corporate plan to ensure that it the board is adopting an appropriate governance oversight of the TWB business and

not undertaking activities that are best left to the private sector. TA support may be required due to the newness of the Ministry of Public Enterprises.

- The Ministry of Public Enterprises and the Ministry of Finance should review the regulatory oversight of the TWB to (i) identify any gaps, and (ii) recommend a future regulatory structure that may include (a) a link with a regional regulator (b) self regulation (c) Ministry of Public Enterprise oversight with quality and environmental regulation by responsible agencies, or other possible options. TA support may be required.
- The Ministries of Public Enterprises and Finance should look for options to outsource the billing (as discussed elsewhere in this report).

4 Power

4.1 Sector Structure and Service Quality

The power sector has been operated by the private Shoreline Group since 1997, including distribution and retailing which was taken over from the Tonga Electric Power Board (TEPB) in 2003/2004. The Shoreline operation now includes services to the Ha'apai and Vava'u island groups.

TEPB is now a power sector regulatory agency, and currently sets the tariff and licenses operators, but lacks capacity to carry out these functions effectively. Under a new Electricity Act an Electricity Commission is to be set up to regulate the sector and TEPB's role will disappear. The new Act is in abeyance following 16/11, but is still on the official agenda.

Shoreline is owned by the Crown Prince (now the King) and two private partners. As the new King must divest himself of commercial interests, Shoreline was looking for a buyer but the 16/11 events seem to have disrupted that process. Final agreement was close to being reached on the sale of Shoreline's electricity interests to Northpower NZ but in the wake of 16/11 the company abruptly withdrew from the agreement. However, Northpower is said to remain interested in an operation and management contract for the electricity assets in Tonga.

Shoreline has total generation capacity on the main island of 12.5 MW, while the peak is 7MW and a base load of 4MW, which would indicate that there is no need for additional capacity investment in the medium term. While Shoreline generates profits from its operations on Tongatapu, the outer islands operate at a loss and they seem happy to cross subsidize.

Line losses are low at 8% to 12% compared with international experience at 6% to 8%. There is no tariff differential between domestic and commercial customers.

At this stage it appears that the Government of Tonga is the sole party negotiating a purchase of the Shoreline power assets.

4.2 Community Service Obligations

Following an external tariff review in 2006, the electricity tariff was raised by 5 seniti/kWh and, apart from a domestic 'lifeline' tariff of 45 seniti for consumption of up to 200 kWh /month /household, is now 61.7 seniti per kWh – about US\$0.31/kWh which is an egregiously high rate. Electricity demand continues to grow at 6%-7%/year.

There appear to be no explicit or implicit CSOs

4.3 Regulatory Arrangements

Under a new Electricity Act, an Electricity Commission is to be set up to regulate the sector, and TEPB's role will disappear. The new Act is in abeyance following the 16/11 civil disruption, but is still on the official agenda.

4.4 Maintenance Issues

The distribution system needs extensive refurbishment, as Shoreline has not invested much in the system.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

It would appear that service delivery improvements to date have been driven by Shoreline's own commercial imperatives, i.e. operating as a rational private sector investor undertaking initiatives that grow the customer base and maximize shareholder value.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

- The proposed purchase of the Shoreline power assets by the Government of Tonga. This will probably result in a change of management at the highest level within the company and the Government has no current institutional knowledge in managing a power utility.
- Underinvestment by Shoreline in the distribution system.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Pending the establishment of the Electricity Commission there is minimal effective regulation.
- We understand that the Electricity Commission is based on the New Zealand model and as such should provide full regulatory cover in all areas other than price (which in New Zealand is covered by the Commerce Commission).
- If price regulation is not covered by the proposed Electricity Commission then the Government should consider linking in with a regional regulator, developing a multi-disciplined regulator or developing self regulatory mechanisms (see earlier discussion under telecommunication)

4.8 Priorities for Improving Service Delivery

The situation in Tonga is somewhat unique within the region in that the Government is looking to re-nationalize the power sector. This would seem to be a backward step and likely to have an adverse impact on service delivery. We say this mainly because the Government has little or no current expertise in managing a vertically integrated electricity utility. Furthermore, the fact that the power sector has been operated privately for a number of years without any significant adverse impact on service quality and capability (other than apparent underinvestment in the distribution system) would suggest that there is no "strategic" or national interest justification for long-term ownership.

The key reforms and transactions needed to further improve service delivery include the following:

- The regulatory environment needs to be clarified and strengthened so that price, quality and system operation rules and regulations are in place.

- If the Government acquires the Shoreline power assets, it should immediately commence a process to re-privatize those operations.
- It is expected that a full understanding of the state of the distribution system and the need and level of investment required to bring it back to an adequate level will be gained through the due diligence process and the historic underinvestment will be reflected in the price. Therefore no specific recommendations/ comments are made in this paper on that issue.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Electricity Commission should be established as a matter of urgency.
- If the proposed Electricity Commission does not deal with price regulation, the Ministry of Finance should undertake a review to determine how best to regulate price, which could be (i) link into a regional regulator, (ii) develop a multi-sector regulator, or (iii) develop self-regulatory systems. TA support may be required.
- If the Government acquires the Shoreline power assets it should look to sell down those assets in whole or in part as soon as possible as there appears to be no strategic or operation justification for ongoing ownership and in fact there possible risks associated with Government ownership. The Ministry of Public Enterprises should take the lead on this and while TA support will probably be required a timeline cannot be established until the Governments intention on acquisition is clearer.

5 Roads

5.1 Sector Structure and Service Quality

The Ministry of Works (MOW) handles road transport and maintenance, while the newly formed Ministry of Transport (MOT) handles marine, ports, and aviation. Roads administration and maintenance functions are to be consolidated under the MOT. Under a 2005 World Bank-funded Transport Sector Master Plan (TSMP), the two Ministries were to be amalgamated, but this hasn't occurred and the current intent is that road ownership will transfer to the MOT, but the MOW will retain responsibility for road maintenance and construction.

The MOW is responsible for maintaining primary roads, while secondary and access roads are a community responsibility with government subsidy. The private sector is not significantly engaged in road maintenance work apart from light duties such as grass-cutting. The private sector own the majority of the quarries and trucks used by the MOW, but the MOW own the bulk of the heavy road construction machinery.

There is good potential for cost reduction and performance improvements in corporatizing MOW's land transport responsibilities, with outsourcing of maintenance functions. Shedding road works would allow MOW to shrink substantially and assume a regulatory/ supervisory role in road planning and upkeep.

5.2 Community Service Obligations

The MOW is not corporatized and receives all of its funding from the Government through annual appropriations.

5.3 Regulatory Arrangements

The MOW has a mix of operational and regulatory functions. It regulates external operations, such as issuing building permits and vehicle safety standards. It also monitors the quality of its own work in relation to road maintenance and construction.

5.4 Maintenance Issues

Roads maintenance continues to be severely under-funded, and MOW acknowledges that they cannot maintain roads well enough to meet national needs. There is no long term road maintenance plan; a road maintenance strategy has not been considered in the past 6-7 years. Funding is allocated on an annual basis.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

- Lack of a medium term road maintenance, construction and funding plan,
- The fact that road ownership, funding and maintenance and construction are all housed within the same ministry

5.7 Key Regulatory Challenges

The proposed move of road ownership to the MOT

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- The transfer of road ownership to the MOT should create a purchaser/provider split with the ensuing benefit of encouraging the MOT to focus on quality and cost of delivery,
- Following on from the above point, greater involvement of the private sector in road maintenance should reduce costs,
- The Government should develop a medium term road funding strategy to encourage better road maintenance and construction planning,
- The Government should also consider corporatizing the road maintenance and construction activity within the MOW to encourage greater transparency and focus on costs and service delivery.
- Inter-sector coordination in the burying of telephone, electricity, and water supply lines would minimize repeat disruption along roadways.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- Complete the transfer of road ownership to the MOT by end 2007, no TA required.
- The MOT to undertake an audit of the road infrastructure and develop 5 and 10 year funding plan (which would include a programmed road maintenance and construction plan). This should be complete by end 2008 and may require TA support.
- As the MOT is developing the funding plan, it should also develop a “contracting office” to develop practices and procedures to run competitive contracts to undertake road maintenance and construction. The Samoan model could be used as source of information and expertise. The contracting office should be established by the end of 2008. This will most likely require TA support.
- With the establishment of the contracting office and with an approved 5 and 10 year funding plan, the MOT should run a series of competitive tenders for ongoing road maintenance and construction. The tenders should be open to the private sector as well as the MOW.
- The Ministries of Finance and Public Enterprise should undertake a review of the residual functions of the MOW. The core business of the MOW is (i) road maintenance and construction and (ii) advisory work in architectural design and engineering for other government departments. Consideration should be given to corporatizing these functions and, where appropriate, privatizing the corporatized entities. TA support will be required. The review should be complete by end 2008.

6 Ports

6.1 Sector Structure and Service Quality

The Ports Authority of Tonga (PAT) was corporatized in 1999 under enabling legislation enacted in 1998. The PAT operates only the Nuku'alofa port, which handles 99 percent of all cargo coming into and out of Tonga. As a corporatized entity, the PAT is subject to the Public Enterprises Act of 2002, which defines the rights and obligations of State Owned Enterprises (SOEs). PAT sets its own rates and is profitable. The company's target ROI is 4% and it pays a 50% dividend to the Government.

The ports on Vava'u and other smaller islands are managed by the Maritime Authority.

The Nuku'alofa port is not well maintained. There is an urgent need for capital investment in the main wharf to expand capacity for bigger ships and more frequent traffic, but finance is difficult to access. Financial planning is short-term.

Maintenance of the existing wharves is not adequate and conditions are deteriorating. Technical training standards are low, and access to training is severely limited. A strategy for asset management and training requirements is needed.

6.2 Community Service Obligations

There are no contracted CSO, but the ROI is well below a commercial risk adjusted rate which would imply the company is subsidized by tax funding and is providing services on a less than commercial basis.

6.3 Regulatory Arrangements

There is no independent regulation of ports charges or performance.

6.4 Maintenance Issues

The international shipping industry is changing rapidly, gravitating towards larger ships and accelerating the obsolescence of ports infrastructure; nevertheless, PAT's forward planning for infrastructure appears to fall short. There are two international berths at the wharf, but they cannot be operated simultaneously; they need to be enlarged, and storage capacity needs to be increased.

The domestic wharf needs to be expanded to cater for increased fishing and inter-island shipping. Safety standards are deteriorating as the only available pilot boat is in bad repair and requires urgent replacement. Also, intra-government coordination of ports infrastructure planning is lacking; the government-owned shipping company (see below) is expected to receive a new and larger ferry in 2009, grant-aid financed by Japan, which the current PAT facilities will not be able to handle. PAT has only recently been advised that a new berth will be needed, for which no finance has yet been secured.

Capex is currently financed by a blend of internal funds and commercial bank loans (government secured). Needs for investment in civil and mechanical assets are considered 'urgent' by PAT management and are therefore not referred to multilateral development banks; however, a sound 5- and 10-year infrastructure plan which might provide sufficient lead time to secure cheaper capital finance is lacking.

The PAT has developed a US\$40 million expansion plan and is seeking ADB support to develop a business case and feasibility review.

Costs to meet international (particularly USA) security requirements are high.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

Service delivery gains achieved to date seem to have been driven by corporatization and commercialization. While the chair of the PAT is an elected official, there appears to be minimum political involvement in operational decisions.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

- PAT is still undertaking some non-commercial activities which are not fully funded,
- Capital funding is a major constraint to ongoing service delivery improvements,
- There should be greater coordination of future infrastructure requirements between the PAT and major users.
- External review of prices and charges is needed.

6.7 Key Regulatory Challenges

The PAT should be subject to some external review of its fees and charges as well as its ongoing performance measures.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- The PAT should develop an integrated 10 year capital investment plan after consultation with key stakeholders
- The Port's fees and charges should be subject to external review
- The quality of the Port's service delivery outcomes should be subject to external review
- PAT should review all of its business activities and identify areas where it is providing services which are not achieving an appropriate commercial return. The PAT should discontinue the non-commercial services if the Government is not prepared to fund them under the CSO provisions in the Public Bodies Act.

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The PAT should develop a 10 year capital investment plan after consultation with key stakeholders to clearly identify future investment requirements and

funding. The plan should be submitted to the Ministry of Public Enterprise for review and Government for approval. The plan should be complete by the end of 2008. No TA support should be required.

- The Ministries of Finance and Public Enterprise should review the optimum level of regulatory oversight of port charges and pricing and form recommendations for Government approval on a preferred regulatory structure. The review to be complete by June 2008. TA support will be required.
- PAT should review all of its business activities to identify areas where its revenue is insufficient to cover operational costs (including depreciation) and an appropriate risk adjusted return. Once the review is complete PAT should furnish the Ministry of Public Enterprise with a report identify business activities that are not commercial and providing recommendations on remedial action (i.e. discontinue or manage to profitability). If the Government desires PAT to continue providing non-commercial services then it should undertake a full costing and contract the activity as a CSO. The initial review should be complete and report to the Ministry by end 2008. TA support will be required to undertake the review and depending on the outcome may be required in 2009 to establish the CSO contracts.
- The Ministry of Public Enterprises should review the PAT SCI and ensure that performance measures are appropriate. Depending on the outcome of that review some form of international/regional benchmarking may well be appropriate to ensure that PAT is operating as efficiently as comparative ports. Initial review should be complete by March 2008 and may require small TA support due to relative newness of Ministry staff. If a benchmarking exercise is seen as valuable, then TA support will be required. The outcome of the benchmarking exercise should feed into the PAT 2009/2010 SCI.
- The Ministry of Public Enterprise should establish a requirement in the 2008/09 SCI for the PAT that it examine all of its business lines and identify opportunities for private sector involvement, which may include PPPs, contracting out or outright sale. The SCI would require PAT to report back by December 2008 with justification for areas (business lines/services) where private sector participation is not recommended.
- Consideration should be given to privatization of the PAT. There is a TA already underway which is looking at the Rationalization of Public Enterprises in Tonga.

7 Shipping

7.1 Sector Structure and Service Quality

The domestic shipping industry is comprised of two private sector companies (Tofa Ramsay Enterprises and Uata Shipping Ltd) and one 100% government-owned company (Shipping Corporation of Polynesia Ltd (SCPL). All three companies are dissatisfied with the services of the Ports, in which investment in infrastructure and maintenance has not been adequate (see above).

SCPL provides subsidized services to the Niuaus in the far north, the only shipping services to that area.

SCPL has been corporatized for over five years and is currently undergoing rationalization, including termination of (unspecified) loss-making activities and will soon receive a new passenger/ cargo vessel from Japan under grant aid. (The port is not presently equipped to handle this large vessel.) It is stipulated in the aid agreement that the vessel must remain under government ownership. There are competitive issues in this requirement as the new vessel may force the private operators to close. There is a need to review the anti-competitive impact of the donated vessel. For example it could be tendered for private sector operation and maintenance.

While the existing government ferry, a 45m 26-year-old vessel, is now receiving better maintenance than it did in the past, as stated it, is to be replaced in 2010 by a new 55m vessel donated by Japan which is being designed by a Japanese team, with SCPL participation.

Maintenance skills and practices need improvement, but the new vessel is expected to be easier to maintain than the existing ferry. Maritime training is available in Auckland, but more access to training is needed.

7.2 Community Service Obligations

The corporatized Government shipping company provides subsidized services to the Niuaus group, but it is probable that no formal CSO contract exists. It is a requirement of the Public Enterprise Act that CSOs are fully documented and costed.

7.3 Regulatory Arrangements

Some benchmarking in the sector has been undertaken by the SCPL as it was preparing its application to Japan for the new ship, but no benchmarking is currently undertaken by the private shipping companies.

There is no external regulator for price and quality of services, although there is competition on certain services.

7.4 Maintenance Issues

There have been historical maintenance issues with the old SCPL ferry and generally maintenance skills and practices need improvement, but the new vessel is expected to be easier to maintain than the existing ferry.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

Corporatization of the Government owned shipping company has introduced commercial disciplines to the provision of shipping services which appears to have resulted in service delivery improvements.

SCPL has generally been profitable, but profitability has suffered in recent years due to the high maintenance costs (see comments above). The arrival of the new ferry in 2010 should improve service quality levels.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

While competition exists on some routes the lack of transparency in pricing and old vessels would appear to be the greatest impediments to improvements in service quality. The arrival of the new ferry will address, in part the state of the vessels, but some external review of prices and charges would also be appropriate. There is concern that the operation of new Japanese funded vessel by SCPL could crowd out the existing private sector operators, which would be expected to have a detrimental impact of future service quality and capacity.

7.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- The private shipping companies are under intense competitive pressure from SCPL. The grant-aid financed new ferry/cargo ship will provide a better and more comfortable passenger service to all island groups and the donor (Japan) has stipulated that the vessel not be transferred from government ownership. The private companies' operations may not survive this competition from government but they are hoping for an opportunity to tender for a contract to provide operation and management services for the new vessel.
- There appears to be no competitive tendering for the government subsidy to service the Niuaus
- The sector could benefit from increased price and cost transparency, particularly in relation to the SCPL activities.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Consideration should be given to contracting out the operation and maintenance of the new SCPL Japanese funded ferry to the private sector.
- The subsidized shipping service to the Niuaus should be opened up to competitive tender
- The Ministry of Public Enterprises should require SCPL to undertake performance benchmarking.
- Consideration should be given to privatizing the operations of SCPL, while retaining Government ownership of the new Japanese funded vessel.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- The Ministry of Public Enterprise should commission a review on the possibility to contract out the operation and maintenance of the new Japanese funded ferry. The review should consider structuring an open tender (i.e. inviting private sector participation) and the necessary regulatory oversight required. Due to the competitive advantage the new vessel will afford the operator, there will need to be a competitive proxy mechanism developed (regulation or other) to ensure ongoing price and service quality tensions. The competitive proxy could be established through the service contract or through an external regulator. The review should be complete well before the 2010 estimated arrival date of the new vessel. The review should commence in mid 2008 and be complete in early 2009, with the outcome in place by the last quarter of 2009. TA support will be required.
- The Ministry of Public Enterprises should work with SCPL to document and price the CSO to deliver the subsidized service to Niua. Once documented and priced, the contract to operate the service should be open up for competitive tender with private sector participation. SCPL may tender for the contract. The CSO scoping study should be complete by March 2008 with the tender undertaken before the end of the 2007/08 financial year. TA support may be required.
- The Ministry of Public Enterprises should set a requirement in the 2008/09 SCI for SCPL that they undertake a benchmarking exercise to identify organizations and measures that would assist them to set useful benchmarking standards. The agreed benchmarks should then be introduced into the company's 2009/2010 SCI. No TA required
- The Government should consider privatizing SCPL once the Niua CSO has been priced and documented. Privatization should be considered contemporaneously with the reviews recommended in the first and second bullet points above.

8 Annex: Country Consultation Report

The RETA Team visited Nuku'alofa from 6 through 9 March. Discussions were held with (not in order):

- Ministry of Works (MOW: buildings, roads, disaster management)
- Ministry of Public Enterprises (MPE)
- Tonga Communications Corporation (TCC)
- Shoreline Group (electricity and telecommunications (TonFon))
- Ports Authority of Tonga (PAT)
- Ministry of Transport (MOT: civil aviation, marine, and ports)
- Ministry of Finance
- Tofa Ramsay Enterprises Ltd (private shipping co)
- Shipping Corporation of Polynesia Ltd (government shipping co)

Highlights:

The Ports Authority of Tonga (PAT) was corporatized in 1999 under enabling legislation enacted in 1998. The PAT operates only the Nuku'alofa port, which handles 99 percent of all cargo coming into and out of Tonga. As a corporatized entity, the PAT is subject to the Public Enterprises Act of 2002, which defines the rights and obligations of State Owned Enterprises (SOEs). PAT sets its own rates and is profitable, regularly paying a dividend to government. There is no independent regulation of ports tariffs.

The PAT possesses full capacity in onshore cranes and other equipment for cargo handling. Stevedoring services used to be provided by a private sector company, under a contract that was neither well specified nor supervised and was subsequently cancelled – PAT performs all stevedoring now with their own staff.

Finance for investment is a major issue for ports. The international shipping industry is changing rapidly, gravitating towards larger ships and accelerating the obsolescence of ports infrastructure; nevertheless, PAT's forward planning for infrastructure appears to fall short. There are two international berths at the wharf, but they cannot be operated simultaneously; they need to be enlarged, and storage capacity needs to be increased. The domestic wharf needs to be expanded to cater for increased fishing and inter-island shipping. Safety standards are deteriorating as the only available pilot boat is in bad repair and requires urgent replacement. Also, intra-government coordination of ports infrastructure planning is lacking; the government-owned shipping company (see below) is expected to receive a new and larger ferry in 2009, grant-aid financed by Japan, which the current PAT facilities will not be able to handle. PAT has only recently been advised that a new berth will be needed, for which no finance has yet been secured.

Capex is currently financed by a blend of internal funds and commercial bank loans (government secured). Needs for investment in civil and mechanical assets are considered 'urgent' by PAT management and are therefore not referred to multilateral development banks; however, a sound 5- and 10-year infrastructure plan which might provide sufficient lead time to secure cheaper capital finance is lacking.

Maintenance of the existing wharves is not adequate and conditions are deteriorating. Technical training standards are low, and access to training is severely limited. A strategy for asset management and training requirements is needed.

The Ministry of Works (MOW) handles road transport and maintenance, while the Ministry of Transport (MOT) handles marine, ports, and aviation. Under a 2005 World Bank-funded Transport Sector Master Plan (TSMP), the two Ministries were to be amalgamated, but this hasn't occurred in the wake of the '16/11' riots. However, as the Government is currently reviewing Ministry core functions and required staff numbers and this may result in further restructuring of the public service, amalgamation of MOT and MOW may still be in prospect.

For road transport, a Land Transport Authority (LTA) -type development on the Fiji model, according to MOW, does not appear to be a near-term prospect for Tonga; though MOW acknowledge that the idea has merit, it will not have a serious champion before MOW and MOT are amalgamated and transport sector management is rationalized. The MOT, however, is keen to pursue the idea and is more optimistic about a near-term development of an LTA, pending other reforms.

The MOW is responsible for maintaining primary roads, while secondary and access roads are considered to be a community responsibility (with government subsidy). Tonga may thus have the largest portion of road network in the region under community management. As in Samoa, there is currently no inter-sector coordination in the burying of telephone, electricity, and water supply lines that might minimize repeat disruption along roadways.

Roads maintenance continues to be severely under-funded in Tonga; MOW acknowledges that they cannot maintain roads well enough to meet national needs. The basic issue of maintenance funding is fiscal, a concern in Tonga that predates 16/11. There is no long term road maintenance plan; a road maintenance strategy has not been considered in the past 6-7 years and is apparently not adequately addressed in the TSMP. A consequence of the lack of adequate funding is that the private sector is not significantly engaged in road maintenance work apart from light duties such as grass-cutting. MOW presently owns and operates all heavy equipment at high cost.

There is substantial potential for cost reduction and performance improvements in corporatizing MOW's land transport responsibilities, with greatly increased outsourcing of maintenance functions. Solid Waste is has already been split off from Works and is corporatized; shedding road works would allow MOW to shrink substantially and assume a regulatory/supervisory role.

The Ministry of Transport aims to tidy up the Ports Authority and prepare minor ports throughout Tonga for handover to the PAT in July 2008. Tonga Airports Ltd, an SOE, is to be established by July 2007. The MOT would like to see an LTA established quickly. MOT wishes to take responsibility for all transport and tariff regulation (including land transport), but this will require completion of Ministry-level reforms. The MOT is also considering the purchase and operation by government of a public transport system for Tongatapu.

The domestic shipping industry is comprised of two private sector companies (Tofa Ramsay Enterprises and Uata Shipping Ltd) and one 100% government-owned company (Shipping Corporation of Polynesia Ltd (SCPL)). All three companies are dissatisfied with the services of the Ports, in which investment in infrastructure and maintenance has not been adequate (see above).

The government shipping company is undergoing rationalization, including termination of (unspecified) loss-making activities. The expatriate financial controller serves as acting CEO currently, to be replaced in April with a permanent appointee

(also expatriate). The government ferry, a 45m 26-year-old vessel, is now receiving better maintenance than it did in the past, but is to be replaced in 2009 by a new 55m vessel donated by Japan (now being designed by a Japanese team, following a 3 week visit to Tonga). SCPL is participating in the design.

Maintenance skills and practices need improvement, but the new vessel is expected to be easier to maintain than the existing ferry. Maritime training is available in Auckland, but more access to training is needed. Some benchmarking in the sector has been undertaken by the government company as it was preparing its application to Japan for the new ship, but no benchmarking is currently undertaken by the private shipping companies.

The private shipping companies are under intense competitive pressure from the government company. The grant-aid financed new ferry/cargo ship will provide a better and more comfortable passenger service to all island groups; the donor (Japan) has stipulated that the vessel not be transferred from government ownership. The private companies' operations may not survive this competition from government but they are hoping for an opportunity to tender for a contract to provide operation and management services for the new vessel. The government company provides the only shipping service to the Niuaus in the far North, and thus provides an essential social service under subsidy.

The power sector has been operated by the private Shoreline Group since 1997, when a new power station was built to replace the generation facilities of the Tonga Electric Power Board (TEPB) on Tongatapu. (Shoreline also operates a mobile phone service – TonFon – in competition with the government-owned Tonga Communications Corporation (TCC), see below.) Shoreline took over responsibility for power distribution and electricity retailing services from the TEPB in 2003/2004, and has extended operations to the Ha'apai and Vava'u island groups. TEPB is now a power sector regulatory agency, and currently sets the tariff and licenses operators, but lacks capacity to carry out these functions effectively. Under a new Electricity Act, an Electricity Commission is to be set up to regulate the sector, and TEPB's role will disappear. The new Act is in abeyance following 16/11, but is still on the official agenda. Following an external tariff review in 2006, the electricity tariff was raised by 5 seniti/kWh and, apart from a domestic 'lifeline' tariff of 45 seniti for consumption of up to 200 kWh /month /household, is now 61.7 seniti per kWh – about US\$0.31/kWh, an egregiously high rate. Electricity demand continues to grow at 6%-7%/year.

Shoreline is owned by the Crown Prince (now the King) and two private partners. As the new King must divest himself of commercial interests, Shoreline is seeking to wind up. As the 16/11 events were occurring, final agreement was being reached on the sale of Shoreline's electricity interests to Northpower NZ which, in the wake of 16/11, abruptly withdrew from the agreement. However, Northpower is said to remain interested in an operation and management contract for the electricity assets in Tonga, which would be transferred from Shoreline to government ownership. The distribution system needs extensive refurbishment, as Shoreline has not invested much in the system.

Shoreline is also a player in telecommunications, operating a mobile phone service (TonFon) of about 20,000 subscribers in competition with the government-owned Tonga Communications Corporation (TCC, with about 30,000 subscribers). Shoreline seeks a buyer for this service, and has been approached with an offer from Digicel. The gap between Digicel's offer and Shoreline's valuation of TonFon was reportedly great, and no agreement was reached. Shoreline still seeks a buyer of TonFon. It is

reported, however, that Digicel is still keen to enter the market in Tonga, and may buy a substantial minority portion of TCC.

TonFon has not offered a roaming service (a capacity to integrate service and billing with other mobile services globally) as they view the Tonga market too small to justify the cost; but TCC is introducing roaming (with Vodaphone) in mid-March 2007.

TonFon and TCC compete also as internet service providers (ISPs). As there is no fiber optic network, international and inter-island internet traffic is via satellite, for which TonFon buys commercial bandwidth (Intelsat). However, the Royal family also owns Tongasat that has cheap bandwidth available, but for unclear reasons this cannot be accessed by either TonFon or TCC. Such access, according to TCC, would afford Tonga a much faster and cheaper internet service. Meanwhile, many Pacific island countries are locked in to long-term contracts with Intelsat. Telecom regulation is limited to a small office (2 staff) in the PM's Department; otherwise there is no independent regulator of telecommunications in Tonga.

To extend mobile phone coverage in remote areas (Ha'apai and Vava'u), TCC is introducing WiMax, a wide-area wireless technology capable of carrying voice services as well as internet. The technology greatly reduces the cost of installing rural mobile telephone services. WiMax may have great promise for the Pacific; TCC's installation is among the first in the region. A limiting factor for WiMax in remote areas, however, is that it requires a continuous power supply (solar power can be used), whereas landlines do not.

TCC was established in 2001, taking over as a government-owned local firm from Cable and Wireless International. TCC now owns and operates 100% of the 'copper system' (landlines) and about 60% of the mobile market, but is the junior competitor in internet services. The current expatriate CEO will be replaced in July 2007 by a local, who is now overseas for training. TCC local staff garner high marks for technical competence and company loyalty, but need to be shaken up to encourage innovation and lateral thinking.

The Ministry of Public Enterprises (MPE) was established in 2006 under an Act which provides for the transfer of government-owned assets to the respective SOEs, and invests the Ministry with oversight responsibility for all SOEs. (In this respect, it is similar to the Cook Islands Investment Corporation.) However, it appears that the Ministry does not intend to take up a substantial regulatory role in Tonga, preferring to keep technical and financial regulation primarily with the respective Ministries (e.g., Ministry of Transport for civil aviation and marine transport services, TEPB for electricity, etc.). The MPE's main role in practical terms is to monitor the SOEs' delivery of social service obligations, and ensure that SOEs do not become a liability to the treasury. The Ministry also receives and follows up on customer complaints in regard to SOE operations. The reluctance of the Ministry to consider a more formal multi-sector regulatory role is reportedly due to the steep legislative requirements involved.

Though it was not possible to meet with the Tonga Water Authority during the week of the RETA team visit, it is known that the water supply in Tongatapu, entirely from boreholes, is under expansion. Testing of groundwater quality is carried out regularly and no serious contamination problems have yet been detected in the raw water going into the mains. However, the sanitation sector consists of household and commercial septic tanks monitored by the Ministry of Health; many of these are under-sized and in poor repair, leading to rising concerns over groundwater quality in Tongatapu. The ADB-financed Tonga Integrated Urban Development Project loan

(2007) includes a component to drill test wells in strategic locations to monitor groundwater quality.

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1 Introduction and Summary

This paper outlines the main findings of the RETA concerning the critical issues facing the delivery of infrastructure services in Vanuatu, with respect to telecoms, water/sanitation, power, roads, ports, and shipping. For each sector, the sector structure and service quality is briefly examined, followed by a brief summary of community service obligations, regulatory arrangements, maintenance issues, key recent initiatives to improve service quality, key factors inhibiting service quality, key regulatory challenges, priorities for action, and a proposed strategy for meeting the priorities. Proposed strategies may include efforts to build capacity to fill gaps in operations, maintenance, or regulation, institutional reform, training, policy development, and other measures.

Vanuatu is making substantial strides towards promotion of competition in crucial infrastructure sectors, especially telecoms and international aviation. Though the telecoms competition policy is still a matter of legal contention, it seems clear that the market will become competitive sooner rather than later. Plans are in the making to upgrade international airport facilities to allow additional long range carriers to serve Vanuatu routes, perhaps opening new tourist markets in Asia. Air Vanuatu itself places admirable emphasis on serving domestic routes, thus supporting prospects for growth of tourism in the outer islands. In the past, infrastructure and economic planning in Vanuatu has been said to be mainly reactive and highly influenced by shifting political winds, but there are clear signs that this is changing.

Regulation is a complementary area where significant advances have been made. Multisector regulation, with support from the World Bank and AUSAID, is now a near-term prospect. Water supply catchment regulation, lacking in so many other Pacific island countries, is also in place.

Use of the private sector in infrastructure service delivery is also in evidence, but may not reflect deliberate policy. For example, though domestic shipping services are entirely privately operated, the sector faces a serious crisis in capacity and public safety because the government has not sufficiently supported the sector with either investment (e.g., for nav aids) or market regulation to ensure that conditions are appropriate for private sector operations. The private sector is contributing well to ports operations in Port Vila, largely due to good management in the company concerned, but not in Santo, where contract performance is evidently not well supervised or enforced. UNELCO's operations in power supply well pre-date Independence; through new regulatory arrangements, the government will strengthen its handling of this sector's private sector 'status quo'. Also, UNELCO has shown a supporting willingness to help meet government objectives to serve rural areas and to introduce cost-effective renewable energy in generation (some options being pursued are highly experimental), despite being financially protected by automatic fuel adjustments in the tariff formula. TVL, on the other hand, is an example of a company with majority private shareholding which has provided serious resistance to the government's efforts to liberalize the sector.

Tourism, as in most Pacific island countries, represents the leading economic growth potential of the country, but development will require a tightly integrated approach to tourism and infrastructure investments, with upgrades of airstrips and passenger handling facilities proceeding in tandem with the growing tourism market in the outer islands. From discussions with the government and with the aviation service providers, consensus is that the problem is one of chicken **and** egg, so closely will the developments need to be coordinated. The Tourism Master Plan of 2004 is a good starting point for Civil Aviation planning, and could extend to shipping services

also, as there appears to be substantial potential for tourism-oriented shipping services.

Table 1: Strategy Overview

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Sector Structure/ Service Quality	<p>Telecom Vanuatu Ltd (TVL) is presently the monopoly telecom service provider in the country, providing landlines, mobile and internet services.</p> <p>TVL is owned 1/3 by Telecom France, 1/3 by Cable and Wireless, and 1/3 by the Vanuatu Government. TVL's exclusive license runs to 2012.</p> <p>Telephone service penetration is limited largely to Efate and Luganville (Santos). Other islands are linked to the network by microwave but the number of handsets on these islands is quite small.</p>	<p>The water sector in Port Vila is operated by UNELCO Suez under a concession that runs to 2014.</p> <p>Water supply in all other locations (including Efate) is operated by the PWD, and is not potable.</p>	<p>The power sector is operated by UNELCO Suez, the same private company that operates the water supply system in Port Vila. The power concession for Port Vila runs to 2031; UNELCO also operate concessions in Santo (2010), and in Malekula and Tanna (2022). The Malekula and Tanna operations are loss making and are cross-subsidized.</p> <p>Urban power operations extend only about 15 km from the municipal boundaries. Electricity elsewhere in Vanuatu is extremely limited, often associated with institutions (e.g., aid posts and schools generating intermittently for their own use).</p>	<p>The urban road networks are the responsibility of the respective Municipalities.</p> <p>The national roads sector is the responsibility of the PWD, a non-corporatized government department.</p> <p>Sealed roads in Vanuatu are restricted to within a short radius of the urban centers; all other roads, including the Efate ring road, are gravel. Many of the smaller outer islands have no roads.</p>	<p>Commercial ports in Vanuatu, Port Vila and Santo, are the responsibility of the non-corporatized Department of Ports and Harbours (also called the Ports Authority) of the Ministry of Infrastructure and Public Utilities (MIPU).</p> <p>There are two ports in Port Vila: (i) the international wharf owned by the Ports Authority with all services contracted to a private company, Ifira Stevedoring Co; and (ii) a domestic wharf, owned outright by Ifira and operated by them as a commercial enterprise.</p> <p>Ports in all other outer islands, none commercial, are the responsibility of the PWD These are generally in poor condition.</p>	<p>Domestic shipping service in Vanuatu is 100% privately operated. There are 20 private shipping companies (generally with one 20-passenger vessel each), and two government-owned vessels of about 70 passengers each, but these are operated and maintained by private companies.</p> <p>All inhabited islands are served.</p>
Community Service Obligations	There are no defined community service obligations in the telecom sector.	There are no defined community service obligations in the water sector.	There are no defined community service obligations in the power sector.	There are no defined community service obligations in the roads sector.	There are no defined community service obligations in the ports sector.	There are no defined community service obligations in the shipping sector.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Arrangements	<p>There is no telecom regulator at present in Vanuatu, and much of the fate of the sector is in the hands of the courts.</p> <p>The Ministry of Finance and Economic Management (MFEM) and the Ministry of Lands (MoL) are driving regulatory and market reform in Vanuatu. Bills have been prepared to establish a regulatory authority covering water supply, electricity, and telecoms; regulatory authority will initially be placed under the MFEM.</p>	<p>There is no country-wide regulation of the water sector. Traditionally (and presently) there is little government oversight of UNELCO's operations in water supply or power.</p> <p>Regulation of UNELCO's water supply concession will be undertaken by MFEM under the new multi-sector regulatory capacity now being established.</p> <p>The concession agreement specifies a formula under which the tariff is calculated and quarterly adjusted.</p> <p>The Ministry of Lands is developing a national water policy and administers water catchment protection.</p>	<p>At present, there is no regulation of the power sector. However, the Ministry of Lands is developing a national energy policy that includes electricity sector regulatory arrangements to be adopted by the regulatory authority within the MFEM.</p> <p>All existing concession agreements specify a formula under which the tariff is calculated and quarterly adjusted; the main adjustment factor is diesel fuel costs, but factors for labor costs, the exchange rate, and materials cost index are also included.</p>	<p>There is no regulation of the roads sector, nor even any capacity to keep track of road assets, monitor their condition, or plan for their rehabilitation, maintenance, or extension.</p>	<p>Ports fees are specified in the enabling legislation for Ports and Harbours, and may be changed by the Minister of Infrastructure and Public Utilities.</p> <p>The ports sector is not otherwise regulated.</p>	<p>Domestic shipping tariffs are not regulated.</p> <p>The Vanuatu Maritime Authority (VMA) is responsible for the regulation of maritime safety, and regulates the seaworthiness of vessels for domestic shipping.</p> <p>Search operations in Vanuatu waters are carried out by the French navy based in New Caledonia. Apparently the system is working satisfactorily.</p> <p>VMA is also responsible for the maritime navais system. The system is in advanced disrepair.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Maintenance Issues	There are no significant maintenance issues in the telecom sector.	There are no significant maintenance issues in the UNELCO-operated water supply in Port Vila. The water supply systems elsewhere in Efate and throughout the outer islands, the responsibility of the PWD, are reportedly in poor condition and receive only cursory maintenance.	There are no significant maintenance issues in the public power sector.	No significant maintenance issues with respect to the urban roads networks under the management of the respective Municipalities. Elsewhere, maintenance funding covers about 5% of the assessed need. Maintenance is reactive, roads are deteriorating and the poor state of the sector is a prime national issue. The Millennium Challenge Account (MCA) has reportedly allocated funds for the purchase of new equipment with which to conduct roads rehabilitation and new road construction, but the details of this are not available. The MCA reportedly will not support the annual roads maintenance budget.	The Santo port is in a run-down condition and, according to the government, the contractor is not performing satisfactorily. The Port Vila port, however, is in good condition and is operating well.	Though the sector is operated entirely by the private sector, maintenance of vessels has been chronically poor, leading to unseaworthiness of the majority of the fleet. Investment in the sector also appears to be very low. There is free entry into the markets and into all routes; low fares (highly competitive) discourage investment, asset maintenance, or upgrade of services.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Initiatives to Date	TVL claims that international calling rates have decreased by 45% since 2001 (though rates are still very high by international standards). Otherwise, the 'promise' of improved service delivery in telecoms in Vanuatu lies in efforts to liberalize, and regulate, the sector, which are ongoing.	UNELCO's entry into the water sector in Port Vila resulted in a substantial improvement in the reliability and potability of the supply there. No significant improvements elsewhere have been identified.	Electricity supplied by UNELCO under its various concessions has gained an excellent reputation for technical quality and reliability. UNELCO emphasizes renewable energy in the generation mix, and aims to displace 25 percent of diesel generation with renewables by 2010. Renewable energy options include hydro (in Santo), coconut oil, wind, and biomass. There is a wind turbine operating near Port Vila now, and UNELCO plans to install 9 more before 2010.	None identified.	The private sector is operating effectively in the ports sector in Port Vila, providing both quality services and direct investment (and an expressed desire to invest more).	None identified.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Inhibiting Factors	<p>TVL has historically been slow to introduce technical innovation. TVL is firm in its opinion that competition would be unfair to TVL and would violate existing agreements.</p> <p>International communications are entirely by satellite; TVL maintains that linking to fiber cable would be prohibitively expensive. Services could be improved by increasing satellite bandwidth but TVL states their only option would be Intelsat and they are already buying all the bandwidth that they can afford. There appears to be little more that TVL can or is willing to do on its own to improve services or lower costs.</p>	<p>For users outside of Port Vila, the water supply is poorly established, poorly maintained, not treated, and not potable. The reliability of supply or health issues related to the supply outside of Port Vila are not known.</p>	<p>Vanuatu does not appear to place much emphasis on rural electrification; apart from the gradual concession-oriented approach exemplified by the concessions for Malekula and Tanna awarded to UNELCO in 1992.</p> <p>There would seem to be scope for a fresh look at rural electrification and an investigation of modern technical and institutional options.</p> <p>At present, UNELCO is the sole private sector contractor active in the power sector. It is desirable that competitive conditions in the sector are enhanced and that additional entities enter the market, even as IPPs selling bulk power to the concessionaire of the day.</p>	<p>There is little or no outsourcing of roads maintenance.</p> <p>The fundamental issue appears to be lack of government awareness of the strategic importance and priority of roads.</p>	<p>Though the Port Vila port is operating well, the port in Santo is not, though services there too are under a private sector contract. The service contracts in question in both locations are longstanding and are not competitive. Maintenance in the commercial ports in the Vanuatu context is a matter of adequate supervision and enforcement of contracts.</p> <p>In the outer islands, the difficulties of maintaining many small remote ports has resulted in a large number of ports in very poor condition. Ports facilities on some outer islands are not well developed in any case. Future development (e.g., through tourism) on the islands will, in many cases, require considerable investment to expand the capacity of these ports.</p>	<p>No formal strategic thinking from the government about how this sector should operate or the level of service that should be provided. Private sector entry into the shipping market has been unrestricted (largely to provide cargo and passenger services to vessel owners rather than the wider public) and is largely not commercially viable.</p> <p>90 percent of the domestic shipping vessels in Vanuatu are old, unseaworthy and uninsurable.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Regulatory Challenges	<ul style="list-style-type: none"> A Bill will soon go to parliament providing for multisector regulation, including telecom, to be housed within MFEM. With impending liberalization of the telecom market, the provisions for telecom regulation need to be reviewed, as the scope will now exceed monitoring TVL's contract. 	<ul style="list-style-type: none"> There is presently no independent regulatory capacity for the water sector in Vanuatu although, as mentioned the urban sector will come under new regulation under a Bill now before parliament. The water supply outside of Port Vila remains unregulated. An autonomous rural water sector service should be created. Tariff arrangements would be finalized under a comprehensive CSO policy as proposed under telecoms, and the service come under the multi-sector regulator. 	<ul style="list-style-type: none"> As described above in section 2.7, a Bill will soon go to parliament providing for multisector regulation, including power. Regulation will have to adapt to changing market conditions, both as rural electrification gradually expands and as the concession agreements expire and are either renewed or otherwise, or as IPPs express interest in supplying urban or rural markets (especially desirable if they offer to supply renewable energy technology). 	<ul style="list-style-type: none"> Roads performance and quality standards monitoring is presently absent; this will inhibit government confidence in any proposed roads maintenance budget; There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing; the PWD should gradually assume mainly a contracting and performance monitoring role. 	<ul style="list-style-type: none"> For the outer islands, ports performance and quality standards monitoring is, for all intents and purposes, not present. The PWD does not possess tools of port asset management; There is no defined Community Service Obligations Policy with respect to ports. Supervision of ports services contracts by the Ports Authority is evidently not adequate to ensure good performance, as shown by the port in Santo. There is potential for outsourcing for ports O&M in the outer islands, using the experience in the commercial ports. If this were to occur, the Ports Authority should take over direct oversight responsibility for the outer islands ports. 	<p>Enforcement of maritime safety to protect the public is paramount but has so far failed, as it results in a shut-down of services;</p> <p>Tariffs are not regulated but are highly competitive. There is a clear need to rationalize the domestic shipping sector to make routes financially viable with more reliable vessels. Restricting entry will have the effect of raising tariffs, and a contribution from government in the form of subsidies under a CSO policy will be needed.</p>

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Complete legal processes establishing the right of the government to liberalize the telecom sector (issue competitive licenses); • Implement multi-sector regulation as per the Bill before parliament; • Design and implement an appropriate CSO policy for telecom and other key sectors including power, water, ports, and shipping; • Issue competitive licenses for mobile and fixed wireless phone services, and internet services; • Explore options to increase satellite access for international communications. 	<p>With reference to outer islands services:</p> <ul style="list-style-type: none"> • Define (i) the level of infrastructure services to be publicly supported in the outer islands, (ii) new investment needed, and (iii) a clear CSO policy covering all infrastructure sectors. • Outsourcing of outer islands infrastructure should be maximized. <p>With specific reference to the water supply:</p> <ul style="list-style-type: none"> • Improve the preparation of requested budgets for water supplies in the outer islands; • Introduce metering and prices; design an equitable tariff system; treat all public water supplies; measure, then reduce, water losses; establish an autonomous water service provider, or issue concession contracts to private sector entities. 	<ul style="list-style-type: none"> • Develop a Rural Electrification Master Plan; • Enhance competitive conditions in Vanuatu's power markets. 	<ul style="list-style-type: none"> • Raise awareness in government of the strategic importance of maintaining roads standards; • Establish an asset management system for roads throughout the country, to be operated and maintained by PWD for all national roads outside of the Municipalities; • Increase outsourcing for roads maintenance, on the Samoa model. 	<ul style="list-style-type: none"> • For key reforms needed to strengthen service delivery (including ports) to the outer islands, see section 3.8; • Outsourcing of outer islands infrastructure administration and maintenance should be maximized; • In the short term, increasing competition in the provision of services to the commercial ports (Port Vila and Santo) is probably not possible, but improved contract supervision and enforcement (and a review of the respective contracts' provisions) is needed to ensure a consistent high quality of performance. 	<ul style="list-style-type: none"> • A top-to-bottom sector review is needed to determine a sustainable strategy to provide safe commercially-viable domestic shipping services; regulation of entry and tariffs and a CSO policy will be required. • For key reforms needed to strengthen service delivery (including shipping) to the outer islands, see section 3.8; • Repair and rehabilitation of the maritime nav aids system is urgently required.

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> • MFEM to pursue ongoing processes related to market liberalization and regulation in the telecoms sector; the issue of competitive licenses for wireless communications could commence immediately upon legal affirmation of the government's right to do this; • Develop a sound policy regarding Community Service Obligations in the telecoms, ports, shipping, power, and water sectors; • Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to increase satellite capacity over the Pacific. Also, explore cooperative cabling options. 	<ul style="list-style-type: none"> • Review, and upgrade as required, the procedures for reporting expenditures on water supply O&M by the PWD to the MFEM; • Conduct a comprehensive sector review with recommendations that meet the key priorities for action outlined above (section 3.8). • Following the design of the investment program for water treatment and upgrade of distribution systems as required (including customer metering), arrange for loan or private sector finance as appropriate. 	<ul style="list-style-type: none"> • Steps for generating a Rural Electrification Master Plan for implementation are described in section 4.9; • Prepare a competitive tender for the concession in Santo when it expires in 2011; invite potential IPPs to express interest in supplying any of Vanuatu's power markets (No TA support required). 	<ul style="list-style-type: none"> • Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the PWD to the MFEM; • Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) within PWD similar to the system used in PNG and other countries; • Identify and periodically update annual maintenance requirements; prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision; identify gaps in job functions and skills in road maintenance and provide training; arrange periodic internal workshops to ensure that PWD staff have a clear understanding of their roles. 	<ul style="list-style-type: none"> • For approaches to strengthen service delivery (including ports) to the outer islands, see above section 3.9; • Conduct a review of the existing contracts for commercial ports services; assess weaknesses or gaps in the contract provisions and means for contract enforcement. Examine specific management issues of the Santo port; • Encourage outsourcing in the outer islands ports sector by advertising invitations to express interest and to bid on O&M services (utilizing the experience of the commercial ports); assess the option of transferring outer islands ports to the direct management of the Ports Authority, to better integrate contract management. 	<ul style="list-style-type: none"> • For key reforms needed to strengthen service delivery (including shipping) to the outer islands, see above section 3.9; • Under the auspices of the VMA, assess the current state of the maritime navais system throughout Vanuatu and prepare a rehabilitation project, upgrading technology as required to meet modern shipping needs. • Arrange finance and implement the navais rehabilitation project (end 2009).

2 Telecoms

2.1 Sector Structure and Service Quality

Telecom Vanuatu Ltd (TVL) is presently the monopoly telecom service provider in the country, providing landlines, mobile services, and internet services, and microwave voice and data links to the larger outer islands. TVL is owned 1/3 by Telecom France, 1/3 by Cable and Wireless, and 1/3 by the Vanuatu Government. TVL holds an exclusive license that runs to 2012, at which time it can either be renewed or it can be terminated upon government purchase of TVL's assets. Telephone service penetration is limited largely to Efate and Luganville (Santos). Other islands are linked to the network by microwave but the number of handsets on these islands is quite small. TVL is planning a VT180m (US\$1.8 million) investment in upgrading the microwave relay system to the outer islands this year, and intends to provide mobile coverage to 76% of the population by 2010. TVL has experimented with WiMax technology in Port Vila (it worked well) but it is not clear how or if they intend to use it.

2.2 Community Service Obligations

There are no defined community service obligations in the telecom sector.

2.3 Regulatory Arrangements

There is no telecom regulator at present in Vanuatu, and much of the fate of the sector is in the hands of the courts. In 2006, TVL filed legal action against a decision by the Minister for Public Utilities to grant a license to Pacific Data Solutions Ltd to conduct interactive gaming services in Vanuatu in 2005. In 2006, TVL lost the case and appealed to the Supreme Court; in April 2007, TVL lost the appeal. The Court's decision included the finding that the Government is now free to issue telecom licenses to telecom operators in competition with TVL. Though legal contention continues, the government is firm in its intention to open the telecom market. Digicel and a Chinese telecom company have reportedly registered interest in licenses.

On a more general note, the Ministry of Finance and Economic Management (MFEM) and the Ministry of Lands (MoL) are driving regulatory and market reform in Vanuatu. Bills have been prepared and will be presented to parliament in 2007 to establish a regulatory authority covering water supply, electricity, and telecoms; and the existing Government Business Enterprise Unit, which currently provides limited supervision of State Owned Enterprises (SOEs), will be re-established as a Public Enterprise Unit with broader powers and firmer legal footing. Regulatory authority will initially be placed under the MFEM.

2.4 Maintenance Issues

There are no significant maintenance issues in the telecom sector.

2.5 Key Initiatives Leading to Service Delivery Improvements to Date

TVL claims that international calling rates have decreased by 45% since 2001 (though rates are still very high by international standards). Otherwise, the 'promise' of improved service delivery in telecoms in Vanuatu lies in efforts to liberalize, and regulate, the sector, which are ongoing.

2.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

TVL, the telecom monopoly, has historically been slow to introduce technical innovation that might reduce costs or investment in increased coverage. TVL strongly resists the market liberalization that the government intends to promote through legal means, as they claim they have considerable sunk costs in Vanuatu that would become obsolete or unprofitable in a competitive market. Under existing technology, Port Vila is the only profitable center, and according to TVL competition in Port Vila would greatly reduce or eliminate TVL's ability to service the outer islands. Other options that could work under competition, such as establishing a community service obligation fund to which competing companies in Port Vila would be required to contribute and thus provide resources to subsidize rural telecoms, were suggested as alternatives by the RETA. Nevertheless, TVL is firm in its opinion that competition would be unfair to TVL and would violate existing agreements.

International communications are entirely by satellite; TVL maintains that linking to the Southern Cross or any other fiber cable would be prohibitively expensive. TVL, with many other telecom companies in the Pacific, is locked in to a 15-year contract with Intelsat with another nine years to run; services could be improved by increasing satellite bandwidth but TVL states their only option would be Intelsat and they are already buying all the bandwidth that they can afford. There appears to be little more that TVL can or is willing to do on its own to improve services or lower costs.

2.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- A Bill will soon go to parliament providing for multisector regulation, including telecom, to be housed within MFEM. With impending liberalization of the telecom market, the provisions for telecom regulation need to be reviewed, as the scope will now exceed monitoring TVL's contract.

2.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Complete legal processes establishing the right of the government to liberalize the telecom sector (issue competitive licenses);
- Implement multi-sector regulation as per the Bill before parliament;
- Design and implement an appropriate CSO policy for telecom and other key sectors including power, water, ports, and shipping;
- Issue competitive licenses for mobile and fixed wireless phone services, and internet services;
- Explore options to increase satellite access for international communications.

2.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- MFEM to pursue ongoing processes related to market liberalization and regulation in the telecoms sector (no TA required, completion by end 2008); the issue of competitive licenses for wireless communications could commence immediately upon legal affirmation of the government's right to do this;
- Develop a sound policy regarding Community Service Obligations in the telecoms, ports, shipping, power, and water sectors: (TA required, completion by end 2008). For each sector,
 - Review business activities and identify activities or services that are not commercially sustainable as a separate business line or service.
 - Identify the amount of additional revenue each service provider would require (taking into account the benefits of shared overhead costs and scale and scope and factoring in an appropriate risk premium) to continue the non commercial business line or service. Specify the outputs and performance measures to be provided for the required additional revenue.
 - Prepare a report identifying the non-commercial activities and the cost to continue them, upon which the government will base decisions on which activities the government will continue to purchase or fund as CSOs.
 - The service providers in the affected sectors will negotiate with the MFEM the terms and conditions under which the service or business line would continue as CSOs.
 - Once the service providers and MFEM have agreed the details of the CSOs and costs/funding required, prepare a final report on the agreed position for government approval.
 - In implementing the CSO policy, the government will direct all SOEs not to undertake activities that are not funded under either as commercial activities or explicitly under a CSO.
- Through the auspices of PITA and relevant development partners, explore options and costs at the regional level to increase satellite capacity over the Pacific. Also, explore cooperative cabling options.

3 Water/ Sanitation

3.1 Sector Structure and Service Quality

The water sector in Port Vila is operated by UNELCO Suez, a private company that has been operating under a monopoly concession in Vanuatu for about 70 years, though its entry into the water sector dates only from the 1990s, under a concession that runs to 2014. UNELCO claims that the water supply in Port Vila is potable and government spokespersons have endorsed that. Water supply in all other locations (including Efate) is operated by the PWD, and is not potable.

3.2 Community Service Obligations

There are no defined community service obligations in the water sector.

3.3 Regulatory Arrangements

There is no country-wide regulation of the water sector. Traditionally (and presently) there is little government oversight of UNELCO's operations in water supply or power.

Regulation of UNELCO's water supply concession for Port Vila will be undertaken by MFEM under the new multi-sector regulatory capacity now being established (see above section 2.7). The regulatory functions will focus on management and supervision of the UNELCO concession agreement, which operates in a fashion similar to the concession agreements that UNELCO holds for power (see below). At the end of the concession, if the agreement is not renewed, UNELCO's assets will be transferred to the government, except that compensation will be expected for undepreciated assets (not market value). The existing concession agreement specifies a formula under which the tariff is calculated and quarterly adjusted.

The Ministry of Lands is developing a national water policy (under its Geology and Mines Division). The MoL administers water catchment protection under the Water Resources Management Act of 2002, and an Environmental Protection Act, also 2002.

3.4 Maintenance Issues

There are no significant maintenance issues in relation to the UNELCO-operated water supply in Port Vila. The water supply systems elsewhere in Efate and throughout the outer islands, the responsibility of the PWD, are reportedly in poor condition and receive only cursory maintenance.

3.5 Key Initiatives Leading to Service Delivery Improvements to Date

UNELCO's entry into the water sector in Port Vila reportedly resulted in a substantial improvement in the reliability and potability of the supply there. No significant improvements elsewhere have been identified.

3.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

For the population that lives outside of Port Vila, the water supply is poorly established, poorly maintained, not treated, and not potable. The reliability of supply or health issues related to the supply outside of Port Vila are not known.

3.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- There is presently no independent regulatory capacity for the water sector in Vanuatu although, as mentioned the urban sector will come under new regulation under a Bill now before parliament.
- The water supply outside of Port Vila, however, remains unregulated. Its status throughout the islands varies and is not well known. The initial focus should therefore be on reviewing rural water delivery throughout the country and identifying investment needs and gaps in operations and maintenance. Thereafter an autonomous rural water sector service should be created, either a new government corporatized entity or through concession agreement(s) with the private sector. Tariff arrangements under such a service would be finalized with reference to the comprehensive CSO policy as proposed above in sections 2.8 and 2.9, and the service would come under the multi-sector regulator.

Corporatization of outer islands roads, ports, water supply, and electricity services provides a compelling model to address poor service quality issues, by conferring on management higher degrees of autonomy, accountability, and incentives for improved performance. The concept of corporatization and its role in improving infrastructure services is discussed further in the working paper on regulation and governance.

3.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

With reference to outer islands services:

- The administration and maintenance of infrastructure by the PWD in the outer islands, including water, electricity, ports, and roads, is institutionally inadequate and under-resourced. A policy is needed to define (i) the level of infrastructure services that the government would like to support in the outer islands, (ii) the extent of new investment needed to support desired development in the outer islands, and (iii) a clear CSO policy for the outer islands covering each of the above infrastructure sectors.
- Outsourcing of outer islands infrastructure administration and maintenance should be maximized in order to assist the government to close the capacity gaps under present arrangements.

With specific reference to the water supply:

- Improve the preparation of reporting of expenditures on water supply O&M and of requested budgets for the maintenance of water supplies in the outer islands; prepare appropriate key performance indicators for the water supply sector and routinely report progress in meeting them;
- Introduce metering and prices where lacking, to improve the efficiency of consumption (bring consumers' demand decisions in line with the costs of supply);

- Design an equitable tariff system that recovers the cost of supply from users while protecting the interests of low-income consumers;
- Introduce treatment of the public water supply throughout the islands to protect the public health;
- Improve the efficiency of delivery (measure, then reduce, water losses);
- Establish an autonomous water service provider, or issue concession contracts to private sector entities, with authority to collect and expend revenues collected from users, to recruit, train, and compensate needed technical and management skills to improve and maintain the physical water treatment and delivery system.

3.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery in the water sector include the following, which could be accomplished over a two-year period, i.e., by the end of 2009. TA support required:

- Review, and upgrade as required, the procedures for reporting expenditures on water supply O&M by the PWD to the MFEM, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Conduct a comprehensive sector review with recommendations that meet the key reforms and transactions outlined above in section 3.8:
 - Design and cost an investment program to implement water treatment and bolster distribution as required throughout the outer islands;
 - Develop a sound CSO policy for such services based on the approach outlined above in section 2.9;
 - Implement demand metering on all consumers where lacking and collect consumption data over a one-year period;
 - Estimate water demand in each of the outer islands; identify consumers and classify them according to category (domestic, commercial, government) and quantify the current demand for water by each category; estimate post-tariff demand based on consumption patterns in neighboring countries;
 - Taking into account the full costs of operating a commercial-oriented corporatized water utility, design and implement a full cost recovery tariff, equitably apportioned to the identified consumer groups on the basis of cost of service, with adequate protections for low-income domestic consumers;
 - Conduct a comprehensive cost of water supply study in the outer islands; design an appropriate tariff for the outer islands with reference to the CSO policy outlined above in section 2.9;

- Draft appropriate legislation (perhaps with reference to the PNG and Fiji models) and complete establishment of a corporatized water utility or concession contracts covering water supply services throughout the Vanuatu outer islands.
- Following the design of the investment program for water treatment and upgrade of distribution systems as required (including customer metering), arrange for loan or private sector finance as appropriate.

4 Power

4.1 Sector Structure and Service Quality

The power sector is operated by UNELCO Suez, the same private company that operates the water supply system in Port Vila (see above). UNELCO held the first power concession for Port Vila more than 70 years ago. The power concession for Port Vila runs to 2031; UNELCO also operate concessions in Santo (2010), and in Malekula and Tanna (2022). The Malekula and Tanna operations are loss making and are cross-subsidized. The Port Vila and Santo operations are in the islands' urban areas only, extending about 15 km from the municipal boundaries. Electricity elsewhere in Vanuatu is extremely limited, often associated with institutions (e.g., aid posts and schools generating intermittently for their own use).

4.2 Community Service Obligations

There are no defined community service obligations in the power sector.

4.3 Regulatory Arrangements

At present, there is no regulation of the power sector. However, the Ministry of Lands is developing a national energy policy that includes electricity sector regulatory arrangements to be adopted by the regulatory authority within the MFEM. The regulatory functions will focus on management and supervision of the several UNELCO concession agreements. Similar to the Port Vila water supply concession, at the end of each concession, if the agreement is not renewed, UNELCO's assets will be transferred to the government, except that compensation will be expected for undepreciated assets (not market value). All existing concession agreements specify a formula under which the tariff is calculated and quarterly adjusted; the main adjustment factor is diesel fuel costs, but factors for labor costs, the exchange rate, and materials cost index are also included.

4.4 Maintenance Issues

There are no significant maintenance issues in the public power sector.

4.5 Key Initiatives Leading to Service Delivery Improvements to Date

Electricity supplied by UNELCO under its various concessions has gained an excellent reputation for technical quality and reliability. UNELCO emphasizes the introduction of renewable energy into the generation mix, and aims to displace 25 percent of diesel generation with renewables by 2010. Renewable energy options include hydro (in Santo), coconut oil, wind, and biomass. There is a wind turbine operating near Port Vila now, and UNELCO plans to install 9 more before 2010. In Santo, an experiment is being conducted with one electrically isolated community, whereby UNELCO will design and build a coconut oil processing plant and fuel specially modified diesel engines to burn 100% coconut oil. Under the arrangement, electricity consumers, who are metered on a pre-pay card-operated system, will be allowed to pay for electricity either with cash, or coconuts delivered to the mill, or both.

4.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Vanuatu does not appear to place much emphasis on rural electrification; apart from the gradual concession-oriented approach exemplified by the concessions for

Malekula and Tanna awarded to UNELCO in 1992. This may be a deliberate decision about the appropriate allocation of resources to national development; nevertheless there would seem to be scope for a fresh look at rural electrification and an investigation of modern technical and institutional options. Renewable energy technology development and application (including in the Pacific) has significantly advanced from what it was in 1992.

At present, UNELCO is the sole private sector contractor active in the power sector. As the concession agreements expire and services expand throughout the country, it is desirable that competitive conditions in the sector are enhanced and that additional entities enter the market, even as IPPs selling bulk power to the concessionaire of the day.

4.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- As described above in section 2.7, a Bill will soon go to parliament providing for multisector regulation, including power, to be housed within MFEM. Power sector regulation initially will comprise close monitoring of the UNELCO's performance under its various concession agreements, but regulation will have to adapt to changing market conditions, both as rural electrification gradually expands and as the concession agreements expire and are either renewed or otherwise, or as IPPs express interest in supplying urban or rural markets (especially desirable if they offer to supply renewable energy technology).

4.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Develop a Rural Electrification Master Plan;
- Enhance competitive conditions in Vanuatu's power markets.

4.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For generating a Rural Electrification Master Plan for implementation (TA support required, for completion by end 2008):
 - Ensure continuous consultation and dialogue with all stakeholders, including in particular Ministry of Finance & Economic Management, Department of Lands, and the Ministry of Infrastructure and Public Utilities.
 - Conduct wider stakeholder workshops to disseminate work progress and receive feed-back on proposals; arrange for an experienced leader of a successful rural electrification program/rural electrification fund to present institutional and implementation aspects, financing options, private sector participation, and lessons learnt.

- Ascertain government objectives for rural electrification; identify progress and gaps in rural electrification development. Review Energy Plan developed by the Department of Lands and relevant legislation; assess gaps in the delivery of electrification services in rural areas under current programs, institutional arrangements and policy;
 - Provide benchmark indicators for rural electrification to show progress over time;
 - Assess the existing policy and criteria for grid-extension (if any); prepare a detailed budget outlining capital, operations and maintenance costs providing for extensions of the grid from existing urban networks;
 - Prepare a rural demand forecast for electricity consistent with government objectives for extending services to rural areas;
 - Assess affordability of poor households to overcome up-front costs and ability to pay cost recovery tariffs; assess subsidy requirements; determine whether existing arrangements for addressing connections for the rural poor are sufficient, particularly with reference to MFEM policy regarding CSOs;
 - Outline the legal, institutional and financing arrangements and management procedures of best-practice rural electrification in Vanuatu; prepare a time-bound implementation plan for implementation clearly identifying the steps to be taken by various stakeholders; prepare feasible costed master plan scenarios to sustainably electrify rural areas;
 - Prepare an assessment of the potential of establishing a rural electrification fund under a semi-autonomous Board of Directors; recommend an appropriate composition of the Board of Directors and define its roles and functions;
 - Conduct workshops for all stakeholders to discuss the proposed institutional and implementation arrangements and the rural electrification strategy; revise the strategy as appropriate for consideration by Government and Cabinet.
- Prepare a competitive tender for the concession in Santo when it expires in 2011; invite potential IPPs to express interest in supplying any of Vanuatu's power markets (No TA support required).

5 Roads

5.1 Sector Structure and Service Quality

The urban road networks are the responsibility of the respective Municipalities. The national roads sector is the responsibility of the PWD, a non-corporatized government department. Sealed roads in Vanuatu are restricted to within a short radius of the urban centers of Port Vila and Luganville (Santo); all other roads, including the Efate ring road, are gravel. Many of the smaller outer islands have no roads.

5.2 Community Service Obligations

There are no defined community service obligations in the roads sector.

5.3 Regulatory Arrangements

There is no regulation of the roads sector, nor even any capacity to keep track of road assets, monitor their condition, or plan for their rehabilitation, maintenance, or extension.

5.4 Maintenance Issues

There appear to be no significant maintenance issues with respect to the urban roads networks under the management of the respective Municipalities.

Elsewhere, the PWD has assessed the annual maintenance requirement for roads at VT1.2 billion (US\$12 million), but the allocation for maintenance is only VT60 million (US\$0.6 million), about 5% of the assessed need. Maintenance is reactive, roads are deteriorating and the poor state of the sector is a prime national issue. The Millennium Challenge Account (MCA), a US-funded infrastructure assistance program, has reportedly allocated funds for the purchase of new equipment with which to conduct roads rehabilitation and new road construction, but the details of this are not available. The MCA reportedly will not support the annual roads maintenance budget.

5.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

5.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There is little or no outsourcing of roads maintenance. A pooling of roads user charges (fees and fuel taxes) under an LTA-type arrangement might be effective in increasing the resources available for roads maintenance, and might help to create the market conditions needed for outsourcing maintenance, but the fundamental issue appears to be lack of government awareness of the strategic importance and priority of roads.

5.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Roads performance and quality standards monitoring is presently absent (the tools of asset management do not exist in the PWD), and this will inhibit government confidence in any proposed roads maintenance budget;
- There is a need for increased budget and direct maintenance shifting to the private sector through outsourcing; the PWD should gradually assume mainly a contracting and performance monitoring role.

5.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- Raise awareness in government of the strategic importance of maintaining roads standards;
- Establish an asset management system for roads throughout the country, to be operated and maintained by PWD for all national roads outside of the Municipalities;
- Increase outsourcing for roads maintenance, on the Samoa model.

5.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following, to be accomplished by the end of 2008 (TA support required):

- Review, and upgrade as required, the procedures for reporting expenditures on roads maintenance by the PWD to the MFEM, to include progress in meeting key performance indicators. Prepare periodic budget requests to include expected progress in meeting the key performance indicators against the budget requested and allocated;
- Develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and other countries; categorize roads by type and use; and prepare a manual for operation and maintenance of the asset register and roads maintenance management system; the asset management system outside of the Municipalities would be operated and maintained by PWD;
- Identify annual maintenance requirements per km for each type of road;
- Periodically update the assessment of the aggregate annual maintenance requirement of all roads under public sector management in the outer islands;
- Prepare a manual for road maintenance project specification, contract tendering and contract administration and supervision;
- Taking account of the institutional structure and resource requirements of the road maintenance entities within the PWD, identify gaps in job functions and skills to fill their required roles (including in relation to contracting and supervision), and identify ongoing training resources, including twinning arrangements and short internal and external courses to meet training needs;

- Arrange periodic internal workshops to ensure that PWD staff have a clear understanding of their roles and are properly applying the procedures of asset management and contract supervision.

6 Ports

6.1 Sector Structure and Service Quality

Commercial ports in Vanuatu, Port Vila and Santo, are the responsibility of the non-corporatized Department of Ports and Harbours (also called the Ports Authority) of the Ministry of Infrastructure and Public Utilities (MIPU). There are two ports in Port Vila: (i) the main wharf takes international cargoes and cruise ships, and is owned by the Ports Authority with all services contracted to a private company, Ifira Stevedoring Co; and (ii) a domestic wharf, owned outright by Ifira and operated by them as a commercial enterprise.

Ports in all other outer islands, none of which is operated commercially, are the responsibility of the PWD (also under MIPU). These are generally in poor condition. Commercial ports operations are entirely outsourced.

6.2 Community Service Obligations

There are no defined community service obligations in the ports sector.

6.3 Regulatory Arrangements

Ports fees are specified in the enabling legislation for Ports and Harbours, and may be changed by the Minister of Infrastructure and Public Utilities. The ports sector is not otherwise regulated.

6.4 Maintenance Issues

The private contractors for commercial ports operations are: NISCO (Northern Islands Stevedoring Co) has a long term contract to operate the Santo port and Ifira Stevedoring Co has a similar contract to operate the main wharf at Port Vila. The Santo port is in a run-down condition and, according to the government, the contractor is not performing satisfactorily. The Port Vila port, however, is in good condition and is operating well.

6.5 Key Initiatives Leading to Service Delivery Improvements to Date

The private sector is operating effectively in the ports sector in Port Vila, providing both quality services and direct investment (and an expressed desire to invest more). The Ifira Stevedoring Co is part of a community-owned conglomerate that engages in ports operations, land management, shipping (agents), and several other activities. Ifira is an island with a population of some 1200; the community founded the Ifira Group of Companies some 30 years ago. Ifira is the first instance of such a community-owned commercial operation that the team has encountered so far in the Pacific.

6.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

Though the Port Vila port is operating well, the port in Santo is not, though services there too are under a private sector contract. The service contracts in question in both locations are longstanding and are not competitive. Maintenance in the commercial ports in the Vanuatu context is a matter of adequate supervision and enforcement of contracts – more opportunities to bid these services competitively would also help to lower costs and improve performance.

In the outer islands, ports are under the management responsibility of the PWD. The difficulties of maintaining many small remote ports has resulted in a large number of ports in very poor condition. However, ports facilities on some outer islands are not well developed in any case. Future development (e.g., through tourism) on the islands will, in many cases, require considerable investment to expand the capacity of these ports.

6.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- For the outer islands, ports performance and quality standards monitoring is, for all intents and purposes, not present. The PWD does not possess tools of port asset management;
- The PWD does not appear to have capacity to design a schedule of equitable ports fees (none charged at present). There is no defined Community Service Obligations Policy with respect to ports.
- Supervision of ports services contracts by the Ports Authority is evidently not adequate to ensure good performance, as shown by the port in Santo.
- There is potential for outsourcing for ports O&M in the outer islands, using the experience in the commercial ports. If this were to occur, the Ports Authority should take over direct oversight responsibility for the outer islands ports, so that services could be tendered and supervised together and to a consistent standard.

6.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- For key reforms needed to strengthen service delivery (including ports) to the outer islands through the PWD, see above section 3.8;
- Outsourcing of outer islands infrastructure administration and maintenance should be maximized in order to assist the government to close the capacity gaps under present arrangements.
- In the short term, increasing competition in the provision of services to the commercial ports (Port Vila and Santo) is probably not possible, but improved contract supervision and enforcement (and possibly a review of the respective contracts' provisions) is needed to ensure a consistent high quality of performance.

6.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For approaches to strengthen service delivery (including ports) to the outer islands, see above section 3.9;

- Conduct a review of the existing contracts for commercial ports services (Port Vila and Santo); assess weaknesses or gaps in the contract provisions and means at the Port Authority's disposal for contract enforcement. Examine the specific management issues of the Santo port and formulate recommendations to address them based on the review (mid 2008, no TA support required).
- Prepare to encourage outsourcing in the outer islands ports sector by advertising invitations to express interest and to bid on O&M services (utilizing the experience of the commercial ports). If there is significant interest from the private sector, assess the option of transferring outer islands ports to the direct management of the Ports Authority, to better integrate contract management. No TA support required.

7 Shipping

7.1 Sector Structure and Service Quality

Domestic shipping service in Vanuatu is 100% privately operated. There are 20 private shipping companies (generally with one 20-passenger vessel each), and two government-owned vessels of about 70 passengers each, but these are operated and maintained by private companies. All inhabited islands are served.

7.2 Community Service Obligations

There are no defined community service obligations in the shipping sector.

7.3 Regulatory Arrangements

Domestic shipping tariffs are not regulated. The Vanuatu Maritime Authority (VMA) is responsible for the regulation of maritime safety, including navigation and search and rescue, and the control of marine pollution. The VMA monitors and regulates the seaworthiness of vessels for domestic shipping.

Search and rescue is conducted entirely through Noumea as there is no local capacity to respond to maritime distress. Search operations in Vanuatu waters are carried out by the French navy based in New Caledonia. Apparently the system is working satisfactorily, but the VMA needs a plan for action if cooperation with Noumea is for any reason interrupted.

VMA is also responsible for the maritime nav aids system. The system is in advanced disrepair as the government allocation for nav aids maintenance is well below needs. VMA reports that requests for higher allocations to nav aids have been repeatedly denied.

7.4 Maintenance Issues

Though the sector is operated entirely by the private sector, maintenance of vessels has been chronically poor, leading to unseaworthiness of the majority of the fleet (see below). Investment in the sector also appears to be very low. There is free entry into the markets and all routes; low fares (highly competitive) discourage investment, asset maintenance, or upgrade of services.

7.5 Key Initiatives Leading to Service Delivery Improvements to Date

None identified.

7.6 Key Factors Inhibiting Improvements in Service Quality and Capacity

There has been no formal strategic thinking from the government about how this sector should operate or the level of service that should be provided. Private sector entry into the shipping market has been unrestricted (largely to provide cargo and passenger services to vessel owners rather than the wider public) and is largely not commercially viable.

Apart from the government-owned vessels, which are about 2 years old, 90 percent of the domestic shipping vessels in Vanuatu are old, unseaworthy and uninsurable. In January 2007, in accordance with IMO procedures, the government impounded the unseaworthy vessels and banned them from service unless they were restored to

an acceptable standard and became insurable. As this had the effect of virtually stopping domestic shipping services, the government allowed them back into service as long as the vessel owner was prepared to accept full liability and risk. All of the impounded vessels are thus now back in service, but it is nearly certain that no vessel owner can, in fact, accept such liability and that losses, when they occur, will be absorbed by the public.

7.7 Key Regulatory Challenges

Key regulatory challenges facing the sector include the following:

- Enforcement of maritime safety to protect the public is paramount but has so far failed, as it results in a shut-down of services;
- Tariffs are not regulated but are highly competitive. There is a clear need to rationalize the domestic shipping sector, in order to make routes financially viable with more reliable vessels. At a minimum, this will require direct market regulation (restricting entry to routes and issuing licenses, as is being done in Fiji) and thus improvement in the enabling conditions for private sector investment in new shipping capacity. Restricting entry will have the effect of raising tariffs, and a contribution from government in the form of subsidies under a CSO policy will be needed.

7.8 Priorities for Improving Service Delivery

The key reforms and transactions needed to further improve service delivery include the following:

- A top-to-bottom sector review is needed to determine a sustainable strategy to provide safe commercially-viable domestic shipping services; regulation of entry and tariffs and a CSO policy will be required. This should be carried out in the context of a comprehensive review of service policy to the outer islands, in which these elements are included. For key reforms needed to strengthen service delivery (including shipping) to the outer islands, see above section 3.8;
- Repair and rehabilitation of the maritime nav aids system is urgently required.

7.9 Proposed Strategy for Achieving the Reform Priorities Above

Proposed approaches for achieving the reforms to meet the priorities for improving service delivery include the following:

- For key reforms needed to strengthen service delivery (including shipping) to the outer islands, see above section 3.9;
- Under the auspices of the Vanuatu Maritime Authority, undertake a detailed assessment of the current state of the maritime nav aids system throughout Vanuatu and prepare a rehabilitation project, upgrading technology as required to meet modern shipping needs. (Project preparation TA required; completion by end-2008).
- Arrange finance and implement the nav aids rehabilitation project (end 2009).

8 Annex: Country Consultation Report

VANUATU

The RETA Team visited Port Vila from 9 through 13 April. Discussions were held with (not in order):

- Ministry of Financial and Economic Management (Economic Planning, Budgets, SOE oversight)
- Ministry of Lands (including Geology and Mines, Energy, and Environment)
- Ministry of Infrastructure and Public Utilities (including Works (roads, buildings, outer island airstrips and ports), Civil Aviation, Ports & Harbours, Meteorology)
- Vanuatu Tourism Office
- Tourism Development Office
- Vanuatu Maritime Authority
- Millennium Challenge Account (MCA)
- Municipality of Port Vila
- Air Vanuatu
- Airports Vanuatu Ltd
- UNELCO Suez
- Ifira Land Management (includes private sector ports services)
- Telecom Vanuatu Ltd (TVL)
- NZAid
- AusAid

Highlights

In the past, the rapid political turnover of governments had hindered reform processes as, though policies had been formulated, few had a chance to “settle” and be taken up for implementation. As the political climate in Vanuatu is stabilizing, the Ministry of Finance and Economic Management (MFEM) and the Ministry of Lands (MoL) are driving regulatory and market reform in Vanuatu. Bills have been prepared and will be presented to parliament in 2007 to establish a regulatory authority covering water supply, electricity, and telecoms; and the existing Government Business Enterprise Unit (see below), which currently provides limited supervision of State Owned Enterprises (SOEs), will be re-established as a Public Enterprise Unit with broader powers and firmer legal footing. Regulatory authority will initially be placed under the MFEM. With SOPAC assistance, the MoL is developing a national water policy (under its Geology and Mines Division), and a national energy policy that includes electricity sector regulatory arrangements to be adopted by the regulatory authority. The MoL administers water catchment protection under the Water Resources Management Act of 2002, and an Environmental Protection Act, also 2002.

In 2006, the monopoly telecom provider, Telecom Vanuatu Ltd (TVL) filed legal action against a decision by the Minister for Public Utilities to grant a license to Pacific Data Solutions Ltd to conduct interactive gaming services in Vanuatu in 2005. In 2006, TVL lost the case and appealed to the Supreme Court; in April 2007, TVL lost the appeal. The Court’s decision included the finding that the Government is now free to issue telecom licenses to telecom operators in competition with TVL. Though legal contention continues, the government is firm in its intention to open the telecom market. Digicel and a Chinese telecom company have reportedly registered interest in licenses.

The Millennium Challenge Account (MCA) is the local office, currently housed within MFEM, charged with managing a US\$65 million grant from the US-based Millennium

Challenge Corporation, which will be largely focused on infrastructure investment. Investments identified so far mainly address transport, including upgrade of the Efate ring road and rehabilitation of outer island airstrips, wharves, and warehouses. Despite repeated attempts, it was not possible for the RETA team to meet with the MCA, though the project manager did attend the opening meeting. Through the team's other consultations, it is apparent that most government and private stakeholders in infrastructure are not well informed of the Millennium Challenge project or how it operates. As the project will make a substantial contribution to infrastructure investment overall in Vanuatu, further integration and coordination between the project and government planners and sector leaders is desirable.

The Vanuatu Tourism Office conducts marketing and promotion activity domestically and overseas, while the National Tourism Development Office is responsible for policy, planning, and product development. Vanuatu receives about 68,000 overseas arrivals annually by air and a further 75,000 annually by cruise ship; however, the latter spend on average only 1 day in Vanuatu whereas the air passengers' average stay is more than 8 days. The national goal is to increase total arrivals from both sources to 200,000 per annum by 2010, which on present growth rates is achievable. Sixty percent of the tourist market presently comes from Australia; marketing efforts are focused strongly on N America and Europe. In common with many other countries in the Pacific, tourism is the leading economic growth sector in Vanuatu.

Lack, or poor quality, of infrastructure outside of the main urban centers in Efate and Santo is a prime constraint on tourism. Airstrips and ports facilities in the outer islands are in poor repair, and roads often do not exist. Telecommunications are not presently widespread in the outer islands (though many islands are served, it is often through one or two public call boxes) and cargo supply arrangements are intermittent. Rural telecommunications might be greatly improved by use of WiMax technology, as has been successful in other countries. Though the tourism potential of the outer islands is great, it will take a coordinated and incremental program of investment in infrastructure matched by investment in tourism facilities to develop the markets in the outer islands.

The main point of entry by air is Port Vila. The Port Vila airport cannot take long range aircraft such as the 747, and even a 767 can only be 60 percent loaded before takeoff. The Government recognizes the need to upgrade (or replace) the current airport to cater for long range aircraft and access new tourist markets in America, Europe, and Asia, and has been thinking of upgrading to cater for 747s. However, service by 777 aircraft, long range but lighter than a 747, would permit access to new markets with a smaller airport upgrade investment requirement.

Shipping services need to be greatly improved to serve domestic traffic (see below), but the tourism development authorities recognize good potential also for upgraded ferry services, similar to the Blue Lagoon service in Fiji, to take advantage of a growing tourism market.

The Government Business Enterprise Unit (GBEU) was established in 1998, apparently on an ad-hoc basis as it presently has no legal framework. With two staff to oversee all State Owned Enterprises (SOEs), its role is limited largely to monitoring performance against the SOEs' respective Enabling Acts. A Bill is now before parliament to replace the GBEU with a Public Enterprise Unit with broader (and deeper) SOE oversight responsibilities and more resources.

Upon its establishment in 1998, the GBEU was directed to privatize all SOEs, and a Privatization Process Paper was prepared in 2002 to support this. However, though it remains in place, the policy has never been pushed due to frequent political changes. According to the GBEU manager, the current Government does not place high priority on the privatization of SOEs.

The Ministry of Lands (MoL) has developed a National Energy Policy through its Energy Management Unit, assisted by SOPAC. The energy regulatory features of the policy, including supervision and management of the UNELCO electricity supply concession agreements, will be administered by MFEM under a Bill going to parliament in June 2007. Though housed within MFEM, the regulatory authority would operate independently. The MoL will continue with policy responsibility for energy. At the request of the Government, a Rural Electrification (RE) Master Plan was prepared by UNELCO in 2006, providing an analysis of renewable energy-based RE potential in the outer islands and an analysis of costs. The Government, however, does not currently support a time-bound electrification goal. MoL's priority is to review all existing and emerging policies and regulatory arrangements pertaining to energy, water, and the environment to ensure good integration and coordination of administration.

A World Bank mission is due to arrive in Port Vila during the last week of April and first week of May to conduct a review of the RE Master Plan, output-based approaches to subsidizing rural services, and the setup of the multisector regulatory arrangements within MFEM.

The Municipality of Port Vila maintains the urban road network, provides for rubbish collection and operation of a municipal landfill, and maintains public buildings. Police and Fire protection are national functions. Port Vila is the only Municipality in Vanuatu that is not subsidized by the Government, and claims (controversially) that revenues from property taxes are not sufficient for the municipal operations and maintenance work that needs to be done. The landfill is reportedly well constructed and environmentally sound, though no recycling or other forms of waste reduction are carried out. The Municipality receives no formal financial supervision from national Government.

Forty percent of Air Vanuatu's revenues come from domestic services between Efate and the outer islands. Domestic air traffic (passengers and cargo) is reported to be growing at 15% per year. Of the 26 outer island airstrips (not including Tanna and Santo), Air Vanuatu claim that 8 are profitable, 8 are break even, and 10 are loss-making and cross-subsidized. With continued growth in domestic demand, Air Vanuatu expects that 15 airstrips will be profitable in the near future. The interest of the national airline in maintaining and expanding domestic operations is notable. Air Vanuatu is 100% government owned.

To keep domestic operations going, Air Vanuatu undertakes substantial repair and maintenance work on the 26 outer island airstrips and terminal buildings, many of which are in advanced disrepair. (Three airstrips in the northern islands are being upgraded with French assistance.) PWD has formal responsibility for maintenance, but does not carry it out due to lack of funds. Also, Airports Vanuatu Ltd (AVL), which operates the airports in Port Vila, Tanna, and Santo, is a commercial authority and is not statutorily bound to maintain airports and terminals in any other outer islands.

Air Vanuatu has daily flights in and out of Vanuatu. The government has encouraged overseas airlines to service Vanuatu routes as well: Virgin Blue has 2 return flights per week, Air Pacific 1 flight, Air Caledonie 2 flights, Air New Zealand 1 flight, and Air Solomons 1 flight.

The Vanuatu Maritime Authority (VMA) is responsible for the regulation of maritime safety, including navigation and search and rescue, and the control of marine pollution. The VMA monitors and regulates the seaworthiness of vessels for domestic shipping.

Domestic shipping service in Vanuatu is 100% privately operated. There are 20 private shipping companies (generally with one 20-passenger vessel each), and two government-owned vessels of about 70 passengers each, but these are operated and maintained by private companies. Apart from the government-owned vessels, which are

about 2 years old, 90 percent of the domestic shipping vessels in Vanuatu are old, unseaworthy and uninsurable. In January 2007, in accordance with IMO procedures, the government impounded the unseaworthy vessels and banned them from service unless they were restored to an acceptable standard and became insurable. As this had the effect of virtually stopping domestic shipping services, the government allowed them back into service as long as the vessel owner was prepared to accept full liability and risk. All of the impounded vessels are thus now back in service, but it is nearly certain that no vessel owner can, in fact, accept such liability and that losses, when they occur, will be absorbed by the public.

Tariffs are not regulated but are highly competitive. There is a clear need to rationalize the domestic shipping sector, in order to make routes financially viable with more reliable vessels. At a minimum, this will require direct market regulation (restricting entry to routes and issuing licenses, as is being done in Fiji) and thus improvement in the enabling conditions for private sector investment in new shipping capacity. Restricting entry will have the effect of raising tariffs, and a contribution from government in the form of subsidies to unprofitable routes may be desirable.

Search and rescue is conducted entirely through Noumea as there is no local capacity to respond to maritime distress. Search operations in Vanuatu waters are carried out by the French navy based in New Caledonia. Apparently the system is working satisfactorily, but the VMA needs a plan for action if cooperation with Noumea is for any reason interrupted.

VMA is also responsible for the maritime nav aids system. The system is in advanced disrepair as the government allocation for nav aids maintenance is well below needs. VMA reports that requests for higher allocations to nav aids have been repeatedly denied.

The Governance for Growth project, funded by AusAid at A\$50 million over ten years, began early in 2007, and focuses on poverty and growth issues, and institutional and policy reform. Initial activities include support for introducing competition in the telecom sector by funding the government negotiating/licensing team, supporting implementation of new regulatory arrangements that have been developed for the power sector, assisting the government to conduct due diligence for the potential overseas sale of a minority share of Air Vanuatu, and reviewing the effectiveness of the Sarakata Hydro Fund (SHF).

The SHF was a scheme developed in the 1990s when a hydro power station was constructed in Santo with Japanese assistance, and handed over to UNELCO for operation and maintenance. Though the operating costs of the hydro station are low compared to diesel, UNELCO charges Santo residents the same tariff charged in Port Vila (a 100% diesel system); the excess revenues generated are deposited in the SHF, for use in developing rural electrification on other islands. This is a good example of a mechanism to handle a community service obligation. The Governance for Growth program will review the effectiveness of the Fund's investments in rural electrification.

Airports Vanuatu Ltd (AVL) was corporatized in 1999, in conjunction with an EIB-funded runway upgrade project. The Board of Directors has mainly private sector representatives, but includes two members from Government, neither at Minister level. As AVL considers it is carrying its limit in debt with the EIB loan, it has not developed an externally-financed long term capital budget. AVL operates the airports at Port Vila, Tanna, and Santo (the latter two relatively busy because of tourism), wishes to expand its operations to more outer islands but will invest in airports only as commercial conditions warrant. A Tourism Master Plan (2004) identifies promising tourism developments in the outer islands and AVL hopes that a Civil Aviation Master Plan will be developed based on it, inviting external assistance in airstrip upgrading. AVL sets its own schedule of service fees and is unregulated.

An ADB-funded Infrastructure Master Plan for Vanuatu was prepared in 1999/2000, which specified a number of needed outer island investments in key sectors (especially transport), but has not been significantly taken up by the governments in office since that time.

Telecom Vanuatu Ltd (TVL) is presently the monopoly telecom service provider in the country, providing landlines, mobile services, and internet services, and microwave voice and data links to the larger outer islands. TVL is owned 1/3 by Telecom France, 1/3 by Cable and Wireless, and 1/3 by the Vanuatu Government. TVL holds an exclusive license that runs to 2012, at which time it can either be renewed or it can be terminated upon government purchase of TVL's assets.

As mentioned above, the government has won a landmark legal decision to break the monopoly and introduce competition to the sector. TVL strongly resist this move (and say they will mount a legal challenge to it in Geneva), as they have considerable sunk costs in Vanuatu that would become obsolete or unprofitable in a competitive market. Port Vila is the only profitable center, and competition in Port Vila would greatly reduce or eliminate TVL's ability to cross-subsidize operations in the outer islands. Other options that could work under competition, such as establishing a 'universal service obligation fund' to which competing companies in Port Vila would be required to contribute and thus provide resources to subsidize rural telecoms, were suggested as alternatives by the team. Nevertheless, TVL is firm in its opinion that competition would be unfair to TVL and would violate existing agreements.

International communications are entirely by satellite; TVL maintains that linking to the Southern Cross or any other fiber cable would be prohibitively expensive. TVL, with many other telecom companies in the Pacific, is locked in to a 15-year contract with Intelsat with another nine years to run; services could be improved by increasing satellite bandwidth but TVL states their only option would be Intelsat and they are already buying all the bandwidth that they can afford. There appears to be little more that TVL can or is willing to do on its own to improve services or lower costs. TVL claims, however, that international calling rates have decreased by 45% since 2001. TVL is planning a VT180m investment in upgrading the microwave relay system to the outer islands this year, and intends to provide mobile coverage to 76% of the population by 2010. TVL has experimented with WiMax technology in Port Vila (it worked well) but it is not clear how or if they intend to use it.

There is no telecom regulator at present in Vanuatu, but (as mentioned) a Bill will soon go to parliament providing for multisector regulation, including telecom, to be housed within MFEM. With impending liberalization of the telecom market, the provisions for telecom regulation need to be reviewed, as the scope will now exceed monitoring TVL's contract.

Commercial ports in Vanuatu, Port Vila and Santo, are the responsibility of the Department of Ports and Harbours (also called the Ports Authority) of the Ministry of Infrastructure and Public Utilities (MIPU). Ports in all other outer islands, none of which is operated commercially, are the responsibility of the PWD (also under MIPU). These are generally in poor condition.

Commercial ports operations are entirely private: NISCO (Northern Islands Stevedoring Co) has a long term contract to operate the Santo port and Ifira Stevedoring Co has a similar contract to operate the main wharf at Port Vila. The Santo port is in a run-down condition and, according to the government, the contractor is not performing satisfactorily. The Port Vila port, however, is in good condition and is operating well.

The Ifira Stevedoring Co is part of a community-owned conglomerate that engages in ports operations, land management, shipping (agents), and several other activities. Ifira

is an island with a population of some 1200; the community founded the Ifira Group of Companies some 30 years ago. Ifira is the first instance of such a community-owned commercial operation that the team has encountered so far in the Pacific.

There are two ports in Port Vila: (i) the main wharf takes international cargoes and cruise ships, and is owned by the Ports Authority with all services contracted to Ifira; and (ii) a domestic wharf, owned outright by Ifira and operated by them as a commercial enterprise. Ifira claims that the main wharf is not of sufficient standard to handle the heavier container cargoes that are now arriving in Vanuatu. Ifira has developed a proposal (a synopsis of which was given to the team) to enlarge the domestic port that they own into an international port, while repositioning the Government-owned main wharf to cater only for cruise ships. According to Ifira, the EU has agreed to fund a feasibility study of the project. However, the government (MFEM) seems not to be aware of this proposal and it does not, at this stage, form part of the government's long term infrastructure plans.

Ports fees are specified in the enabling legislation for Ports and Harbours, and may be changed by the Minister of Infrastructure and Public Utilities. Ports fees are not otherwise regulated.

The national roads sector is the responsibility of the PWD. Sealed roads in Vanuatu are restricted to within a short radius of the urban centers of Port Vila and Luganville (Santo); all other roads, including the Efate ring road, are gravel. Many of the smaller outer islands have no roads.

The PWD has assessed the annual maintenance requirement for roads at VT1.2 billion, but the allocation for maintenance is only VT60m, about 5% of the assessed need. Roads are deteriorating and roads maintenance is a prime national issue. The Millennium Challenge Account (MCA) has reportedly allocated funds for the purchase of new equipment with which to conduct roads rehabilitation and new road construction, but the details of this are not available. The PWD claims that the MCA will not support the annual roads maintenance budget. There is little or no outsourcing of roads maintenance. A pooling of roads user charges (fees and fuel taxes) under an LTA-type arrangement might be effective in increasing the resources available for roads maintenance, and might help to create the market conditions needed for outsourcing maintenance, but the fundamental issue appears to be lack of government awareness of the strategic importance and priority of roads.

The power sector is operated by UNELCO Suez, a private company that has been operating under a monopoly concession in Vanuatu for about 70 years. The concession for Port Vila runs to 2031; UNELCO also operate concessions in Santo (2010), and in Malekula and Tanna (2022). The Malekula and Tanna operations are loss making and are cross-subsidized. The Port Vila and Santo operations are in the islands' urban areas only, extending about 15 km from the municipal boundaries.

UNELCO emphasizes the introduction of renewable energy into the generation mix, and aims to displace 25 percent of diesel generation with renewables by 2010. Renewable energy options include hydro (in Santo), coconut oil, wind, and biomass. There is a wind turbine operating near Port Vila now, and UNELCO plans to install 9 more before 2010. In Santo, an experiment is being conducted with one electrically isolated community, whereby UNELCO will design and build a coconut oil processing plant and fuel specially modified diesel engines to burn 100% coconut oil. Under the arrangement, electricity consumers, who are metered on a pre-pay card-operated system, will be allowed to pay for electricity either with cash, or coconuts delivered to the mill, or both.

As mentioned, regulation of the electricity sector is provided in the new National Energy Plan, and will be undertaken by MFEM. The regulatory functions will focus on

management and supervision of the several UNELCO concession agreements. At the end of each concession, if the agreement is not renewed, UNELCO's assets will be transferred to the government, except that compensation will be expected for undepreciated assets (not market value). All existing concession agreements specify a formula under which the tariff is calculated and quarterly adjusted; the main adjustment factor is diesel fuel costs, but factors for labor costs, the exchange rate, and materials cost index are also included.

The water sector in Port Vila is also operated by UNELCO under a concession that runs to 2014. UNELCO claims that the water supply in Port Vila is potable and government spokespersons have endorsed that. Water supply in all other locations (including Efate) is operated by the PWD, and is not potable.

Summary of Key Findings

Vanuatu is making substantial strides towards promotion of competition in crucial infrastructure sectors, especially telecoms and international aviation. Though the telecoms competition policy is still a matter of legal contention, it seems clear that the market will become competitive sooner rather than later. Plans are in the making to upgrade international airport facilities to allow additional long range carriers to serve Vanuatu routes, perhaps opening new tourist markets in Asia. Air Vanuatu itself places admirable emphasis on serving domestic routes, thus supporting prospects for growth of tourism in the outer islands. In the past, infrastructure and economic planning in Vanuatu has been said to be mainly reactive and highly influenced by shifting political winds, but there are clear signs that this is changing.

Regulation is a complementary area where significant advances have been made. Multisector regulation, with support from the World Bank and AUSAID, is now a near-term prospect. Water supply catchment regulation, lacking in so many other Pacific island countries, is also in place.

Use of the private sector in infrastructure service delivery is also in evidence, but may not reflect deliberate policy. For example, though domestic shipping services are entirely privately operated, the sector faces a serious crisis in capacity and public safety because the government has not sufficiently supported the sector with either investment (e.g., for nav aids) or market regulation to ensure that conditions are appropriate for private sector operations. The private sector is contributing well to ports operations in Port Vila, largely due to good management in the company concerned, but not in Santo, where contract performance is evidently not well supervised or enforced. UNELCO's operations in power supply well pre-date Independence; through new regulatory arrangements, the government will strengthen its handling of this sector's private sector 'status quo'. Also, UNELCO has shown a supporting willingness to help meet government objectives to serve rural areas and to introduce cost-effective renewable energy in generation (some options being pursued are highly experimental), despite being financially protected by automatic fuel adjustments in the tariff formula. TVL, on the other hand, is an example of a company with majority private shareholding which has provided serious resistance to the government's efforts to liberalize the sector.

Tourism, as in most Pacific island countries, represents the leading economic growth potential of the country, but development will require a tightly integrated approach to tourism and infrastructure investments, with upgrades of airstrips and passenger handling facilities proceeding in tandem with the growing tourism market in the outer islands. From discussions with the government and with the aviation service providers, consensus is that the problem is one of chicken and egg, so closely will the developments need to be coordinated. The Tourism Master Plan of 2004 is a good starting point for Civil Aviation planning, and could extend to shipping services also, as there appears to be substantial potential for tourism-oriented shipping services.

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1 Introduction and Summary

The *Pacific Plan*, endorsed by Pacific Forum Leaders in October 2005, outlines a vision of regional responses to challenges in Pacific countries, stating that “[i]n the Pacific, regional approaches to overcoming capacity limitations in service delivery at a national level, and increasing economic opportunities through market integration are expected to provide the highest gains.”¹

The Plan calls for the development of common approaches to financial regulation and the establishment of an accountable and independent macro-economic and micro-economic technical assistance mechanism. Already, a mechanism is in place through the Pacific Financial Technical Assistance Centre (PFTAC) to support macro-economic development and financial regulation. Similar support mechanisms in the micro-economic and utilities area would support the Plan’s vision of improved efficiency and effectiveness of infrastructure and service delivery and for increased private sector participation. A joint World Bank/ADB/JBIC study of infrastructure in the Pacific² released in January 2006 conforms to the vision of the *Pacific Plan* and suggests that regional cooperation can assist in overcoming the challenges of geographic dispersion, low population density, low skill levels, and weak policy or institutional frameworks.

The RETA conducted an Inception Workshop in August 2006 in which country participants identified a core set of key issues that the RETA examined in an ensuing course of country brief but intensive consultations³ with utility managers, government planners, regulators, private sector representatives and other key infrastructure stakeholders in Pacific islands countries north and south of the equator. Based on these, a set of national strategy papers and a regional strategy paper has been developed to address the key issues in infrastructure service delivery that were identified including private sector participation, finance, maintenance, and regulation⁴. Of crucial significance, it was found in the course of the consultations that several countries in the region have recently developed policies and reforms that either have improved, or strongly show promise to improve, the quality of services in most of the sectors of concern here including telecoms (Samoa), power (Fiji), water supply (PNG), roads (Samoa and PNG), and ports (Fiji and FSM (Pohnpei)).

This concept paper examines the feasibility of a Regional Advisory Service (RAS) to support the improved delivery of infrastructure services in the Pacific, based on the national and regional strategies that have been developed. Such a service would operate within the general framework of the approach proposed by the RETA to deal with the critical issues⁵, e.g., improving governance through the separation of policy, regulatory and operational responsibilities, liberalizing infrastructure service markets to introduce competition and promote private sector participation, strengthening institutional structures, and building capacity for regulation. In this context, the

¹ *Pacific Plan*, published by the Forum Secretariat, October 2005 pg 5

² *The Pacific Infrastructure Challenge: A Review of Obstacles and Opportunities for Improving Performance in the Pacific Islands*, World Bank/ADB/JBIC, January 2006

³ A full account of the RETA’s methodology and activities is contained in the Executive Summary of the Main Report.

⁴ The consultations were carried out in the Cook Islands, Fiji, FSM, Palau, PNG, Samoa, Tonga, Vanuatu. The national and regional strategy papers are available on the RETA website.

⁵ The RETA Working Papers on Finance and Private Sector Participation, Regulation and Governance, Asset Maintenance, and Benchmarking provided fuller discussion of these issues and are available on the RETA website.

essential roles of an RAS would be to (i) facilitate the replication throughout the region of good models of infrastructure service improvement developed for certain sectors by some Pacific countries and (ii) mobilize specialist expertise and training resources quickly and as needed by the countries to help initiate and then strengthen and maintain momentum in ongoing reform efforts.

For ease of reference and to provide context for the discussion that follows, a portion of the regional strategy is summarized in Table 2 on the following page, focusing on priorities for action and a proposed strategy to address them. A key insight to emerge from the consultation process (on which Table 2 is based), perhaps rather obvious in hindsight, is that an RAS-type capacity would be best placed to help *countries* get on with *national* strategies, instead of playing a central role in, for example, accessing more telecommunications capacity for the region or conducting region-wide hydrographic surveys or implementing other such purely *regional* strategies. RAS assistance would be available to regional strategies of course, but the core of RAS activity would concern national actions that are based upon successful experience in the region and that in many cases would be replicated in several countries. In a nutshell, these national-level activities would concentrate on the following:

Table 1: Summary of Potential Activities and Purposes of an RAS

Activity	Purpose
Regulatory capacity building (legislation, policy formulation, training)	<ul style="list-style-type: none"> • Protect the public interest (fair pricing) • Monitor sector performance • Enforce ground rules for market liberalization • Create conditions conducive to private sector participation
Rural service support and Community Service Obligation (CSO) policy formulation and implementation	<ul style="list-style-type: none"> • Establish commercial viability of service to all segments of the population
Institutional restructuring (corporatization) and promotion of private sector participation through policy changes and capacity building	<ul style="list-style-type: none"> • Establish incentives and accountability of the service provider for sustained quality performance • Make substantial increases in private sector outsourcing and direct investment feasible
Coordination of Training Services through twinning arrangements (in conjunction with regional industry associations) and short courses	<ul style="list-style-type: none"> • Raise technical skills (O&M and troubleshooting procedures) • Raise management skills in areas including financial control and reporting, budget preparation, preparation of tenders, and contract supervision • Raise Board-level skills
Discrete rapid response TA projects at sector level	<ul style="list-style-type: none"> • Fill gaps in specialist expertise in <ul style="list-style-type: none"> ○ Tariff reviews ○ Resource management policies ○ Etc.

A purely regional role that an RAS *could* fill is as a highly accessible clearinghouse for the exchange of information and experience in the region, through the routine

production of reports and bulletins and the active maintenance of an email-based network of key infrastructure stakeholders and an RAS website. Development partner program harmonization for infrastructure is another key potential role for an RAS, as discussed in Section 1.3.

Table 2: Priorities for Action by Sector and Proposed Strategies to Meet Them⁶

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Priorities for Action	<ul style="list-style-type: none"> • Liberalize the telecoms markets by allowing competition and ceasing legal and commercial protection for monopoly service providers; • Implement appropriate telecoms regulatory capacity in each country; pursue multi-sector regulatory capacity incrementally; • Establish sound CSO policy in each country for telecoms, water, power, ports, and domestic shipping; • Assess options for increasing satellite and undersea cable capacity for international and inter-island communications; cooperate regionally to promote investment in increased capacity. 	<ul style="list-style-type: none"> • A Water Policy is needed in most countries to assess the safe limits of raw water resource extraction rates. • Non-corporatized water supply entities need to be corporatized. • The sector needs to come under effective economic regulation; tariffs need to be adjusted to reflect the full costs of providing service; • A CSO policy for water supply (and other sectors as discussed above), is needed; • Training capacity in technical skills and management needs to be increased and made accessible to service providers under national and regional assistance programs. 	<ul style="list-style-type: none"> • A rural electrification master plan or framework is needed in most countries, including a general assessment of institutional constraints for rural electricity services; • The sector needs to come under effective economic regulation to level the playing field and encourage private sector participation; • A CSO policy for power supply (and other sectors as discussed above), is needed to make coverage of services to all segments of the population commercially viable. 	<ul style="list-style-type: none"> • Realistically assess the requirement for roads maintenance in each country where not already done; raise awareness in government of the strategic importance of maintaining roads standards. • Establish an asset management system for roads throughout the country; • Increase or introduce outsourcing for roads maintenance on the Samoa model. 	<ul style="list-style-type: none"> • Investment in upgrading and rehabilitation of the commercial ports in some countries is urgently required; • The administration of minor ports needs to be reviewed in most countries in the context of developing national CSO policy covering ports, power, water, telecoms, and domestic shipping; • Outsourcing of outer islands infrastructure administration and maintenance (including minor ports) should be maximized. 	<ul style="list-style-type: none"> • A top-to-bottom sector review in most countries; regulation of entry and tariffs and a CSO policy. This should be done in the context of a review of service policy to outer islands. For key reforms needed to strengthen service delivery (including shipping) to outer islands, see section 3.8; • Repair and rehabilitation of maritime nav aids systems; • Efficient price regulation to sustain the commercial viability of a competitive industry, supported by a sound CSO policy; • A regional effort to upgrade hydrographic charts in the south Pacific, boost hydrographic training capacity, and improve international and local systems for distress signaling and response.

⁶ Extracted from the Regional Strategy paper.

Table 1 (continued)

	Telecoms	Water/ Sanitation	Power	Roads	Ports	Shipping
Proposed Strategy	<ul style="list-style-type: none"> Assist the replication of existing good models of telecoms regulation (e.g., in Samoa, PNG, and emerging in Fiji and Vanuatu); Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping); Coordinate multilateral and bilateral financial support under national and regional programs for training in regulatory best practice; Develop cooperative approaches to increasing access to undersea cable and satellite capacity (presently being addressed under the PIFS). 	<ul style="list-style-type: none"> Establish economic regulation through assistance to multi-sector regulatory approaches with training in regulatory best practice; Assist the replication of existing good models of water sector corporatization; Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping); Assist the development and replication of sound water policy to plan extraction and protect the integrity of raw water supplies in all countries; Coordinate multilateral and bilateral financial support under national and regional programs for training. 	<ul style="list-style-type: none"> Establish economic regulation of the power sector through assistance to multi-sector regulatory approaches with training in regulatory best practice (as proposed in section 2.9); Assist the development and replication of sound CSO policy (for telecoms, water, power, ports, and shipping) through means similar to the above. 	<ul style="list-style-type: none"> Assist countries to review, and upgrade as required, the procedures for reporting expenditures on roads maintenance, to include progress in meeting key performance indicators; Assist countries to develop, implement, and provide technical training in the use of a computerized road asset management system (RAMS) similar to the system used in PNG and Fiji; Assist countries to identify gaps in job functions and skills for good roads management and maintenance (including contracting and supervision); identify ongoing training resources to meet training needs. 	<ul style="list-style-type: none"> For approaches amenable to regional assistance to strengthen service delivery (including minor ports) to outer islands and rural areas, see section 3.9. 	<ul style="list-style-type: none"> For key reforms needed to strengthen service delivery to outer islands (including shipping), and regulatory reforms, see section 3.9; Assist all countries to assess the current state of their maritime nav aids systems and prepare appropriate rehabilitation projects, upgrading technology as required to meet modern shipping needs; Conduct a detailed GPS survey of the South Pacific as a regional TA to produce an accurate set of hydrographic charts of the entire region. Increased hydrographic training capacity and improvements in international and local systems for distress signaling and response and associated training to be included.

2 Needs Assessment: Country-Level Capacity Gaps

In the Pacific, island countries existing in similar environments and infrastructure sectors facing similar issues and desiring similar outcomes are, generally speaking, operating in isolation from each other. A solution found to be effective in one country may not be extended for a long time or at all to other countries; conversely, a mistaken policy in one country might be repeated in several others: the lessons learned tend to stay where they are learned. Thus a key starting point for the consideration of a Regional Advisory Service is the importance of networking key stakeholders and the ability to share information and experience on successful strategies and models.

In the consultation process the RETA team met with a country-level 'Infrastructure Committee' that coordinated the team's contacts with sector leaders. The Infrastructure Committees were composed of key stakeholders from finance and economy related Ministries as well as works and infrastructure related ministries. In a number of countries, the government has already formalized the coordination of infrastructure reform processes through the appointment of a coordinating Ministry, for example the Ministry of Public Enterprises in Fiji and the Ministry of Finance in Samoa, and these naturally served as the coordinating agencies for the RETA. In other countries, the Infrastructure Committee organized for the RETA was often the first instance of formal, joint consideration of infrastructure reform strategies. In all countries, the Infrastructure Committees provide a useful conduit of policy development and coordination. Strengthening such channels contributes to achieving successful outcomes in infrastructure reform.

An RAS would provide coordinating services for training and technical assistance and, importantly, rapid access to legal, financial, economic and accounting technical experts and capacity building institutions and services. Other than networking, priority needs identified through the RETA consultative process include (i) inappropriate institutional structures to sustain quality service delivery; (ii) lack of regulatory capacity to protect the public interest and to enable a commercial environment that encourages investment and risk-taking; (iii) lack of access to reliable and affordable training capacity; (iv) lack of access to rapid-response expertise to provide specialist advice at critical phases of the sector reform process (see below), e.g., drafting of legislation, proposing national policy to deal with a particular issue, financial modeling and tariff formulation, engineering inputs, etc. An RAS-type service would work through the Infrastructure Committees in each country to coordinate national-level activities. An indicative list of such activities that are responsive to the priority needs identified above follows:

- Coordination of training services through twinning arrangements (in conjunction with relevant regional industry associations) and external assistance:
 - Corporate governance and preparation of monitoring guidance (training to Regulatory and Ministry of Finance (or equivalent) staff);
 - Contract management and supervision through external technical assistance;
 - Tariff review and formulation through twinning arrangements and external assistance;
 - Design and implementation of performance and output based monitoring of infrastructure enterprises and in performance benchmarking;
 - Project design, preparation and financial/economic benefit analysis;
 - Contract preparation, design and tendering; and contract supervision;
 - Awareness raising for government and utility personnel on maintenance and other issues;
 - Access to Directors' Training Institutes (e.g., in Samoa and Fiji);
- Technical assistance (either directly or through coordination with other development partners):
 - Develop and implement appropriate rural service support and CSO policies;

- Institutional design and legislative drafting for economic and technical regulators;
- Institutional reviews and recommendations for restructuring and capacity building;
- Strengthen financial controls, reporting, and budgeting.
- Preparation of procedural manuals for price regulation;
- Sector studies to identify the scope and benefits of contracting and development of transaction structures;
- Strengthen PPP frameworks, drafting legislation enabling an effective environment for private sector participation and establishing effective coordination mechanisms.

3 Harmonization of Development Partner Programs

With significant development partner activity already directed at infrastructure in the Pacific, the question of duplication of resources needs to be addressed. Bilateral programs already contribute considerable resources to capital expenditure (mainly grants) and capacity building in many infrastructure sectors; while multilateral agencies extend both loans and technical assistance to all sectors.

It has been long observed that in aggregate the development partner assistance to infrastructure is often duplicative or even at cross purposes and in general is not well harmonized, an issue that was raised in the Inception Workshop in Sydney in 2006 and repeatedly by stakeholders during the RETA consultations. A common perception is that the formulation of technical assistance and investment projects is driven by development partner initiative rather than primarily by government initiative (even if, as in almost all cases, the proposed activity is endorsed and accepted by the governments concerned). As a result, the agenda of infrastructure development in the Pacific that has emerged over the years is not well focused.

In this context, a useful role of an RAS, if it were to achieve recognition as a 'front line' of assistance to infrastructure service delivery in the Pacific, would be continuously to track the totality of assistance to infrastructure from the development partner community, identify areas of duplication and/or inconsistency, and propose means to eliminate these and sharpen the focus of assistance to take advantage of potential synergies. This function would require a sustained close working relationship between the RAS and each agency in the development partner community⁷. An RAS would have the advantage also of having networking capacity that would help ensure that the infrastructure agenda is primarily driven by countries and is responsive to their perceived needs. That said, however, the support to infrastructure that is available in the Pacific from multiple sources is so great that an RAS could not be justified *unless* it was effective in reducing or eliminating duplicated or crossed efforts and could contribute very significantly to the harmonization of aggregate assistance to infrastructure.

One of the serious constraints facing the traditional channels of technical assistance to infrastructure in the region (multilateral or bilateral) is the time needed to formulate a TA project, get it approved by higher authorities in the development agency concerned, then appoint and mobilize the specialist expertise required to carry out the work. An RAS would have a core full- and part-time staff, as discussed below, that could provide expertise on a rapid-response basis, or would have contracting authority with outside expertise that would enable a rapid response to official requests for assistance that conform to established guidelines.

⁷ Ideally facilitated through the Pacific Infrastructure Task Force, now chaired by the ADB and formed in parallel with the RETA.

4 Global and Regional Experience (Summary)

A number of services supporting infrastructure development and financing have been examined as potential models for an RAS, including:

- Pacific Financial Technical Assistance Centre
- Pacific Aviation Safety Office
- Rapid Response Unit (RRU)
- East Asia and Pacific Infrastructure Regulation Forum
- Foreign Investment Advisory Services
- Public Private Infrastructure Advisory Facility

A full description of each of these services is provided as the Annex to this paper. A brief summary and discussion of the relevance of each model to an RAS is provided below in brief narrative and tabular form (Table 3).

The *Pacific Financial Technical Assistance Centre* (PFTAC) provides technical support to economic and financial management under the auspices of the International Monetary Fund. The PFTAC model is based on five full time resident advisors in the region with a mandate to work with the 15 PFTAC member countries on four key areas of technical advice: financial sector supervision, economic statistics, revenue administration and public finance management. Assistance is carried out through short-term visits by the resident staff to Member countries, sustained through return visits and a systematic follow-up on advice and action. The Centre organizes regional seminars and in-country workshops, practical training through attachments of officials to sister institutions in the region; and the recruitment of short-term consultants to bolster the advisors' own activities. The staff prepares discussion papers on issues of regional interest and supports regional cooperation in a number of areas of economic and financial management. Similar institutional and funding arrangements could apply to an RAS-type capacity focused on infrastructure.

The *Pacific Aviation Safety Office* (PASO) was established under the Pacific Islands Civil Aviation Safety and Security Treaty. PASO is responsible for supporting regional aviation safety oversight for its membership, including airport and airline operational safety and security standards and ensuring they are met in its member countries. The primary goal of PASO is to provide an improvement in quality and extension of aviation safety services, at a lower total cost than would have to be paid by the industry and member governments to achieve these goals by themselves.

The *Rapid Response Unit* is a World Bank service operating as an online center for financial and private sector development resources. It maintains databases on privatization, infrastructure projects and enterprise surveys. It is an excellent online resource for those working in infrastructure sectors and would form a key resource to any advisory service in capacity building and supporting the design of reform programs. The RAS could draw from the Rapid Response Unit data as well as contribute to the expansion of the information by providing links to regional data, documents, statistics etc.⁸

The *East Asia and Pacific Infrastructure Regulators Forum* is a network formed of existing regulatory agencies. With a focus on capacity building, it too would form an excellent resource for the development of regulatory capacity throughout the region. However, given

⁸ The RETA has developed a regionally focused website on infrastructure which, combined with the Rapid Response Unit initiative as well as other information sources, would also support the work of an RAS.

the geographic expanse of the region, maintaining a network through online fora would seem to be more efficient and effective.

The *Foreign Investment Advisory Service* is a channel for technical assistance managed by a multilateral financial institution, focused on improving the investment climate within participating countries. Similarly, the *Public Private Infrastructure Advisory Facility* is designed to facilitate the structural and micro-economic reforms necessary to support increased private sector involvement in infrastructure. While both the FIAS and PPIAF models have consultative processes, they are essentially funds taking contributions from multiple sources, administered by multilateral agencies. They are managed by regional coordinators and outsource technical assistance work under a process of requests submitted by client countries and a tendering process for consultants, an approach that might be adopted by an RAS.

Table 3: Summary of Models Relevant to an RAS

Facility	Model	Issues for an RAS
Pacific Financial Technical Assistance Centre www.pftac.org	Sponsored by 2 multilaterals. Multiple Donors. Five full time permanent staff. Limited focus area. Regionally based.	Scope of work for RAS could be broader, requiring larger staff resource. Ability to outsource to short term experts.
Pacific Aviation Safety Office www.paso.aero	Unit of technical experts to be established. Participating governments are signatories to establishment articles.	Regional safety regulatory role requires high level authorization from participating governments (akin to a treaty).
Rapid Response Unit (RRU) rru.worldbank.org	Online information resource administered by multilateral agency.	Requires government officials to be able to utilize information effectively without further assistance.
East Asia and Pacific Infrastructure Regulation Forum www.eapirf.org	Network of regulatory agencies. Currently supported by 2 donors and an outsourced secretariat. Focus on capacity building.	Wide range of focus areas required to be serviced. Asian and Pacific regulatory issues may not be complementary.
Foreign Investment Advisory Services (www.fias.net) and Public Private Infrastructure Advisory Facility www.ppiaf.org	Multi donor fund administered by a multilateral. Global reach. Rely on submissions from client government agencies and outsource technical expertise.	Use of outsourcing of specialist expertise effective.

5 Consideration of a Regional Advisory Service

Based on the above, two broad approaches to the structuring of an RAS are considered:

Approach 1: Multi-Donor Facility

A multi-donor facility that acts on requests submitted by client government agencies can effectively utilize limited financial resources. Establishment of such a facility based in the region could effectively complement the work of existing funds such as FIAS and PPIAF, but there is a risk of duplication of resources. The model of using outsourced short term technical expertise under a regional coordinator would be an efficient use of scarce resources in comparison with countries attempting this separately.

Approach 2: Resident Advisory Facility

A full time permanent unit resident in the region is a model that has received support from clients and development partners based on experience with facilities such as PFTAC and PASO. However, resourcing such a facility with the required expertise across such a broad range of focus areas and infrastructure sectors may be difficult.

A combination of these two approaches may actually present the solution most appropriate for the Pacific region. A resident facility with access to funds for technical assistance projects would allow the team of resident advisors, who would have general expertise in infrastructure financing, regulation, contracting etc to focus attention on coordination with stakeholder agencies through the mechanism of the regional and national plans emerging from the RETA. Highly specialized technical assistance could be outsourced on a short term basis. This kind of support would be valuable to the continued and effective operations of cross-agency Infrastructure Committees or established Coordinating Ministries. Additionally, such a facility would focus on institutional strengthening through networking, organizing regional workshops and capacity building (e.g., formal and informal training) programs.

6 Institutional Design of a Regional Advisory Service

6.1 Structure and Core Activities

As discussed above, the objective of a Regional Advisory Service is to facilitate and support successful infrastructure reform processes leading to service delivery improvements, based especially on those reforms that have already been implemented effectively in one or more countries in the region. Effective reforms will result in infrastructure investments that have an appropriate mix of public and private sector finance, institutional structures that provide appropriate incentives and managerial accountability to promote sustained high quality performance, better access to a wide spectrum of technical and management training, and regulatory arrangements that accommodate the interests of consumers and investors and create a predictable and sustainable environment for private investment and contributions to services through outsourcing.

By recruiting and seconding expert personal from within the Pacific and supporting countries as well as utilities, a facility can be created that can focus sustained support to member countries for improved policy, design, regulation, financing, management, and maintenance of infrastructure.

Under the approach outlined in the previous section, a Regional Advisory Service would be established under a Coordinator with a small number of cross-sectoral experts (initially commencing with 3 – 5 professional staff). The number of professional staff in the core team should reflect the coverage of countries required, i.e., the staff should be able to establish an effective relationship and visiting program with participating countries. In support of the activities summarized above in Table 1, the core staff would focus on routine activities including the following:

- Facilitate networking among key stakeholders within member government agencies both domestically and regionally by assisting the establishment of infrastructure committees (or similar) and facilitating regional meetings of stakeholders;
- Support each member country's coordinating structure through the collection and dissemination of information, via networking and the RAS website, about regional and international experience on infrastructure reform;
- Utilize the Regional Strategy developed by the RETA as the main instrument for coordination with counterparts and the identification of specific strategies for assistance;
- Maintain a database of contacts, experts and training providers and courses that is circulated via networking and the RAS website among key country stakeholders;
- Organize regional training programs across the areas and sectors identified;
- Facilitate development partner infrastructure program harmonization by acting as a point of contact with donor activity within each member country and disseminating information through the network, RAS website, and Pacific Infrastructure Task Force; propose to member countries and development partners means to address potential duplications and take advantage of potential synergies among programs.
- Respond to member country requests for technical assistance with appropriate specialist expertise (either resident or outsourced) as required.

6.2 Governance

A high level of coordination among the development partners is needed to (i) accept the concept of an RAS and (ii) work out and agree the details of how an RAS would be financed and governed in such a way that it respects the priorities of the member countries as well as the development partner community. The Pacific Infrastructure Task Force (PITF) established in parallel with the RETA would be an appropriate starting point for the coordination of steps to establish a Regional Advisory Service. A Convening Committee might be established under the PITF, comprising a small number of high profile and active government representatives within the potential member countries. The Convening Committee could be given the mandate to develop the Charter and financial structure of the Regional Advisory Service and coordinate with the full PITF on issues arising.

An RAS would require a mechanism for the ownership of the service by participating countries. For example, a Board of Directors comprising a government appointee from each participating country could be established; each Director appointed on the basis of relevant expertise and charged to carry out the stated responsibilities of a Director of the RAS (i.e., not simply representing the respective national governments). An annual meeting of the Board would desirably be held within the region. This meeting could also double as an annual meeting with donors (following the model of PPIAF). Ongoing donor coordination could occur through Pacific Infrastructure Task Force (PITF).

6.3 Service Delivery

With the RAS operating under a Charter defining the responsibilities of the Board and Executive, the Executive would work with an Infrastructure Committee in each member country. (Establishment of an appropriate Infrastructure Committee, in countries where one does not already exist, could be set as a condition of membership in the RAS. Such a committee would need to comprise Ministries of Finance (or equivalent) and sector Ministries in the related infrastructure areas as well as the Attorney General's Office or equivalent agency that deals with contracts and laws.)

The Service would commence operations, following (i) endorsement of the agreed Charter, (ii) appointment of the Board and (iii) appointment by the Board of a management team (see below).

Actions and areas of support would be identified through the national and regional strategies and proposed to, and negotiated with, respective governments through the mechanism of the Infrastructure Committee. These activities would be amalgamated into an annual work plan for the RAS and relayed to member governments via the Infrastructure Committees for consultation and feedback. The work plans would also be shared with participating development partners. It is expected that the RAS will have a role in complementing existing efforts and implementing new strategies to improve the harmonization of development partner infrastructure support programs.

The advantage of a small permanent staff within the RAS is that they will have the opportunity to establish links and networks and arrange secondments to the RAS. Linkages would be with the relevant Ministries, agencies and utilities in the region and through individual country officers and program managers. The website developed by the RETA and subsequently by the RAS would be useful tools to assist this process.

Documentation of requests for support and activities implemented by the RAS would be a normal business practice. The Regional and National Strategies and Annual Work Plans can provide the over-arching documentation but it would also be useful to have summary mission reports and summary activity statements that can be shared, preferably through the website,

articulating the key results and including contact names. Should the RAS have access to funding for short term technical assistance, the process for accessing that assistance should be user friendly. The application forms and decision making process used by PPIAF would provide a useful model for this.

An Annual General Meeting for the RAS would provide an opportunity for the Board and the development partners to meet, review past activities against the Charter and Board decisions, consider forward work plans etc. It is suggested that the AGM include invitations to international or regional experts or project officers involved in activities funded by or supported by the Service and that presentations be made to promote awareness raising of critical issues by the Board members.

Further, to maintain a level of quality control, the head of the RAS will need to implement a means by which feedback from stakeholders in the member countries, development partners, and other interested parties can be obtained.

6.4 Financial Issues

If established, the RAS should have an initial operating Charter of five (5) years with a review undertaken after three (3) years to evaluate outputs and make recommendations and suggestions for future directions, funding and possible Charter revision. The selection of 5 years for an initial operating Charter is arbitrary but is reasonable in view of the time required to register outcomes that might be attributable to RAS activity.

The goal for the RAS is not to create a stationary office but a dynamic entity focused on the goals of Pacific countries in relation to infrastructure reform. It is therefore necessary that the thinking behind the geographical location of any offices be pragmatic and adaptable according to circumstances. What matters is access to and transmitting of expertise, and it is important that the RAS be based within the region. (Web-based networking will ease this restriction somewhat, but physical movement of personnel to and from member countries for training and TA activities strongly supports basing the RAS within the region.)

It is estimated that funding for personnel and core activities of an RAS would need to cover the following elements:

- A Board with Directors of 6-8 members appointed on relevant qualifications, with powers to approve senior executive appointments and packages;
- Head of the RAS;
- Small core team of professional staff (initially a regulatory, a finance, and an institutional specialist);
- Administrative and Operating Costs;
- Regional and country support activities conducted by the core team;
- Training fund to cover twinning arrangements and formal training courses conducted in-country and a small scholarship program for government officials to attend short course training;
- Technical assistance fund to cover short term experts.

To support the RAS, member country counterparts would be requested to provide funding in kind that would include

- Designation of a senior official within an appropriate coordinating agency as Board Director;

- Designation of a technical officer to be the primary contact point for the RAS;
- Travel for the senior official to the Annual General Meeting of the RAS.

It is premature at this stage to estimate actual costs of the capacity outlined above, without decisions first confirming agreement among stakeholders of the scope, structure, and location of the RAS. Indicatively, what might be sought at the commencement of the initiative is an initial endowment, of the order of \$5 million, to cover initial costs with a view to further tranches of support conditional on performance.

It is possible that some elements of the Regional Advisory Service may evolve to a user-pay system, and that this would occur at different rates for some elements than for others. For example, work by the Regional Advisory Service could lead to closer cooperation on economic and technical regulatory issues and the creation of an entity to which Pacific utility regulators subscribe, perhaps similar to ECTEL in the Caribbean (see Governance and Regulation Working Paper). Alternatively, legal and financial work necessary for corporatization and privatization transactions might be contracted directly by member governments after a certain level of awareness and capacity has been reached, negating the need for support from the Regional Advisory Service in such areas. Irrespective of such possible future developments, support to strengthen policy development and implementation will be an ongoing, long term need and will require a reliable source of core finance in the form of member government and development partner subscriptions.

Overhead costs will be sought in part from a variety of sources including international agencies, regional utilities, private sector parties, consultants and voluntary bodies and NGOs. Part of overhead costs such as the salaries of key personnel could also be covered by the secondment to the RAS of persons deemed likely both to transfer knowledge and benefit from the linkages. Contracts with agencies seeking support, say Ministries of Public Works, Aviation, Telecommunications, could provide for up-front fees for services or success fees upon completion of milestones set out in the contract.

Contracts might also be struck with regional private financing institutions, law firms, universities and governments whereby seconding arrangements and work experience schedules could be agreed, subject to the RAS Executive approval and Board endorsement of the principles of such arrangements.

7 Annex: Global and Regional Experience (Detailed)

7.1 Pacific Financial Technical Assistance Centre (www.pftac.org)

The Pacific Financial Technical Assistance Centre in Suva, Fiji was jointly established in 1993 by the United Nations Development Programme (UNDP) and the International Monetary Fund (IMF) as the regional office to implement the Fiscal and Monetary Management Reform and Statistical Improvement Project. In addition to financing from UNDP and IMF, Phase I of the project was also funded by the Asian Development Bank (ADB) with a cost-sharing contribution for training purposes. An initial three-year Phase II commenced on April 1, 1996 with funding by UNDP, IMF (directly and through the Japan Administered Account), AsDB, AusAID, New Zealand ODA, and the Forum Secretariat. In early 1999, Phase II was extended through 2001 with funding from the same donors. In 2001, in connection with a re-assessment of its priorities, UNDP decided to withdraw from the project. In July 2002, the Centre was re-constituted as an IMF-executed project under a Subaccount of the IMF's Framework Administered Account for Technical Assistance Activities with funding from the IMF, ADB, AusAID, Japan (through the Japan Administered Account), and NZaid.

The Centre's aim is to build skills and institutional capacity in Member countries for effective economic and financial management that can be sustained at the national level. It does this by providing technical advice and training in public financial management, tax administration and policy, banking regulation and supervision, and macroeconomic and financial statistics. Because of the IMF's expertise in these areas, it was selected, in consultation with the governments of the Pacific Island countries and the donors supporting the Centre, as the Executing Agency to ensure that technical assistance and measures supported by the Centre are consistent and meet high international standards.

15 Pacific island countries are members of PFTAC: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu.

A team of four resident advisors under the overall leadership of a coordinator, and supported by backstopping from the specialized technical assistance departments of the IMF, provides the Centre's core technical expertise. A Tripartite Review Committee, composed of representatives of the Executing Agency, the funding agencies, and the participating governments, exercises overall guidance, and periodically examines, the Centre's operational activities.

A major part of the Centre's advisory and training activities is carried out through short-term visits by the four advisors to Member countries. These visits, together with the advisors' long-term presence in the region, have contributed to the Centre's effectiveness by facilitating sustained assistance through return visits and a systematic follow-up on earlier advice and action. In addition, advisors regularly provide timely and effective advice and guidance through direct communications from the Centre. These activities are complemented by the organization of regional seminars and in-country workshops, practical training through attachments of officials to sister institutions in the region; and the recruitment of short-term consultants, including on a peripatetic basis, to bolster the advisors' own activities. The staff also prepares discussion papers on issues of regional interest and supports regional cooperation in a number of areas of economic and financial management.

7.2 Pacific Aviation Safety Office (www.paso.aero)

PASO is the Pacific Aviation Safety Office, a non-profit International Organization, set up under the Pacific Islands Civil Aviation Safety and Security Treaty and operated for the benefit of the member States. It is currently headquartered in Port Vila, Vanuatu.

Forum Aviation Ministers, at their meeting in 1998, adopted an Action Plan that adopted a policy framework for safety regulation recognizing the Forum Island Countries had difficulties in developing and maintaining their own skills base for aviation safety inspection and certification. Ministers recognized that safety oversight services could more effectively and efficiently be delivered through a collaborative mechanism, allowing for the sharing of expert resources, and to this end, agreed to the creation of a collaborative regional aviation safety oversight programme.

In September 2001 Forum Aviation Ministers met in Apia, and approved in principle an intergovernmental co-operative approach to establishing PASO. It was also at this time that Ministers also required that security be added to the tasks of PASO.

PASO is responsible for overseeing regional aviation safety oversight for its membership. It will be responsible for overseeing airport and airline operational safety and security standards and ensuring they are met in its member countries. Its core set of responsibilities will include:

- Flying operations;
- Airworthiness;
- Aviation Security;
- Airports; and
- Personnel licensing for these disciplines.

The primary goal of PASO is to provide in the long term an improvement in quality and extension of these services, at a lower total cost than would have to be paid by the industry and member governments to achieve these goals by themselves.

The PASO member countries are Australia, Cook Islands, Fiji, Kiribati, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Vanuatu, Tonga, Nauru and Niue. PASO membership is open to Forum member countries.

PASO will provide an advisory service to the national aviation authorities of participating States and will provide support to the local aviation industry.

PASO will carry out audits and inspections, through its inspectors, and will submit the reports to the national authorities. These reports will not only identify deficiencies but will also set out the required remedial steps and possibly alternate remedial steps. Once recommendations are accepted and enforced by the national authority, their implementation will be continuously monitored by PASO until full compliance has been achieved.

These audits and inspections will be undertaken in accordance with the legal environment of the State of operation, using local regulations and ICAO Standards and Recommended Practices (SARPs) as the base materials.

PASO services are available to its membership, however, it is anticipated that other countries will join PASO over time as their needs require and as the organization

demonstrates its value and capabilities. It is also possible that some countries will utilize PASO services on a contract basis. PASO is designed to accommodate future growth through both of these mechanisms.

PASO recognizes the different operating aviation environments of the FICs and understands that for PASO to work effectively across its membership, it is essential that a standard operating environment be established across all member countries. This has been identified and a harmonization process will address this. All but one of the current member countries have moved toward adopting the New Zealand CAA rules, which is to become the de facto operating environment for the Pacific region. Regardless of the standard chosen by member countries, PASO will provide technical assistance to member countries to facilitate harmonization.

PASO will not replace or usurp national authority for aviation safety. Though it will provide advice, it will remain the responsibility of national civil aviation administrations to implement that advice and sign the documents that give legal effect to the matters concerned.

PASO receives annual membership fees from its member countries. At the commencement of operations, PASO will be receiving fees for its services to recover costs.

Currently, PASO is exploring other avenues for funding, looking at donor and industry support for its inception phase.

PICASST is the Pacific Islands Civil Aviation Safety & Security Treaty, a multilateral treaty formalizing PASO under international law. This was open for signing at the Forum Leaders Meeting in 2004 in Apia, Samoa.

The Treaty became legally binding on the Parties on 11th June 2005.

There are now nine countries which have signed the document and these are Kiribati, Samoa, Solomon Islands, Vanuatu and Tonga, Papua New Guinea, Cook Islands, Nauru and Niue.

7.3 Rapid Response Unit (RRU) (rru.worldbank.org)

The Rapid Response Unit is a World Bank service. It operates online and acts as a center for financial and private sector development resources. It maintains databases on privatization, infrastructure projects and enterprise surveys. Its objectives are:

- To fill a large gap in understanding about successful business environment and financial sector reform, and what makes reform processes successful in developing countries.
- To empower policy reformers and the business community to turn these ideas into reform action by providing them with information, tools, and access to critical data.
- To develop a dialogue, and an exchange of information and perspectives between reformers, experts, and advocates.

Its areas of expertise are:

- Doing comprehensive assessments of the business environment and financial services in developing countries, through surveys and benchmarking;

- Creating the institutional foundations for effective markets (examples: property rights, collateral systems, corporate governance, financial market infrastructure)
- Promoting open and competitive markets (examples: opening up entry, access to finance for promising firms, deeper and more liquid financial markets, and exit for failing firms)
- Supporting social safety nets with market-based instruments (examples: financial market-based instruments and risk management for pensions and insurance systems, as well as low income housing)
- Supporting privatization policy development, especially in sectors with complex market design and regulatory issues (for example, banking, infrastructure, transport.)

The RRU supports the World Bank Public Policy Journal (formerly known as Viewpoints) which contains briefs on a wide range of infrastructure, finance and private sector development topics. It also maintains a regular online discussion forum as well as providing access to toolkits, blogs and a searchable database of papers and links.

7.4 East Asia and Pacific Infrastructure Regulation Forum (www.eapirf.org)

The East Asia and Pacific Infrastructure Regulatory Forum (EAPIRF) was established in 2003 with the support of the World Bank and the Public Private Infrastructure Advisory Facility (PPIAF). EAPIRF is currently supported by the Australian Government and the World Bank. The forum has two objectives of promoting exchange of information and experience sharing for infrastructure regulation as well as facilitating the development of training opportunities for infrastructure regulators.

The sectors covered by EAPIRF includes: Energy, Telecommunications, Water and Sanitation, Transport. The Forum spans across 25 countries in the East Asia and Pacific regions. (East Asia: Cambodia , China, Indonesia, Republic of Korea, Hong Kong, Japan, Lao PDR, Malaysia, Mongolia, The Philippines, Singapore, Thailand and Vietnam Pacific: Australia, Fiji, Kiribati, Micronesia, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga, Timor-Leste, Vanuatu, American Samoa)

The Mission of the East Asia and Pacific Infrastructure Regulatory Forum (EAPIRF) is to enhance regulatory decision making in the East Asia and Pacific region through the exchange of information and experience in infrastructure regulation, and through the promotion of training programs focused on regulatory issues common among countries.

EAPIRF has two objectives, which together define its overall purpose. They are:

- Promote exchange of information and experience sharing in infrastructure regulation
- Facilitate the development of training and capacity building opportunities for infrastructure regulators

To promote information exchange and experience sharing among member regulators, EAPIRF conducts different activities including:

- Annual General Meetings
- Online Discussions

- Question & Answer Board
- Regulator in Focus
- Twinning Arrangements
- Events information: training opportunities, workshops and conferences
- Resources: Regulatory and Country profiles, Links, Papers
- Specifically, to develop internal capacity, activities conducted include training outreach and partner development, twinning arrangements and the Two Day Training Program on regulation.

7.5 Foreign Investment Advisory Services (www.fias.net)

The Foreign Investment Advisory Service (FIAS), housed under the International Finance Corporation (IFC) and advises governments of developing and transition countries on how to improve their investment climate for domestic and foreign investors. FIAS is a multi-donor service of the International Finance Corporation (IFC) and the World Bank, and focuses on four core areas:

- investment climate diagnostics
- investment laws and promotion
- administrative barriers solutions
- industry competitiveness

Since its establishment in 1985, it has assisted over 130 countries in increasing the level and impact of private investments through more than 680 projects. FIAS specialists identify practices that impede productive FDI, design financially and politically practical plans of action, and support their clients through all phases of transition and implementation.

From its inception, the Foreign Investment Advisory Service (FIAS) has been established as an advisory facility with support from donor countries. The intention is, to provide objective advice on the investment environment of developing countries, in addition to the mainstream work of the World Bank Group and reflective of donor strategies and priorities.

Donors have been providing support to the FIAS program since 1987. Seventeen donor countries have participated, including Australia, Canada, Finland, France, Ireland, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. In addition, FIAS received substantial grants for specific purposes from U.S. Agency for International Development (USAID) and the United Nations Development Programme (UNDP) in the past.

FIAS donors typically commit to funding over a three-year period. As a general principle, all funds are untied and in support of the global activities of FIAS. Donor funds typically cover about 30 to 35 percent of the operational costs of FIAS, with the remainder of the resources coming from the IFC and the World Bank as well as reimbursements from clients. All these resources form the FIAS Trust Fund that supports FIAS advisory activities.

The donors to FIAS form a Consultative Committee which discusses FIAS' performance and assists in shaping the future strategy of the FIAS Program at each year's annual meeting. FIAS formally reports on its financial and advisory performance in the form of an annual report for each fiscal year, submitted to donors prior to the annual meeting.

7.6 Public Private Infrastructure Advisory Facility (www.ppiaf.org)

The Public-Private Infrastructure Advisory Facility (PPIAF) is a multi-donor technical assistance facility aimed at helping developing countries improve the quality of their infrastructure through private sector involvement. Launched in July 1999, PPIAF was developed at the joint initiative of the governments of Japan and the United Kingdom, working closely with the World Bank. PPIAF is owned and directed by participating donors, which include bilateral and multilateral development agencies and international financial institutions. PPIAF is governed by a Program Council comprising representatives of participating donors and is managed by a small program management unit.

PPIAF pursues its mission through two main mechanisms:

- Channeling technical assistance to governments in developing countries on strategies and measures to tap the full potential of private involvement in infrastructure.
- Identifying, disseminating, and promoting best practices on matters related to private involvement in infrastructure in developing countries.

PPIAF can finance a range of country-specific and multi-country advisory and related activities in the following areas:

- Framing infrastructure development strategies to take full advantage of the potential for private involvement.
- Building consensus for appropriate policy, regulatory, and institutional reforms.
- Designing and implementing specific policy, regulatory, and institutional reforms.
- Supporting the design and implementation of pioneering projects and transactions.
- Building government capacity in the design and execution of private infrastructure arrangements and in the regulation of private service providers.

PPIAF assistance can facilitate private involvement in the financing, ownership, operation, rehabilitation, maintenance, or management of eligible infrastructure services. Eligible infrastructure services comprise roads, ports, airports, railways, electricity, telecommunications, solid waste, water and sewerage, and gas transmission and distribution. Countries eligible for PPIAF-financed assistance include developing and transition economies as listed from time to time by the OECD's Development Assistance Committee.

PPIAF funds a range of activities in eligible sectors and across all developing regions. At the end of December 2006, the PPIAF portfolio covered 537 activities in more than 110 countries, for a total value of \$116 million.

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Asian Development Bank

TA 6257-REG: Improving the Delivery of Infrastructure Services in the Pacific



FINAL REPORT

Volume III

- Part 1: Working Paper –Governance and Regulation
- Part 2: Working Paper - Financing and Private Sector Participation
- Part 3: Working Paper - Asset Maintenance
- Part 4: Working Paper - Benchmarking

December 2007

Volume III Part 1: Working Paper: Governance and Regulation

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1 Introduction and Summary

The issues of governance and regulation were identified by country participants at the Inception Workshop held in Sydney, Australia in August 2006 as critical to development of infrastructure in the Pacific. This Paper documents the findings of the RETA concerning these issues and brings together concepts and best practices to develop strategies to address them.

The main principle underlying the working paper is that separating policy, regulatory and operational functions lies at the core of the infrastructure reform process, bearing in mind that the institutional characteristics, reform strategies, and phasing of implementation will be affected by the specific cultural, social, political and economic characteristics of individual countries.

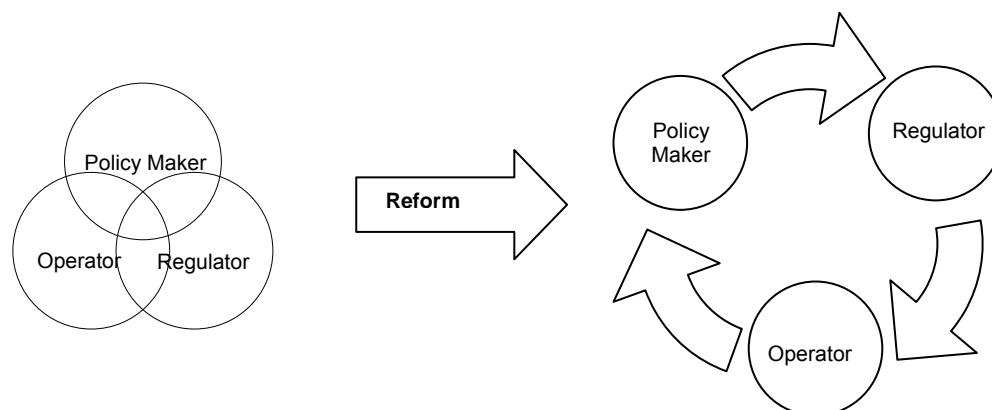
Good governance, which is the ultimate objective of good regulation, consists of inclusiveness (no stakeholders are arbitrarily excluded from decision-making processes), fairness (all stakeholders are treated equally with full respect for individual and community rights), and responsiveness (stakeholders needs are addressed in a timely way). In the details, 'good governance' is defined somewhat differently by different observers, but the following elements identified by UNDP will be used as a working definition for the sake of the present discussion.

1. Participation: all men and women have a voice in decision making;
2. Rule of law: legal frameworks are fair and enforced impartially;
3. Transparency: processes, institutions and information are directly accessible to those concerned with them and enough information is provided to understand and monitor them;
4. Responsiveness: institutions and processes strive to serve all stakeholders;
5. Consensus orientation: differing interests are well mediated to reach broad consensus on what is in the best interests of the group;
6. Equity: all men and women have equal opportunities to improve or maintain their well being;
7. Effectiveness and efficiency: processes and institutions produce results that meet needs while making the best use of resources;
8. Accountability: decision-makers in government, the private sector and civil society are accountable to the public, as well as to institutional stakeholders; and
9. Strategic vision: leaders and the public have a broad and long-term perspective on good governance and human development, along with a sense of what is needed for such development. There is also an understanding of the historical, cultural and social complexities in which that perspective is grounded.¹

¹ Porter, J. 2002 "Sustainability and Good Governance: Monitoring participation and process as well as outcome", paper presented at Sustaining Our Communities conference, Adelaide

The issue before us is how to translate these characteristics into meaningful outcomes to improve infrastructure services in the Pacific.

Governance, then, encompasses a wide range of institutions, processes and capacities. There is often overlap between the policy, regulatory and operational roles in the utility and infrastructure sectors and a separation of these roles is needed for good governance; i.e., the policy makers (government Ministries) should be functionally independent of the state-owned or private enterprise providing the service, and a regulatory authority should be functionally independent of both. Establishing independent yet accountable functions for policy, operations, and regulation with effective channels of communication between them is the essence of the reform process.



Separation of these roles eliminates inherent conflicts-of-interest that arise from concurrent responsibilities. Further, this separation can be combined with effective and fair competition in and for the market, subjecting the operators to market discipline. With competition (or maybe just the prospect of competition) ensuring that managers have incentives work in the best interest of the enterprise, enterprises will look inwards to improve governance and sustain high standards of performance. By this means, market forces confer gains in service delivery to society; gains which can be made only imperfectly (if at all) through all-too-common heavy-handed government controls.

However, effective and capable economic regulatory oversight is needed. This can only be achieved through government commitment to independent regulation supported by sufficient resources and skills. In the absence of true market competition, a good economic regulatory environment has the added benefit of forcing an enterprise to raise the quality of service that its consumers receive and at the most cost reflective prices. Additionally, private participation, whether through public shareholder participation or strategic partnership is a key means of ensuring that managers work solely in the best interest of the enterprise and their shareholders.

Governments often impose conflicting objectives on state enterprises. On one hand it is expected that state enterprises will operate profitably and efficiently, yet on the other, enterprises are often used as arms of social policy. One way for these divergent agendas to be reconciled is for governments to institute a clear Community Service

Obligation (CSO) policy². Governments should articulate which CSO services it wishes to provide, and then subsidize them in a manner which will provide the most benefit to society. This will involve moving progressively to more output-based payments to state enterprises. Governments should focus on actively purchasing service from operators to meet non-commercial and community service objectives, where outputs and prices are clearly defined and provided with innovative service delivery.

In the following sections, the working paper presents the findings of the RETA in respect of governance and regulatory issues in the Pacific as they emerged in the Inception Workshop and in the course of the consultation missions. Section 3 contains an overview of governance and regulation issues as they apply to the improvement of infrastructure service delivery in the Pacific, with a presentation of principles to guide the process of addressing them. Section 4 outlines the proposed approach for building or strengthening capacity for regulation and good governance for infrastructure and includes a discussion of comparative institutional arrangements.

Annex 1 summarizes a methodology developed by the ADB for appraising the effectiveness of the regulatory arrangements for use in Pacific countries, and applies the methodology to a comparative appraisal of regulation in Fiji, PNG, and Samoa. Annex 2 contains a summary Table of the comparative experience with infrastructure regulation internationally (both developed and developing countries).

² See the national and regional strategy papers for specific applications of such policy.

2 Findings of the RETA Related to Governance and Regulation

Overleaf is a brief summary (Table 1) introducing and comparing the chief findings from the consultation missions in respect of governance and regulatory issues. A fuller narrative of the findings from the missions follows as section 2.2.

2.1 Issues and recommendations emerging from the Inception Workshop

An Inception Workshop was held in Sydney in August 2006 comprising PDMC participants in the RETA, infrastructure resource specialists and delegates from ADB, AusAID, NZAID, World Bank and the Pacific Islands Forum Secretariat. The primary objective was to achieve wide-ranging consensus among the participating Pacific countries, international development partners, and the RETA team regarding the critical issues facing infrastructure service delivery in the Pacific.

Focused discussions on governance and regulation raised the following points:

Governance

- There needs to be more consultation on infrastructure matters, and it should be less politically driven; there needs to be more community-driven development; there should be better coordination among stakeholders (providers, communities, planners, lenders);
- Development partners and governments should allocate more funding for infrastructure; there is a need for better infrastructure development planning and, after commissioning, performance monitoring; infrastructure planning needs to be fully transparent with those involved fully accountable;
- There is disparity in equity of service delivery, particularly between urban and rural consumers; coherent subsidy policy is needed; and
- The PNG water sector is an example of governance at work, where the Act states that the Board is appointed by professional institutions, relatively remote from political interference. This leads to an element of favorable control and behavior, and is successful.

Regulation

- There is a need to remove the many barriers which inhibit private sector intervention in the Pacific; and
- The respective functions of the government and the private sector need to be better defined and made transparent. Government often does not want to let go of state-owned monopolies because of the prospect of reduced revenue. Appropriate policy and a strong regulatory framework are necessary to counter this tendency so that the economy and the people benefit.

Table 1: Overview of Regulatory and Governance Issues in Infrastructure in the Pacific (Selected Countries)

	Fiji	Papua New Guinea	Samoa	Vanuatu	Palau
Telecom	Regulated under Commerce Commission. Bill to establish separate sector technical regulator drafted.	Price Regulation under regulatory contract. ICCC leading the liberalization of the sector.	Regulator established. New entrants in market.	Concerns over the capacity to manage the concession contract. No monitoring of tariffs or service standards.	PNCC should be fully corporatized and a licensing system implemented for all operators. Develop sound CSO policy applicable to all providers.
Water/ Sanitation	Corporatization of sector in progress. Price regulation under the Commerce Commission.	Water and Sanitation are declared services under ICCC. 5 year price control implemented. Technical regulation and operator combined.	Water Authority corporatized but regulatory (technical and economic) arrangements poor.	Concerns over the capacity to manage the water supply contract for Pt Vila. Tariff and service issues covered in contract but not customer issues.	Corporatization and cost reflective tariffs necessary to ensure capital costs and operating costs can be met.
Power	Price regulation under Commerce Commission. Power utility corporatized.	Price regulation under regulatory contract with ICCC. Power utility corporatized.	Unclear regulatory arrangements.	Concerns over the capacity to manage the concession contract. Price review process not clear in the contract.	PPUC should be fully corporatized and regulatory powers transferred to a multi sector regulator.
Roads	Difficulties in policy implementation regarding reform of maintenance functions. Roads Authority established.	Roads Authority established. Capacity issues identified regarding contracting and policy implementation.	Successful model of roads sector restructuring.	Capacity issues in policy development and implementation.	Outsourcing of road maintenance with sufficient budget allocation made by the government required.
Ports	Corporatized and regulated under Commerce Commission.	Ports corporatized and under regulatory contract with ICCC.	Ports corporatized	Outsourced services in Santo poor due to poor supervision of private sector contract; outsourced operations in Port Vila port working well	Regulatory monitoring of Port tariffs and technical issues should be implemented through a multi-sector regulator.
Shipping	Difficulties in policy implementation.	Declared services under ICCC. Initial reviews undertaken with full price review anticipated 2007.	Government owned corporation - issues with tariff setting.	100% private sector shipping services (unregulated); no effective safety regulation and insufficient revenues to support rehabilitation of shipping or navaid system	N/A

2.2 Issues identified through missions and workshops

Following is a summary of key observations from the consultations concerning governance and regulatory issues in selected countries³.

2.2.1 Cook Islands

Overall, the regulatory system in the Cook Islands, while often well specified on paper, does not deliver the thoroughness, transparency, and efficiency required of it. There is a notable disconnect between government central agencies providing oversight and performance monitoring of infrastructure services and the line departments and SOEs charged with providing the services. In carrying out its monitoring role, The Ministry of Finance and Economic Management's (MFEM) procedures have often been perceived as 'red tape' by the entities being monitored while failing to support improved performance, whereas MFEM maintains that government funds in these sectors are not effectively spent and accounted for. The oversight agency for SOEs in the Cook Islands, the Cook Islands Investment Corporation, lacks capacity to carry out its responsibilities effectively and provides little meaningful supervision or corrective impact on SOE operations.

There is an urgent need for a high-level strategic plan incorporating institutional reform, tariffs, regulation, and corporatization of subsidized government services to supplement the Infrastructure Master Plan. The Government's imminent review of the MOW (to be supported by the ADB) is a step towards this, but the scope needs to be considerably broadened to address the wider regulatory issues⁴.

2.2.2 Fiji

Fiji has gained a wealth of experience in corporatization and commercialization of key infrastructure service sectors, including ports, telecommunications, and electricity. Reform processes in these sectors, often resulting in greatly improved conditions for private sector participation, have continued after corporatization and some are continuing now (e.g., in telecoms). Restructuring of the long-ago corporatized Fiji Electricity Authority since 2001 has paved the way for private sector independent power producers to enter the generation market in a substantial way, and outsourcing of O&M functions has allowed a halving of FEA permanent staff requirements. International ports operations have greatly improved since corporatization was completed in the late 1990s.

Fiji is taking bold steps in opening markets to competition and market forces, especially in the critical sectors of aviation and communications. This can be expected to have strong effects in terms of improved coverage and service quality, lower costs, and better access to export markets (including tourism). Needed regulatory reforms are also being addressed.

³ Additional discussion of countries' experience with the critical issues may be found in the respective national strategies and country reports posted on the RETA website (www.pacific-infrastructure.org).

⁴ It has been recently learned (October 2007) that the original scope of the study has been considerably broadened to encompass all of infrastructure and related issues, including regulation.

2.2.3 Samoa

Samoa has achieved outstanding success in liberalizing a key sector – telecommunications – that has resulted in immediate benefits to consumers in Samoa in the form of increased coverage and reduced cost. In combination with much improved air services into and out of Samoa (again resulting in more service at reduced cost), the country's economy and opportunities for productive private investment have been palpably transformed.

The liberalization of both telecommunications and air transport has resulted from a concerted 'push' from the top down by the government of Samoa underpinned by a timely study of sector reform potential by a development partner, and motivated by an accurate vision of economic opportunity. Another impressive area is in roads maintenance, in which the private sector has been engaged in construction and maintenance for a number of years, under well-managed contracts with the Ministry of Works (which has successfully adjusted to a focused regulatory/supervisory role).

2.2.4 Tonga

In telecommunications, Tonga is on the brink of major sectoral changes and technical innovation. Remote area mobile phone coverage seems set to improve with the introduction of WiMax technology, and connectivity internationally will become more convenient with the current introduction of roaming agreements; both innovations are from the government-owned Tonga Communications Corporation (TCC). International players with more technology and finance are likely to enter the Tonga telecom markets as TCC intends to sell a minority share, and TonFon (a private sector mobile services provider linked to the Royal family that has been competing with TCC for some years) their entire operation, to overseas telecom companies. Other sectors, particularly ports and roads, appear to be stagnating or gradually declining in performance, with lack of training and outsourcing key issues.

Infrastructure regulation is a prime cross-sectoral concern in Tonga. Regulatory capacity at present is low and inadequate to address the rapidly growing demand for and changing structure of infrastructure service delivery in the Kingdom. Regulatory reform, if carried out transparently and with adequate resources for requisite technical and financial skills, has the potential for identifying performance standards and the resource requirements for best-practice service delivery in all sectors and in all areas of the country. Reform is also required to tap the considerable resources of the private sector, in expertise, equipment, and finance, in support of infrastructure services. Coordination of infrastructure planning across sectors is lacking, but could be promoted through development of multi-sector regulatory capacity. The role of the Ministry of Public Enterprises could be considerably enhanced in this regard.

2.2.5 Vanuatu

Vanuatu is making substantial strides towards promotion of competition in crucial infrastructure sectors, especially telecoms and international aviation. Though the telecoms competition policy is still a matter of legal contention, it seems clear that the market will become competitive sooner rather than later. Plans are in the making to upgrade international airport facilities to allow additional long range carriers to serve Vanuatu routes, perhaps opening new tourist markets in Asia. Air Vanuatu itself places admirable emphasis on serving domestic routes, thus supporting prospects for growth of

tourism in the outer islands. In the past, infrastructure and economic planning in Vanuatu has been said to be mainly reactive and highly influenced by shifting political winds, but there are clear signs that this is changing.

Regulation is a complementary area where significant advances have been made. Multisector regulation, with support from the World Bank and AUSAID, is now a near-term prospect. Water supply catchment regulation, lacking in so many other Pacific island countries, is also in place.

2.2.6 Conclusions from the Consultations

As outlined above, the RETA's approach to developing capacity in the Pacific for regulation and good governance is to focus on frameworks in which government policy makers, the sector operators, and the regulator are functionally independent of each other, but with well-established lines of communication. The Regulator in Samoa, whose office currently has responsibility for the telecom sector but may be extended to electricity and possibly other sectors at a later time, observed that the key to regulation in infrastructure is good legislation. The Samoa Telecommunications Act (2005), which established the Office of the Regulator, is of high quality and ensures the Regulator's independence and freedom from political influence.

The Samoan legislation is useful as an example to other countries in the Pacific which are developing capacities in regulation; other countries with nascent regulators (e.g., Fiji, PNG) have not achieved the degree of autonomy for regulation that Samoa has. As the Samoan example shows, the process of establishing regulatory capacity need not be a lengthy one, once an awareness of regulation's role in the infrastructure reform process has been gained at top political levels. A factor constraining regulation in Samoa as in other PDMCs, however, is the urgent need for highly specialized training and retention of skilled personnel by regulatory agencies.

It is often difficult in the Pacific to find appropriately qualified and experienced people to fill senior posts. The ADB has helped to develop capacity to train candidate Directors in a specialized Institute of Directors in Samoa, which was launched in 2005/6. Fiji has a similar Institute; regional cooperation and linkages between Institutes of Directors could be instrumental for longer term capacity building. An institutional environment providing appropriate incentives (e.g., via corporatization as part of a sector reform process) would make best-practices sustainable but, as mentioned by several stakeholders during the consultations, management needs to be aware that incentives must ultimately reach all levels of the target organizations before they will be fully effective.

2.2.6.1 *Strengthening Policy Development & Coordination: the Role of a 'Champion'*

While sound regulation is a critical element of service improvement, it cannot repair damage from unproductive industry structures. These have to be countered head-on through policy changes. There is a need for political and private sector leadership teams to drive a policy reform agenda in most Pacific countries: a reform-driving unit to set policy agendas drawing on best practices elsewhere and attuned to local conditions. It is usually appropriate to house such a unit in the Ministry of Finance or Ministry of Public Enterprise, under Ministers who champion reforms. The unit would usually include experts from line relevant ministries (Works, Energy, Communications, etc.) and State-Owned Enterprises (SOEs).

2.2.6.2 *Corporatization Models and Regulation*

The corporatization process observed in the Pacific commonly results in re-named service providers which nevertheless continue to function in much the same way as the organization that was replaced. In such cases, the process needs to be re-focused better to define the roles and restrictions on management, the Board, and Ministers. In many Pacific countries, Ministers serve on Boards and even as Chairpersons of what are to be independent SOEs. SOEs need to be run without political influence, under incentives promoting efficiency, sound asset management, and competitive commercial pricing. To protect such an orientation for SOEs, there is a need for independent regulation of monopoly pricing, competition issues and corporatization governance. There are sound examples of sound independent regulation in the region, as in the case of telecommunications in Samoa, but there are also regulatory bodies such as the Commerce Commission in Fiji whose decisions may be overturned by Cabinet, thereby defeating the goal of separating politics from business⁵.

⁵ An appraisal of regulatory practices in Fiji, Samoa, and PNG is contained in Annex 2.

3 Overview of Regulatory and Governance Issues

As shown above in Table 1, the Pacific experience with infrastructure reform is mixed, but some countries in some sectors have well demonstrated the benefits of separating policy, regulatory and operational roles through the establishment of regulators under law and the corporatization and, in some cases, the privatization of utilities.

Starting with leadership and coordination in policy formulation and management (and the ability to draw lessons from international and regional experience), the outcomes of successful reform include the impartial economic regulation and commercially-oriented operation of infrastructure with acceptable financial performance and the reduction of non-commercial objectives being imposed on utility and infrastructure services through corporatization. These results will provide the resources and incentives needed to improve service delivery over the long term.

In the Pacific, regulatory reform is most likely to occur in two phases. In phase 1, attention will be focused on awareness raising among policy makers on regulatory and governance issues, policy formulation, and drafting the requisite legislation leading to the establishment of the appropriate institutions to implement regulation. Phase 2 will progress to capacity building and training in pricing and sector issues, addressing the inter-relationship between economic and technical regulation, institutional strengthening and further work on refining the regulatory framework to include such issues as multi-sector regulation.

Key principles guiding the reform process through both phases include the need for:

- (i) realistic appraisal of the capital and O&M costs of providing a service and, in considering the tariff, fairly allocating the costs between users and the government on the basis of an effective CSO policy;
- (ii) establishing corporate structures that are consistent with commercial practice and in the cases where competition exists, a level playing field between all operators; and
- (iii) appropriate Board structures that separate the operational functions from ownership elements.

In international experience, establishing boundaries between regulatory and policy functions has proved difficult and this is duly reflected in the region. While regulatory functions and policy will continue to be developed and refined over time, good policy plays a key role in the initial stages of reform. The key elements of a good policy environment include

- (i) consensus among political and bureaucratic decision makers on the need for reform;
- (ii) clear identification of responsibilities and decision making channels;
- (iii) technical capacity to evaluate industry sectors and prepare sector plans for reform that take account of international experience and the local context; and
- (iv) ability to raise awareness among stakeholders and decision makers and explain and justify sector reform plans.

Strengthening policy development and management functions is not a simple matter of providing a training program (though capacity building and training are key strategies). Building capacity to undertake sector studies is a time consuming, iterative, and expensive process and programs designed to achieve this need to reflect the difficulties and resources required. Additionally, such activities may require outsourced experience and officials will need to develop skills in project design, project funding, consultant management, and report evaluation. Resources for this need not come from donors, though that channel is commonly used for such purposes. The important thing is that sufficient funding be available at the outset of the reform process to support the technical assessments required.

The size of a country's population or scale of its infrastructure sectors does not determine the benefits of restructuring and regulatory reform. The particular emphasis placed on these steps, and their timing, will vary somewhat by sector and by country (partly due to scale factors), but all sectors are essentially on the 'same road'. This opens large opportunities for regional sharing and self-help approaches, and provides much scope for individual sector initiative as well (no need to wait for regional programs to get started) supported by strategically-applied external technical assistance.

3.1 Governance

The separation of performance monitoring from Ministerial policy functions will further strengthen the commercialization of state enterprises by channeling tasks to people with the right qualifications. Reviewing Corporate Plans seems to be a difficult task for government officials at Ministerial level apparently because they do not have the requisite expertise; but a properly staffed regulator or SOE monitoring capacity will have. Capacity may need to be built in these institutions.

In accordance with a set of guidelines developed in 1999 by the Organisation for Economic Cooperation and Development (OECD) for corporate governance, applicable in the Pacific, the corporate governance framework should:

1. protect shareholders' rights;
2. ensure the equitable treatment of all shareholders, including minority and foreign shareholders. All shareholders should have the opportunity to obtain effective redress for violation of their rights;
3. recognize the rights of stakeholders as established by law and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises;
4. ensure that timely and accurate disclosure is made on all material matters regarding the corporation, including the financial situation, performance, ownership, and governance of the company; and
5. ensure the strategic guidance of the company, the effective monitoring of management by the board, and the board's accountability to the company and the shareholders.

Several key issues need to be addressed in restructuring state enterprises and designing the legal framework for corporatizing them⁶, including:

- The legal status of state enterprises — joint stock company, departmental undertaking, autonomous body, etc. — and their place within the administration;
- The framework for setting the objectives of state enterprises, communicating those objectives, and updating them when necessary;
- The ownership function of the state, including how the state exercises its rights as a shareholder, SOE dividend and investment policy, and how to monitor and motivate state enterprises to achieve their objectives;
- Disclosure and transparency of individual state enterprises and the state sector as a whole, including requirements for enterprise and aggregate reporting, and the system of external and internal controls to ensure that disclosure is effective;
- The authority and responsibilities of SOE boards, and the role of the state in nominating board members, ensuring professionalism, and determining board composition; and
- Relations with other shareholders and stakeholders, including methods to ensure that SOEs deal with one another on an arms-length basis.

In summary, based on RETA observations and with the benefit of recent experience worldwide with the reform of public enterprises, a practical approach to promote good governance in infrastructure would encompass

- a broad framework of reform with the separation of policy, regulatory and operational responsibilities;
- detailed strategies (outlined above) to implement good corporate governance (addressing ownership issues, conflicts of interest, commercial orientation, etc);
- addressing accountability and transparency issues through developing clear lines of communication (and communication responsibility) between agencies with clearly defined functions; and
- addressing capacity building constraints to ensure that people in responsibility have the skills and knowledge to work in a manner consistent with best practice.

The case for corporatization of state enterprises is that it brings to bear the benefits of corporate law, regulation, and the judicial system to enterprises that otherwise would be subject to undue political control through line ministries and often the Ministry of Finance.

The main shareholder in corporatized entities is usually the Ministry of Finance. Whatever Ministry represents the government as owner of the enterprise can properly and ultimately decide on the processes for Board appointments, and in some cases even approve appointments of Board Members passing an independently specified “fit and proper” test. Other government agencies created for the purpose should contribute to policy and carry out regulation - but not participate in management, pricing and

⁶ Robinett, D. “Held by the Visible Hand: The Challenge of SOE Corporate Governance for Emerging Markets” World Bank May 2006

investment decisions, which should be left to the Boards and management of the autonomous public enterprises.

The corporatized entities would prepare and annually review a Statement of Corporate Intent that is negotiated with Ministers, consistent with the Corporatization Act and which defines goals, accountabilities and boundaries for decisions of the respective parties – Ministers, Board and management.

It has been suggested in several Pacific countries that there is a problem in small island states where, it is argued, there are only a few well qualified people and therefore that it may be acceptable to be both a Cabinet Minister and a Board Member. Here, capacity building within public enterprises through training and/or outsourcing is the key, so that the separation of roles emphasized in several places above may be achieved. The skills required of Board Members are generally specified in the Act setting up the corporatized business; the temptation of placing Ministers on such Boards should be resisted.

3.2 Regulation

Since the early 1980's many countries have restructured infrastructure through unbundling⁷ of utilities and the commercialization, corporatization and, in some cases, the privatization of the unbundled entities. The telecommunications and energy sectors generally led the way, driven by new technologies and the desire to achieve more efficient capital investment and operations. Subsequently, other infrastructure sectors and industries followed a similar pattern, including railways, water and sewerage, airports, etc.

Prior to the 1980's regulation of infrastructure functioned as an internal process within government departments or through utility enterprises as self regulating monopolies⁸. Generally, regulatory arrangements accompanied the commercialization of utility services and typically included the participation of private capital. However, as Stern and Holder point out:

"... regulation can (and frequently is) used by governments as a substitute for taxation e.g. as a way for governments to impose and fund social and environmental objectives from the consumers of commercialized and privatized utility services. Indeed, such obligations have for many years been a major part of traditional state dominated infrastructure development with pervasive subsidies and cross-subsidies, but, the introduction of private capital has forced governments to make these obligations much more explicit. Such obligations have traditionally been particularly important for energy and for water services, particularly where national coverage has been much less than complete and

⁷ Vertical unbundling refers to the separation of activities along the lines of service and production such as generation, transmission, distribution and supply in the power sector; Horizontal unbundling refers to the separation of activities across the whole scope of the particular business such as the creation of regional water supply entities from one vertically integrated water enterprise.

⁸ Except in the case of the US which had over 100 years of experience with separate regulatory institutions, now known generally as Public Utility Commissions (PUC)

governments have wished to impose service expansion obligations on service providers.”⁹

In this light, specifying the objectives and the institutional design and structure of regulatory frameworks needs to take into account:

- secondary (e.g., social and environmental) objectives in addition to the primary objective of, say, private sector participation;
- the needs of a wide range of industries and different economic and market structures;
- current levels of economic development and human resource capabilities; and
- a range of ideological, political and legal contexts.

⁹ Stern, J. and Holder, S. 1999 “Regulatory Governance: Criteria for Assessing the Performance of Regulatory Systems” p2

4 Proposed Approach to Establish Capacity for Regulation

The industries under examination by the RETA, viz., telecommunications, water supply and sanitation, power, roads, ports, and shipping services, are all mass-market industries that involve an explicit physical network and are generally known as 'utilities'. The term 'economic regulation of utilities' usually covers:

- pricing;
- investment/costs of service;
- quality of service; and
- rate of return on assets

While environmental, occupational health, safety and welfare and other issues are often the roles of separate agencies within government, such issues often need to be incorporated into regulatory determinations.

Infrastructure industries are characterized by:

- capital intensive, long lived assets;
- economies of scale which may limit the number of firms that can be supported by the market and reduce the scope for competition; and
- social and political dimensions stemming from their capacity to deliver basic services.

Irrespective of the ownership status (state or private¹⁰) of an infrastructure service enterprise, regulation can be delivered through a government ministry or department, a state owned enterprise that is self regulating, a government agency with a quasi-independent commission, a contractual relationship with the private sector (i.e., a concession, discussed further below) or, finally, an entity established under its own law (either through primary or secondary legislation).

When undertaken by a government agency, typically a 'line' Ministry (as in some sectors in the Cook Islands), regulation is characterized by 'opaqueness' and policy, operations and regulation are often not functionally distinguished. According to Stern and Holder¹¹ in these circumstances regulation tends to become a shifting set of negotiations between the operator and regulator and end user pricing in particular can become highly politicized. Transparency is undermined and risk assessments by outside parties are difficult, discouraging private sector participation in the affected sectors. Separation of functions and a degree of mutual independence between the functions are necessary to resolve this.

The term 'independent' in regard to regulation is often seen as a threat to the influence of policy makers and this is a serious impediment to regulatory reform. It is important to

¹⁰ In some Scandinavian countries and Australian states, independent regulation is present with non-private ownership of and competition between state owned (but usually corporatised) utilities

¹¹ Stern, J and Holder, S *ibid* p7

note, however, that even in some of the most advanced regulatory regimes the degree of independence from government is never absolute, as government always retains certain powers.

In any case, it is useful to focus first on the independence of the regulator from the operating entity (whatever the relationship may be between the regulator and the government), as this shifts the focus to the real priority of developing credible regulatory capacity, with credibility emerging from clear, consistent and transparent procedures and processes. Governments that introduce credible regulatory capacity in whatever form reduce the cost of capital in regulated infrastructure industries by reducing risk, thereby increasing the potential for outside participation in the sector and thus increasing the pool of resources available to improve services – the essence of what regulation is designed to achieve. Thus when a regulatory body is established under authorizing legislation (primary or secondary), the detailed governance arrangements and connections with government authorities can vary widely across different countries and different sectors as long as credibility and transparency are achieved.

With the establishment of regulatory bodies under authorizing legislation, tests of the credibility of the regulator can be made according to:

- the extent of powers assigned to the regulator;
- how clearly such powers are defined; and
- the obligations on government to publish and justify the use of such powers.

As a minor caveat to the discussion of economic regulation, the introduction of competition into previously monopoly industries as a strategy to improve service delivery (laudable in almost all cases) has complicated the issue of designing the regulatory framework. Competition policy and utility regulation are usually enacted under separate laws¹² and work side by side, but in some countries attempts have been made to regulate purely through the competition law¹³. Since regulators within unbundled industries must take into account competition and anti-trust issues, utility regulators can be required to act as a ‘specialist competition agency’.

4.1.1 Regulatory Governance and Private Investment

The functions of economic regulation as described above can take a variety of forms (formal and informal) in industries under state ownership. However, when a utility is being commercialized or there is a need to attract private investment to a sector, a formal regulatory framework needs to be developed which is able to ensure efficient provision of services at the minimum necessary costs and to provide for a reasonable rate of return.

The regulatory relationship between the government and the private sector can be through a contract or concession agreement. Such contracts set out the obligations of the private operator/investor and the tariffs that it will be allowed to charge and the basis

¹² The United Kingdom and Latin America (Mexico, Argentina)

¹³ New Zealand, Austria, Germany, Australia (at the federal level through the Australian Consumer and Competition Commission [ACCC] in power transmission, telecommunications and airports)

for revising the tariff. Such contracts are common in the water and wastewater, road, rail and power generation and distribution sectors.

Concession agreements allow some independence from government and often include regulatory provisions, such as the methodology for pricing and price revisions. Problems typically arise when the underlying projections for the concession prove overly optimistic. Problems can also arise in the reverse situation, i.e., when the concession turns out more profitable than expected. An issue with concession agreements is whether they are substituting for a separate regulatory authority or are a complement to it. Given the difficulties of writing time-consistent, enforceable contracts for a long period ahead that cover all the necessary contingencies, eliminating any mediating regulatory agency is likely to place considerable strain on the concession agreement. For example, a contract with an independent power producer in PNG has essentially failed due to the purchase price for bulk electricity being expressed in foreign currency and a steep fall in the exchange rate shortly after the contract went into effect.

This 'degree of strain' inherent in such arrangements is clearly diminished where the risks are lower for the operator, i.e., when long term demand trends and costs are accurately predictable. These conditions apply more readily in some sectors (say in water/ wastewater and energy distribution (not supply) sectors) than in others (energy supply and mass transit). Concession contracts may substitute for regulatory authorities where (i) the market is large and growing rapidly but the local regulatory system is not experienced in handling complex commercial or technical issues; and (ii) where legal systems are reasonably secure and efficient.

4.1.2 Institutional Design

Levy and Spiller¹⁴ emphasize the following in evaluating whether the regulatory framework of a particular country will prove to be effective:

- degree of independence of the judiciary;
- long term credibility of legislation and the ease with which primary laws can be enacted;
- scope for flexibility without arbitrariness in the regulatory process; and
- level of administrative competence.

Regulation needs to ensure that all consumers have access to utility services of acceptable quality at lowest minimum cost and that private (and state) investors can expect to earn a reasonable real rate of return on their assets.

As discussed in the previous section, in the Pacific it may be appropriate to focus first on informal accountability in the context of local customs rather than on notions of formal institutional independence, and emphasize regulatory processes and practices as a means of building credibility. For example a regulator that is established in an advisory

¹⁴ Levy B and Spiller P T, (1994), "The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation", *Journal of Law Economics and Organisation*, Volume 10 No 2, pp 201-246

or semi-independent manner¹⁵ but with an obligation for transparency, such as the requirement to publish a rationale for pricing determinations and other relevant decisions, may be sufficient to meet the regulatory need. The effectiveness of informal accountability correlates to the degree to which the regulatory process encourages debate and open discussion, involves relevant parties, allows or requires the regulator to justify determinations and methodologies, and fosters a clear understanding by participants of the 'rules of the game'¹⁶.

As Stern argues

*"The sustained effectiveness of regulatory systems depends on their continued acceptability to governments, producers, consumers - and the populace. Whatever legal safeguards may be put in place, unless they remain acceptable they will be changed. An independent regulatory agency (or regulator) that does not command continued acceptability will be replaced. Governments have a thousand and one ways of undermining a supposedly "independent" regulator, whatever the underlying legal framework."*¹⁷

Consequently good design of regulatory institutions will emphasize transparency, predictability, and the regulator's credibility or reputation for making fair and justifiable decisions and recommendations. Institutional arrangements can be flexible and variable across countries (or even within countries, across different sectors) as long as these core considerations are addressed.

4.1.3 A Note on Multi-Sector vs. Single-Sector Regulators

A number of Pacific countries are moving towards the establishment of multi-sector regulators in the reform program (Samoa, Fiji, and Vanuatu in particular). This section compares the advantages of single sector (industry specific) regulatory agencies to those of multi sector regulatory agencies.

The potential advantages of single sector (industry specific) regulatory agencies include:

- the ability for the regulator to address unique aspects of the industry;
- the ability to provide industry specific expertise and focus;
- diversifying the risk of institutional failure;
- facilitating innovation in approaches to regulatory problems through 'competition' between regulatory agencies.

The potential advantages of a multi sector regulatory agency include:

- minimizing costs through exploiting the resulting economies of scope;

¹⁵ This is a common structure in Thailand where a Commission, empowered by primary legislation and chaired by a senior official or Minister, acts in a regulatory capacity

¹⁶ "What Makes an Independent Regulator Independent?", J Stern, *Business Strategy Review*, Summer 1997, pp 67-75

¹⁷ Stern, J & Holder, S op cit p20

- protecting regulatory independence by reducing the regulator's exposure to any individual industry, and therefore the risk of 'capture' by that industry;
- promoting consistency of approach across regulated industries; and
- avoiding overlapping regulatory jurisdictions.

The decision on the scope of industry coverage for the regulatory agency will involve a number of trade-offs. No single approach will be superior in all circumstances. Factors that will affect the decision include:

- size of the economy;
- scope of the agency's responsibilities in each industry;
- nature of the industries in question;
- broader institutional environment; and,
- government's reform strategy.

With regard to the issue of size of the economy and scale of the industries being regulated, the larger the economy, the greater the possibility that the advantages of multi-industry approaches may be outweighed by concerns over sufficient industry focus, and potential economies of scale being exhausted and leading to diseconomies. The most appropriate reference point is the number of consumers, rather than the total population. There are several examples of multi-industry agencies dealing with these challenges successfully in relatively small economies, such as the national regulators in Panama, Jamaica and Costa Rica, and state-level regulators in the United States, Canada, Australia and Brazil. It is not clear where the upper limit may be. The California Public Utilities Commission has responsibility for regulating power, water, gas and aspects of telecommunications and transport in an economy with a population of over 30 million people. However, a jurisdiction of the same size may be more challenging for a less experienced regulatory agency. For a summary of the variety of regulatory structures for infrastructure in existence in different countries in the world, see Annex 2.

There is also the issue of a substantial, and possibly unrealistic, commitment of suitable people to work in the regulatory agency, particularly in an economy where the necessary skills are likely to be in short supply. A recent survey¹⁸ of regulatory staffing requirements suggested that appropriate measures of the ability of countries to support a full coverage of utility regulatory institutions were the proportion of the population with post-secondary level education and the absolute number of graduate annually in law, business and social sciences. Benchmark levels were proposed as 10% and 10,000 respectively.

Regulatory agencies in developing countries typically have more limited discretionary authority than their counterparts in industrialized countries, and in some systems regulatory authority over a particular industry is shared between regulators located within different government agencies. In general, the narrower the scope of the agency's responsibilities in relation to any industry, the less should be the concern over inadequate industry-focus or potential diseconomies of scale with multi-industry agencies.

¹⁸ Stern J, September 2000, 'Electricity and telecommunications regulatory institutions in small and developing countries', *Utilities Policy* 9 (2000) 131-157

The nature of the industries proposed to be regulated by a multi-industry agency is also an important variable. While each utility industry has its own distinct features, from a regulatory standpoint there are many similarities. The risk of economic distortions arising from inconsistent approaches to common issues may be greater where there is a degree of product market substitution between the outputs of regulated industries, most notably between electricity and gas, but potentially between various transport or communication modes. Pressures arising from industry convergence may affect some clusters of industries more than others. Reflecting these considerations, the case for consolidating regulatory responsibility for some industries may thus be stronger than for others. For example, there is relatively little controversy over merging responsibility for electricity and gas in a single energy agency. Regulation of more monopolistic power and water industries may also share more common features than regulating a competitive telecommunications industry, although the advent of competition in electricity is eroding this distinction.¹⁹

Concerns over constrained regulatory capacity, including scarce expertise and vulnerability to political and industry capture, are particularly acute in many developing countries, but will still vary between countries. The arguments for considering a multi sector regulator are stronger where the constraints to regulatory capacity are greater.

Alternative government reform strategies may place different levels of demands on newly-created regulatory agencies, which may have implications for the ability to develop and apply expertise and maintain sufficient focus. Where the government sequences reforms to individual industries over a period of time, any newly created regulatory agencies are able to focus on one industry at a time. This is the case anticipated in Samoa with the establishment of the Office of the Regulator to cover telecommunications and the anticipation that other sectors will be added to the office over time. Where the government is implementing concurrent reform through the restructuring of all or most industries simultaneously, significant demands could be placed on a multi-sector regulator. Under this scenario, it may be more sensible to establish single sector regulators and then considering merger at a later stage. Another approach, adopted in Bolivia, may be to establish a hybrid structure which captures some of the benefits of both industry-specific and broader approaches.²⁰

Most countries consider utility reforms on an industry-by-industry basis. For example, a Ministry of Energy might be responsible for proposing a regulatory framework for the power sector, while a Ministry of Post and Telecommunications may have similar responsibilities in relation to telecommunications. Typically, each agency will commission its own consultants to advise on these issues, with terms of reference focusing on individual industries. Ministry staff will also be focused on their particular industry, and often may not even be aware of proposals being developed by colleagues working on other utility industries. In this environment, the strengths and weaknesses of industry-specific and multi-industry agencies are often not even evaluated.

Multi-industry agencies also tend to be unpopular with sectoral ministries and their advisors. Proposals to create such agencies require cooperation across Ministries during

¹⁹ Smith, W 'Regulating Utilities: Thinking about Location Questions' World Bank 2000

²⁰ Bolivia's 1994 Law on the System of Sectoral Regulation (SIRESE) created a model where industry-specific superintendencies formed part of a broader regulatory "system" led by a General Superintendent.

the design and establishment process, which may increase the authority of central ministries while creating additional delays and reducing the autonomy and influence of individual sectoral ministries. By design, multi-industry agencies also enjoy greater insulation from sectoral ministries, which may be a source of concern for those hoping to influence the agency's decisions. For these reason, if the alternative of a multi-industry regulatory agency is to be explored, a central ministry or agency usually needs to be involved early in the process.

If industry-specific agencies are created initially, it may be possible to merge them subsequently. While industry-specific regulatory agencies have incentives to resist consolidation, given the potential impact on their autonomy and jobs, the recent merger of the electricity and gas regulators in the UK shows that, with sufficient political will, this may be feasible. Of course, any proposal to merge agencies must also have regard to the implications for establishing a stable regulatory environment for investors.

The results of a survey of countries with multi-sector regulators is reported in the following table²¹. Excluded are government ministries which have responsibility for more than one sector, but which do not exercise this through independent regulators.

The remaining multi-sector regulators fall into three main categories:

- state-level public utility commissions (PUCs) of the USA and its dependencies, which have developed largely for historic reasons rather than an initial conscious decision to create multi-sector regulators;
- competition regulators whose jurisdiction includes access to network industries under their duties to control anti-competitive conduct. These have developed where either competition is seen as a sufficient control on prices or where governments have favored the use of existing agencies for regulatory purposes rather than creating new ones; and
- multi-sector regulators adopted in smaller countries.

There are also some exceptions from these categories, notably Bolivia with its multiple regulators under a supervising agency and the Public Utilities Board (PUB) in Singapore.

The main conclusion to be drawn is that, except where historical reasons or the use of existing competition authorities dictates, multi-sector regulators are less wide-spread than might be supposed. However, a number of governments have adopted multi-sector regulators, in most cases presumably as a reaction to resource constraints, and they are certainly not unusual in both developed and developing countries. It is notable that multi-sector regulators in developing countries are concentrated in Central and South America where US influence, and therefore presumably the use of PUCs as a model, might be expected to be greatest.

Those multi-sector regulators recently established generally include water and energy and may or may not extend to telecoms. Other industries are generally excluded.

²¹ Frontier Economics, 'Consolidated Strategy for Regulating Infrastructure in Sri Lanka' PPIAF, February 2002 pp 36 - 40

5 Annex 1: Appraising Regulatory Systems in the Pacific

In appraising the effectiveness of existing and developing regulatory systems in the Pacific, the appraisal system developed for the survey of regulatory practice for infrastructure industries in developing Asian countries undertaken by the Asian Development Bank (ADB) in 1998 is useful and is employed here.²²

Application of the system by the RETA (this Annex) to regulatory systems that have been sufficiently well developed for appraisal will provide a baseline for future reference and allow stakeholders in the region to learn relevant lessons from neighboring countries. Since the development of regulatory frameworks and establishment of regulatory institutions is at a varying stage between countries and within sectors, such an appraisal faces some difficulty in achieving consistency. However, even at this early stage, there is enough experience and data to be useful as inputs to the initial efforts of many countries to build, or even just consider introducing, economic regulation in infrastructure. It is expected that an early appraisal will provide a starting point for determining where resources and support may be most effective; for example, some countries or sectors might benefit from work on the legal framework to establish the regulatory functions while others may benefit from capacity building programs in specific areas such as tariff setting, quality of service regulation, accounting treatment etc.

The system uses six criteria of governance that relate primarily to:

(i) institutional design (the formal aspects of regulation):

1. clarity of roles and objectives;
2. autonomy;
3. accountability; and

(ii) regulatory processes and practices (informal accountability):

4. participation;
5. transparency;
6. predictability²³

Each of the six criteria is briefly elaborated below.

5.1 Clarity of Roles and Objectives²⁴

Clarity, particularly between Ministers and regulators, can help to make regulation more effective by removing confusion about which functions are carried out by regulators, and which by Ministers or other bodies, such as environmental agencies. Both accountability and predictability will be significantly enhanced if regulators' objectives are clearly stated, enabling them to be challenged if they depart from these objectives.

²² The ADB has since published the report under the title "Governance and Regulatory Regimes for Private Sector Infrastructure Development". ADB RETA 5758-REG, Final Report prepared by NERA, Manila, Philippines, 1998.

²³ These 6 criteria include the four "key dimensions" of governance identified by the ADB for all governmental institutions: accountability, participation, predictability and transparency. See "*Governance: Sound Development Management*", ADB, August 1995. To these, the consultants added two critical issues for effective regulation – clarity and autonomy.

²⁴ Following summaries taken from Stern, J. & Holder, S. op cit pp 22 - 23

5.2 Autonomy

Regulators may implement their mandate in their own way but in a manner that conforms with the stated objectives, and their performance should be judged solely on this basis. Autonomy will be promoted if regulatory bodies have secure sources of funding, and if senior officers are protected from unfair dismissal by politicians and do not themselves stand to benefit from the political process. Autonomy, and consequently the reduced likelihood of political interference will enhance the predictability of regulated industries, as well as promote accountability and transparency (as regulators alone will be answerable for their decisions). Autonomy is most secure with an independent regulator operating under a primary law which, among other things, (a) sets out key powers and duties, and (b) establishes its financial security.

5.3 Participation

Effective participation of stakeholders can improve the quality of regulatory decision making as well as increase the acceptability of regulatory decisions. Participation may take many forms, including formal consultation exercises, formal or informal hearings, and surveys of customer views and priorities. Participation should be meaningful, in the sense that participants must have a genuine chance of influencing decisions before they are made (rather than being invited to state their views on a decision which has already been made).

5.4 Accountability

Accountability requires that regulators' decisions can be challenged in an effective way, if, for example, certain decisions are thought to be unfair or incompetent. If such appeals mechanisms exist, this will reduce the risk of firms being treated unfairly (or randomly, as a result of incompetence). Accountability to customers (for example, if price limits seem too generous to the firm) is more difficult, but consumer groups and media comment may play a part. The regulator should also be accountable, for example through the legal system, for any failure to fulfill statutory obligations. Accountability to the legislature (e.g. via the submission and discussion of an annual report) can also be important in this context.

5.5 Transparency

Transparency is important in its own right, since a requirement on regulators to explain their decisions and processes should reduce the likelihood of unfairness or incompetence. In addition, transparency is crucial for ensuring effective accountability, since regulated firms and others will have a better understanding of regulators' reasons for making certain decisions, and will therefore be more confident in their ability to challenge some or all of those reasons. Transparency will help to secure more effective participation, since firms (and consumers) will have a better understanding of the main factors which are likely to influence the regulator's decisions. It is also important for predictability, since transparency implies that changes in regulators' approaches to key decisions will be easier to detect.

5.6 Predictability

Predictability is clearly essential where firms are undertaking investment which needs to be recouped over a number of years. It means that firms can be reasonably confident that the rules of the game will not suddenly change, either because of a

change in the overall legal and regulatory framework, or because of a change in the way that regulators behave within this framework. However, the attribute of predictability should also include the ability to achieve evolutionary change in regulatory methods and practices to meet changes in circumstances in an orderly and consistent way.

Achieving all of these elements quickly or effortlessly is an unrealistic goal. In many countries an incremental approach has been taken with the step by step evolution of regulatory functions beginning with the separation of regulation from operations and proceeding from there. While the regulatory framework emerging from this may not perfectly address all of the elements outlined above, it is, however, essential that the framework remains acceptable to firms, consumers and governments. Where autonomy (and the associated elements of accountability and clarity of roles and objectives) is not realistically achievable, at least in the short to medium term, the emphasis should be on achieving a regulatory framework which features elements of participation, transparency and predictability.

5.7 Appraisal of Regulatory Agencies in Selected Countries²⁵

In the ADB system, the regulatory framework is scored for each of the 6 criteria discussed above for each sector on a qualitative ranking from A - E. The rankings are intended to indicate how firm a basis for supporting private investment is provided by the regulatory framework for each sector.

For each criterion, best international practice yields a ranking of E. A ranking of A is given to results for the indicator that imply a highly unfavorable and/or uncertain regulatory basis for private investment. Rankings of B, C and D are given for progressively more satisfactory regulatory frameworks. To a large extent such ranking will be a qualitative assessment since the delineation between the rankings are not clearly or quantitatively defined. It does however, allow a general overview of where a regulatory agency stands in relation to the six criteria to be obtained and consequently allows for a focusing of any assessments of work required for institutional strengthening and capacity building and for regulatory framework development.

Appraisal results for the arrangements for infrastructure regulation in Fiji, PNG, and Samoa are shown in Table 2 below, and are elaborated in the subsequent narrative.

Table 2: Appraisal of Regulatory Arrangements in Fiji, PNG, and Samoa

Country and Sector	Categorization by Criteria					
	Clarity	Autonomy	Participation	Accountability	Transparency	Predictability
Fiji						
Electricity Supply	E	C	D	D	D	B
Marine Ports	E	C	D	D	D	B

²⁵ These three appraisals are based on information gained from discussions with the respective regulatory agencies and have been done in the context of the appraisal framework outlined in this report. The appraisals are the assessment of the RETA team and are not the official position of the Asian Development Bank or of the respective agencies or their governments. The appraisals are provided for reference and discussion purposes only.

Roads						
Telecom	E	C	D	D	D	B
Water supply/ sanitation	E	C	D	D	D	B
Papua New Guinea						
Electricity Supply	E	D	D	E	C	C
Marine Ports	E	D	D	E	C	C
Roads						
Telecom	E	D	D	E	C	C
Water supply/ sanitation	E	D	D	E	C	C
Samoa						
Electricity Supply						
Marine Ports						
Roads						
Telecom	E	E	D	D	E	D
Water supply/ sanitation						

Shaded rows indicate no data available; or not applicable.

5.7.1 Fiji (Commerce Commission)

1. Clarity of Roles and Objectives

The roles and functions of the Commerce Commission are defined in the Commerce Act 1998. The development of sectoral regulators, as anticipated by the Telecom Bill, takes account of the Commerce Commission which retains pricing and tariff functions. The precise definition of the relationship between the Commerce Commission and the sectoral regulators is yet to be determined. It is expected that the Commerce Commission will take the lead role on economic issues and take technical and specialist advice from the sector regulators as needed. Under the Act, the Minister is responsible for approval of the functions such as access agreements, price controls etc. Consequently, the Commerce Commission acts in an advisory capacity.

Ranking: E (Best Practice)

The clarity in roles and objectives as defined by law and the maintenance of this clarity within the context of the establishment of sector regulators exemplifies best practice.

2. Autonomy

The Commerce Act 1998 Part 2 S11 stipulates that the Commission is not subject to the control or direction of Ministers. However, in practice, the commission indicated that determinations are submitted for Cabinet approval through the Minister of Commerce. In effect, this places all commission decisions under the authority of both the Minister and the Cabinet. Membership of the Commission is by appointment by the Minister (Part 2 S6). Funding is appropriated by Parliament (Part 2 S16) as part of the government budget cycle.

Ranking C

The scope for government interference in the Commission's functions is significant given the practice of submitting Commission determinations to Cabinet and through the appointment and funding of the Commission.

3. Participation

The Commerce Act does not stipulate participatory procedures to be used by the Commission nor are there any secondary instruments or published procedures that detail such procedures. However, in practice, the Commission follows best practice through a consultative approach. Invitations to participate are issued by the Commission through its website and directly to stakeholders.

Ranking D

The Commerce Commission follows best practice with regard to participation however such practices are not detailed in writing, published or backed by Commission Order.

4. Accountability

The judicial system provides the channel for appeal to the Commission's determinations. To date, only one court challenge to the Commission has been mounted resulting in a loss to the Commission. The issue was the time provided to a regulated entity to comply with the Commission's information requirements. The Commission issues an annual report which is available on their website.

Ranking D

It is expected that it would take time for the judicial channels to evolve and strengthen to provide a credible and predictable channel of review. The publication of annual reports follow best practice but the advisory role of the Commission to the government rather than the reporting requirement to Parliament constrains the accountability of the Commission.

5. Transparency

The Commission publishes all major documents including determinations, submissions and other consultative documents and these are available on its website. The rationale for determinations is published.

Ranking D

The Commission follows best practice. However, this has emerged from the operations of the commissions since its commencement in 2004. Neither the Act, or secondary regulations require the Commission to adhere to principles or practices of transparency and a change in regime at either the government or Commission level could reverse the current practice.

6. Predictability

The Commission has been in operation for just over two years. The Act does not define the mechanism by which procedures might be changed. The Commission has not prepared or published guidelines on procedures or the conditions under which established procedures might be changed. The Commission would be expected to follow current practice and engage in consultation should any changes to procedures

be anticipated, although this is not required. The Commission has followed established utility price review procedure in Fiji in terms of being reactive to proposals from utilities. It is expected that the Commission will become more proactive and implement price review cycles as markets continue to restructure and the Commission continues to evolve.

Ranking B

The current Commission and staff are well aware of best practice models and are acting consistently with this. However, such procedures are not defined by law or Commission order and may be subject to change if the regime changes. The openness and transparency of the Commission since its establishment in 2004 cannot be taken for granted and other institutions in Fiji do not follow such models.

5.7.2 Papua New Guinea (ICCC)

1. Clarity of Roles and Objectives:

The roles and objectives of the Independent Consumer and Competition Commission are set out in the Independent Consumer and Competition Commission Act (2002). This Act provides for the establishment, function and powers of the Commission as well as the procedures and the declaration of regulated services.

Ranking: E

The importance of a clear legal authority for the Commission cannot be underestimated. The capacity constraints on the PNG government with regard to policy development and implementation in the utility and infrastructure sectors are severe. The reform of these sectors is only occurring because of the existence of the ICCC and its ability to license new entrants.

2. Autonomy

The Independent Consumer and Competition Commission Act (2002) states that the Commission is not subject to direction or control by the Minister (Section 23). The Treasurer has responsibility for the determination of regulatory policy and the manner in which the interface between government responsibility for regulatory policy and the Commission responsibility for the implementation is manifested. This factor is more influenced by capacity constraints within the PNG government and the lack of coherent policy making for utility and infrastructure industries. It is further compounded by the significant level of government ownership of utility and infrastructure industries.

Funding for the ICCC is derived 60% from self financing and 40% from the government budget. The Commission's finances are regulated under the Public Financial Management Act (Section 24) in terms of the provision of annual reports to Parliament.

The Head of State appoints the members of the Commission in accordance with advice from an Appointments Committee. To revoke any Commissioner's appointment prior to its completion, the ICCC Act requires the Appointments Committee to apply to the courts.

The ICCC reports to the Treasurer but is not subject to the Treasurer's direction. Treasury will set policy and ICCC implements such competition and regulatory policy. The Treasurer is a member of the Appointments Committee.

Ranking: D

The extent to which political intervention can occur through the appointments process has not yet been tested; however the Commission has established a significant degree of autonomy. It can be surmised that the highly technical nature of the Commission's work combined with the protections under the Act has allowed it to establish and maintain this status and the Government has not yet been able to challenge this. It is possible that the newly established state holding entity, IPBC, may, in the future, develop a higher degree of sophistication and the ability to support politically driven interference with the work of the ICCC. However, with the current track record of ICCC in the regulation of utility and infrastructure industries already established and with the liberalization of some sectors meaning the focus on state enterprise management will need to be directed to performance outcomes, the ability of state entities to retain and abuse monopoly power will be diminished. If this scenario eventuates, then the ranking for autonomy should be upgraded to the highest level.

3. Participation

The ICCC Act (Part VIII) outlines the procedures for the conduct of an inquiry by the Commission. It states that notice of the inquiry is to be published including the purpose, period and format of the inquiry. The Act states that the Commission may determine that manner of the inquiry and that public hearings are not mandatory. The PNG context, however, ensures that some level of participation is maintained. Reports of the Commission are required to be made public with the exception of any 'confidential information' that is declared. Work is currently underway to prepare an industry inquiry manual that will set out the general principles of participation and how the overall stakeholder consultation process will be conducted.

Ranking: D

While the Act does not mandate participation in all cases, in practice, the Commission follows best practice in ensuring participation by stakeholders in its inquiries. There is the potential, however, under a different regime, for the Commission's procedures to be subject to abuse. A statement of principles on participation would be an effective measure to counter this.

4. Accountability

The regulatory framework includes an Appeals Panel. This three member body is appointed by a Government Appointments Committee comprising the Chairman, Bank of PNG, Prime Minister, Opposition Leader and Treasurer. This panel reviews Commission determinations should an aggrieved party make an application to the panel. The panel reviews Commission determinations in the context of consistency with legislative and regulatory instruments currently in place.

The court system is also used to challenge the decisions of the Commission. To date, the courts have upheld the powers of the Commission.

Ranking: E

The regulatory framework in PNG is evolving in a most satisfactory manner. Despite the Commission only being in existence for around 5 years, the checks and balances

seem to be working effectively. The Appeals Panel has upheld Commission determinations through its denial of claims aimed at protecting monopoly interests. Further, where such challenges have proceeded to the Courts level, the Commission and Appeals Panel decisions have been upheld. It remains to be seen if this early experience (in the telecom sector) can be replicated when dealing with other sectors where competitive pressures through the introduction of new technologies and market forces is less obvious. Some progress has begun in the power sector with the licensing of smaller new entrants but the liberalization of this sector has yet to be commenced in any meaningful way.

5. Transparency

The Act requires ICCC to publish their determinations but not the rationale for their determinations. The ICCC provides a full briefing to the Minister but generally do not release explanations for their determinations. While not required by the Act, in practice the Commission publishes the reasons and rationale for their determination in reports when reviewing regulatory contracts. During annual price adjustments, the Commission notifies the public through the print media about the adjustment process as well as reasons for any increase or decrease. The annual price review process is detailed in the regulatory contracts which are available on the Commission website.

Ranking: C

This is an area where the legislation empowering the ICCC can be enhanced. Without the requirement by law to publish the reasons for determinations, there can be only limited understanding of the criteria for decision making used by the Commission. Fortunately, the ICCC follows best practice on the issue of transparency. Since price reviews are undertaken annually, generally in response to industry submissions, it may be that the procedures currently employed by the Commission are affecting this aspect. Recently, reports on inquiries have been made available on the website (Review of Coastal Shipping) and this is a positive step in improving transparency through the provision of information.

The Commission does not have a documented or published set of procedures for key activities such as undertaking a price review; however specific requirements for particular industries are contained within the regulatory contracts. These contracts detail the price path over the regulatory period and any adjustments to the price path due to inflation, exchange rates or other unavoidable cost variable and are adjusted in accordance with the formulae provided in the regulatory contract. It is understood that even for regulated industries, there is no set information requirements template that is used by individual industries in their price review submissions and the Commission evaluates industry submissions on a case by case basis.

Further, while the Commission has wide ranging powers to declare certain information as 'Commercial in Confidence', the ability of the Commission to discount such claims in some areas, particularly for monopoly state owned enterprises, needs to be strengthened as this has been used to limit the information available for release.

6. Predictability

The regulatory contracts contain details on circumstances in which adjustments can be made, the variables concerned and that any variation has to be made on the basis of an agreement between ICCC and the regulated entity. ICCC does not have a

procedures manual. There are information requirements for tariff reviews that are not made public.

If ICCC wanted to change any procedures, they are required to engage in a consultative process.

Ranking: C

The issues under this component are similar to the preceding component on Transparency. While the Act provides for a stable and comprehensive regulatory regime, the practice of limited release of information and of procedures not yet codified or made public detracts from the ability for the regulatory regime to be seen as certain or predictable. More comprehensive release of information, documented procedures manuals and statements of principles regarding such issues as participation etc would enhance the regulatory regime.

The ICCC has achieved significant steps in just a few years of existence. Core elements of a credible regulatory regime have been addressed and implemented. There is no doubt; given the competence of the Commission demonstrated since its establishment that regulatory governance will be strengthened and enhanced in the future.

5.7.3 Samoa (Office of the Regulator)

1. Clarity of Roles and Objectives:

The Office of the Regulator in Samoa is established under the Telecommunications Act (2005). This Act aims to facilitate the development of the telecommunications sector in order to promote social and economic development. The liberalization of the sector through the licensing of new entrants is one of the methods used to achieve this.

The role and objectives of the regulator under the Telecommunications Act are comprehensively described. Twenty-two functions are articulated in the Act under the Responsibilities, Functions and Powers of the Regulator, many of which are specific to the regulation of the telecommunications sector such as interconnection, network termination, spectrum management and numbering plan. There are numerous other functions described in other areas of the Act. The roles and functions of the regulator in licensing, access, and compliance are clearly defined.

Ranking: E

The regulatory framework envisaged by this Act appears to have the aim of separating the functions of a Ministry of Telecommunications into a separate agency. While this approach is valid and has been followed in other countries, there is an implication that the regulator will have a policy role in sector development. Further, the regulatory functions combine technical and economic functions. This is typical of sectors that establish industry specific regulators and it is often claimed that the uniqueness of the telecom sector requires such an approach. Complications could arise through the stated intention of the government to add other sectors to the Office of the Regulator over time. This may have some impact on the ability of the regulators roles and objectives to remain clear.

2. Autonomy

The Telecommunications Act (2005) establishes the Office of the Regulator, including professional staff. The Regulator is the head of the office. The regulator is appointed for a period of three years by the Head of State on the advice of Cabinet. It is probably too early to gauge the extent to which the regulator's determinations will be endorsed or otherwise by the Minister and the extent to which different political regimes will be able to use this channel to intercede in regulatory determinations. At the moment, government policy is supporting liberalization and the transfer of the investment burden to the private sector. The Telecommunications Act directs this. Further, the licensing of new entrants and the characteristics of the telecom industry that promote market competition will support this direction. Since liberalization and competition has commenced, it is unlikely that the incumbent would see the utilization of political channels to protect its position as a positive use of time. The Samoa Ministry of Communications and Information Technology has technical capacity to develop ICT policy and provide advice to the Minister. The Regulator is asked to comment on issues that relate to regulatory policy.

Ranking: E

The regulator is independent under law with clear appointment, dismissal and budget procedures defined. The extent to which political intervention can occur has not been tested and would appear to be limited to areas of regulatory policy that involve the Ministry of ICT.

3. Participation

The Act requires the regulator to consult with interested parties with relation to the preparation of a universal access policy and to specifically consult with operators on a number of technical issues. The regulator has followed best practice on public consultation for all major areas primarily through the use of discussion papers and seminars.

Ranking: D

It is too early to make an assessment of the participatory approaches used by the Office of the Regulator in determinations. The Office has prepared guidelines for ISP licensing is currently revising, with a view to simplifying, the guidelines on the issuance of licenses and the determination of fees and tariffs for general telecom licensing that were defined in a published set of Rules on Telecom Licensing. Consultative processes have been used with stakeholders in this process. It would be useful if some formal published procedure for participation was included in the regulatory framework and this could be achieved through the development of a statement of principles prepared by the Office of the Regulator and endorsed by the Minister.

4. Accountability

The Telecommunications Act (2005) provides for the dismissal of the regulator only on grounds of criminal conduct leading to a conviction, bankruptcy, ill health or breaches of the Public Service Act (2004). The Act also specifies such conflicts of interest that would disqualify an appointment. Appeals to the regulator's decisions are made through the court system. An appeal has recently been launched through the Supreme Court in relation to an Order of the Regulator.

Ranking: D

The Office of the Regulator has only been functioning for 1 year and currently enjoys strong support through government policy. The Act provides substantial

accountability measures and, to date, the supportive government policy has meant that provisions in the Act have not been tested in terms of resistance to attempts at political intervention.

5. Transparency

The Act requires that the Office of the Regulator maintain records of licenses, equipment and interconnection agreements and such records should be made available to the public. At the moment, the records are made available free of charge on application by email and will be made available on the website once it is fully functioning. Further the Office of the Regulator is required to publish procedures, guidelines and interpretations.

The regulator is currently preparing information packages on license applications and tariffs. The office has also been arbitrating interconnection agreements. The details of these procedures have been developed but not yet made public. The regulator is working to establish a website which is anticipated to be functioning in 2007.

Ranking: E

The regulator acknowledges the importance of transparency and information provision, which is, in any case, mandated by the Act. It is assumed that the newness of the institution and the time required to prepare information systems combined with the sorts of staffing and recruitment problems that any new institution faces has contributed to the time taken to fully implement systems to provide information. It is clear that the Office of the Regulator is dealing with this issue and the commencement of the website is awaited with anticipation.

6. Predictability

It is difficult to make an assessment of predictability of an institution that is only one year old. Should the Office of the Regulator develop a code of practice regarding participation, this should include the issue of changes to regulatory procedures. Further, once systems for the provision of information are in place, a regulatory events calendar or similar instruments can be more easily prepared and distributed. As indicated earlier, procedures are under development or have been developed for key regulatory determinations. Once these are made public, then changes to such procedures should involve some process that is, preferably, made public beforehand. Since public involvement in policy development is an established practice in Samoa, this should not be a problem. The Act provides significant powers to the regulator to make rules and orders on matters within the jurisdiction of the regulator so the compliance with the requirements of the Act to publish procedures, guidelines and interpretations is important.

Ranking: D

6 Annex 2: A Sample of International Experience with Infrastructure Regulation

Country	Agency	Coverage				Comments
		Electricity and other energy	Water and sanitation	Telecoms	Transport	
Australia (Federal)	Australian Competition and Consumer Commission (ACCC)	√ (transmission only)	X (regulated at State level)	√	√	Regulates electricity by virtue of powers over access to nationally significant essential facilities Has specific powers over access and anti-competitive behavior in telecoms Reviews prices for privatised airports under specific legislation
Australia (State of Victoria)	Office of the Regulator-General (ORG)	√	√	√	√ (rail and port access only)	Other States have similar bodies
Barbados	Public Utilities Board	√	X	√	X	Regulated industries are those with significant private ownership. No regulation of public bodies Bahamas has a similar agency
Bolivia	Sistema de Regulación Sectorial (System of Sectoral Regulation, SIRESE)	√	√	√	√	Combines single sector regulators and a general supervising regulator to provide coordination and appeals mechanism.
Brazil (State of Rio Grande do Sul)	Agencia Estadual de Regulação dos Serviços Públicos Delegados do Rio Grande do Sul	√	√	√	√	Appears to be only state with multi-sector regulator

Canada (Alberta)	Alberta Energy and Utilities Board	√	√	X	X	Other provinces (excepting Nova Scotia, see below) appear not to have multi-sector regulators. Role in water regulation appears to be very small with no record of any rate applications being reviewed in 2000-01 as opposed to 115 electricity and gas applications
Canada (Nova Scotia)	Nova Scotia Utility and Review Board	√	√	√	X	Other provinces (excepting Alberta, see above) appear not to have multi-sector regulators
Costa Rica	Autoridad Reguladora de los Servicios Públicos	√	√	√	√	
El Salvador	Superintendencia General de Electricidad y Telecomunicaciones	√	X	√	X	
Germany	BundesKartellamt (Federal Cartel Office)	√	X (regulated at State-level)	X (pricing and access regulated by separate agency)	√	Federal competition regulator. State-level competition regulators also exist. Regulates by virtue of powers to prevent abuse of a dominant position. Energy sector exempted from general competition law until recently
Ghana	Public Utilities Regulatory Commission	√	√	X	X	Initially covered electricity only
Guyana	Public Utilities Commission	√	X	√	X	In practice powers over electricity sector have been removed and vested in exclusive license granted to incumbent utility by government under law
Jamaica	Office of Utilities Regulation (OUR)	√	√	√	√	Replaced previous multi-sector regulator
Kazakhstan	Anti-Monopoly Agency	√	√	√	√	Regulatory methodologies are subject to ministerial approval

Mongolia	Government Regulatory Agency for Infrastructure	√	√	√	√	
New Zealand	Commerce Commission	√	√	√	√	Initially regulated by virtue of competition powers only The Commission's role in telecoms price and access regulation has been substantially enhanced by a new act. The government has required the electricity industry to establish a new Governance Board to develop pricing arrangements for retail supply. The Commerce Commission will be given legal powers to set price controls for distribution and transmission
Panama	Ente Regulador de los Servicios Publicos	√	√	√	X	
Singapore (to 2001)	Public Utilities Board (PUB)	√	√ (as owner and operator of assets)	X	X	In 2001 as part of the reform of the energy sector the PUB's regulatory functions were transferred to a new Energy Market Authority (EMA) and the PUB became a water operator alone
Trinidad and Tobago	Public Utilities Commission	√	√	√	X	
USA (New York State)	New York State Public Service Commission	√	√	√	√	Responsible for intra-state regulation. Separate Federal regulators cover inter-state issues. These are organized by industry (energy, telecoms and transport) Other states have similar bodies

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1 Introduction and Summary

This report² on private sector participation and financing issues accompanies the findings, regional and national strategies, and recommendations that constitute the chief results of ADB's regional technical assistance (RETA) project: *Improving the Delivery of Infrastructure Services in the Pacific*. The papers reflect the judgment of the RETA team that the Pacific largely conducts infrastructure investment under a public sector model that does not meet required standards of efficiency and performance despite substantial assistance. As noted at the Asia-Pacific Infrastructure Forum held in Melbourne in December 2004³ there are clear pathways to better infrastructure outcomes, and the RETA addresses these. This paper focuses on ideas and lessons emerging in the Pacific and other regions.

Given the Pacific's history of poor infrastructure investment and maintenance, the representatives of most countries consulted during this RETA agree there is a need to engage a new strategy for promoting and maintaining infrastructure. Fiscal constraints limit the capacity of Pacific governments to fund substantial expansion of infrastructure investment. Best (or much better) practice generally involves a partnership with the private sector away from the politically-driven investment processes of the past, and indeed evidence developed through the RETA supports a focus on public-private partnership models and other ways of jointly financing new infrastructure, including appropriate seeding, training and strengthening roles for international agencies. Improvements in infrastructure practices will generally require disciplines under new regulatory frameworks⁴, with governments restricting themselves more to facilitating than investing or managing infrastructure services.

Central to the financing of infrastructure in any economy is the nature of the relationship between government, customers and the private sector. Governments can use public finance directly through departments or state owned enterprises, often using current taxes or debt (future taxes) to cover construction and setup costs. Most of the colonial powers that once ruled the Pacific have long ago moved to models that enable a much larger degree of accountability and customer focus within their own countries, with greatly increased scope for private finance. Given that customers depend on infrastructure in many ways for growing economic and social needs, a funding model that is not reliant on aid and government budgets is increasingly attractive. The new model is freer of politics, is more rapid in response times and can contract for services and asset management and maintenance over the life of the assets. But while these innovations in infrastructure finance are demonstrably capable of delivering real benefits in terms of growth and income, they can also appear expensive to those used to public sector subsidy and assistance.

² This paper and findings on Private Sector Participation and Finance issues are by Dr Michael Porter, Executive Chairman, Tasman Asia Pacific, the finance and private sector participation specialist in the RETA Team. Dr Porter was also co-organiser and Chairman of the Asia Pacific Infrastructure Forum, Melbourne, Dec. 2004. This paper reflects both the Forum and the detailed discussions the team had with key infrastructure entities, government departments and agencies and private sector firms in Fiji, Palau, PNG, Samoa, Tonga, Palau, FSM, Cook Islands and Sydney.

³ On the results of the 2004 Forum, the World Bank in collaboration with JBIC and the ADB commissioned a study (The Pacific Infrastructure Challenge, A Review of Obstacles and Opportunities for Improving Performance in the Pacific Islands), released in final form in January 2006, which provides a cogent overview of infrastructure in the Pacific, its opportunities and constraints, policy issues, and an indicative comparison of performance in key sectors across the region.

⁴ Working Paper on Governance and Regulation, posted on the RETA website.

Outside the Pacific there is an abundance of private sector and pension fund finance seeking secure long term investments, of the kind that essential and regulated infrastructure provides. Not surprisingly, the attention of those concerned to improve the state of infrastructure in the Pacific is increasingly on private sector participation (PSP) and private sector finance, as was most clear in RETA meetings concerned with telecommunications and transport, including airports, seaports and shipping. The balance of this section provides a brief account of where we are and then a brief review of the alternatives.

Before looking at those options, it is important to clarify what the paper is *not*. This paper does not get into the detailed mechanics of private sector or public sector finance; there is an abundance of general literature on those fields and a study of those areas could require focus on the unique character of particular assets and situations which is something beyond the scope of the RETA. Rather, the general policy issues that arise in the context of shifting to private sector finance models are covered, noting that investors will also bring skills and detailed expertise in these areas, once the climate is right.

Box 1 provides a sequenced overview of the process of introducing PSP to infrastructure (further discussed in section 6 below), leading to full scale private sector partnerships with a mix of public and private finance.

Box 1: The Sequencing of PSP and Finance Reforms

1. Commercialization of tariffs, access and charges, with associated reforms in management practices add greater accountability and incentives to improved performance;
2. Improved definition of property rights and their transferability, notably for land, thereby enabling contracts to use land and leases as security, while respecting and rewarding traditional landowners;
3. Increased contracting to the private sector from public enterprises, including private (leasing) finance for key assets, with whole-of-asset-life contracts and resulting maintenance incentives;
4. Unbundling and tendering for management contracts over state enterprise assets;
5. Restructure of public enterprise into separate monopoly and contestable businesses – led by a Cabinet-backed expert reform group from the Ministry of Finance or a reform-oriented state enterprise department
6. A new or expanded role for regulation, as customers face more commercially sustainable tariffs, and better management under accountable boards and corporatized entities
7. Harmonization of taxes and charges facing public and private entities
8. Passage of corporatization law separating roles of Owners, Directors, Management and Customers, within a contractual and regulatory framework
9. Clear definition of separate roles of Directors (strategy), Ministers (policy and owner), management (operations) and enforced “best qualified” test for potential appointees to board positions

10. Corporatization of the new component business enterprises with associated board appointments, and with business unit boundaries chosen so as to deliver effective decision making and outcomes
11. Preparation of a regulatory framework which is independent of ministers and supportive of tendered contracts
12. Cabinet endorsement of rules by which Cabinet makes policy and appoints directors according to transparent rules, but where cabinet does not engage in commercial decisions or interfere with application of regulation
13. Appointments of Regulator-general, Board, and Commissioners
14. Assessment of scope for asset sale or “greenfield” development of new infrastructure companies offering competitive services.
15. Sale of assets and/or businesses after a detailed project scoping and tender process

The shift to increased roles for using contracts and private sector finance has side implications in areas such as maintenance, issues that received major discussion in all RETA meetings and Workshops. It was noted in particular that the issues raised in the Working Paper on Asset Maintenance⁵ can often be handled within a contractual and incentive environment that comes with the PSP model.

There is, in summary, wide recognition in the Pacific that private sector partnership and private finance models are of central importance, as demonstrated by the recent transactions in the telecommunications and aviation sectors. Government plays a key role in attracting private sector finance at affordable costs of capital, notably by reducing the climate of risk and avoiding policy uncertainty, thereby allowing bankable revenue streams to be delivered from infrastructure investments. This requires clear policy statements, actions and associated regulatory frameworks and enforcement of transparent legal and contractual structures.

Countries contemplating expanded private sector partnerships, evolving along lines set out in Box 1, need also to develop an infrastructure policy framework or statement which covers⁶:

- Plans for integrated expansion of infrastructure;
- Appointment of Cabinet level committee and their support for a infrastructure reform group from Finance or Public Enterprise ministry;
- Commercialization and contracting models for some or all services and assets;
- Scope for application of private sector partnerships;
- Alternative models of partnership – national and regional;

⁵ Posted on the RETA website (www.pacific-infrastructure.org)

⁶ The National Strategy papers for the eight countries which participated in the RETA consultation process show application of these steps in the broader context of infrastructure reform. The papers are posted on the RETA website.

- Means of protecting the public interest, regulatory objectives and processes;
- Models for ensuring value for money – public-private comparators;
- Risk identification, allocation and management;
- Engaging the interest of the market; public relations;
- Enhancement of Government accountability and support structures; and
- Training and institutional strengthening initiatives to cover the above

2 The Transition from a Public Sector Model of Infrastructure Finance

The history of most Western countries, including those that colonized many of the Pacific island states, is one in which infrastructure and related services have been financed through state owned enterprises (SOEs) by a mixture of taxes and debt, with the debt ultimately repayable through taxes or aid. In the Pacific the same pattern of public sector finance has emerged, supplemented by considerable aid to state owned enterprises (SOEs). While there is no 'in principle' reason why SOEs cannot be run efficiently, in reality there has been a tendency of SOEs the world over to foster inefficient management. The problem is amplified by reluctance to benchmark performance or use comparable monitoring devices that could enable informed assessments (see the maintenance and benchmarking Working Papers posted on the RETA website). The involvement of political players in small Pacific economies in infrastructure investment decisions has often created conflicts of interest and facilitated waste and corruption.

What has been particularly problematical in retrospect is that projects financed under the public sector model have typically been under-priced to customers, reinforcing a sense of dependency on under-priced services – e.g. water and electricity. Maintenance of such assets chronically suffers with resulting long term degradation and faltering services, as pricing and management is inadequate to enable the SOEs and public sector departments to maintain assets properly. On the other hand, profitable sectors such as telecoms, usually operating as protected monopolies, has fostered high- priced services provided only in narrow markets⁷.

The good news is that regional and private financing and investment initiatives in telecommunications, aviation and shipping are increasingly in evidence. There are parties willing to assist with finance of satellite and fiber cable connections and onshore investment in mobile technologies that would help leapfrog many Pacific states into the broadband era of high connectivity and all that it means for new business and lifestyles. Discussion in the RETA meetings indicate that the benefits for Pacific business and tourism from the digital revolution are barely touched to date, awaiting a new wave of investment that is underway.

While the Pacific does have untapped economic potential (e.g., tourism is a key growth sector in many countries, and primary production investment opportunities are prominent in some), the legacy of past infrastructure investment does not enable the financing of new investment secured by the existing assets, since most remain under public ownership. The need is urgent in all sectors for a model for private investment and private finance based on the emergence of sound governance. So long as governance is widely perceived as poor and so long as there is little confidence that income and cost streams will have the levels of certainty required for project finance, then the Pacific will continue to miss out on the affordable private finance opportunities (e.g. superannuation and private investment funds) that are increasingly motivating economic development and growth in other regions of the world.

⁷ Including internet access at slow speeds in the Pacific relative to what is available in much of the developing world elsewhere. This has undermined commercial development and business travel in Pacific (the internet is now an established key to transactions).

An instructive exception to the current recessed investment environment seems to be telecoms, where external investors, e.g. Digicel, are willing to take on monopoly incumbents and governments via substantial investment in ground transmitters and related infrastructure⁸. But for this pattern of investment to extend as needed to airports, ports, roads and transport requires a new level of training and expertise. This RETA addresses the matter via a proposal to form a Regional (Infrastructure) Advisory Service (RAS), in collaboration with other regional bodies⁹.

What is clear is that much existing infrastructure (electricity, ports, airports and shipping) can and should be restructured. If key infrastructure can be restructured in a sustainable fashion (helped by a range of technical assistance, training and institutional strengthening grants and possibly a Regional Advisory Service) there will be scope for sustainable re-finance through PSP and other techniques. Eventually such reforms can lead to the raising of funds and a reduced drain on the public sector finances; reducing debt through divestitures and shifting new investment to the private sector. If this reform challenge can be met, then the seeds of expansion will be sown, and the reality of new private investment in infrastructure will both energize the private sector and the national economies. Risk margins on capital raisings will fall. But related reforms will be required if there is to be private investment in the context of monopoly service, most notably the introduction of regulatory agencies¹⁰ that determine access costs and rules in relation to the telecommunications networks, ports, airports, pipelines and other network assets.

Though there is capacity within private and international funds, including domestic pension and provident funds, to invest, they largely avoid Pacific national infrastructure investments because of perceived domestic political risks. While Samoa has shown there can be a way out of poor governance models towards attracting private direct investment in infrastructure, the challenge across the Pacific is substantial. There remains a continued willingness in some quarters to sustain the public sector model and aid dependence for infrastructure despite the historical lack of progress in many sectors under this model. Aid contributions will continue remain important to infrastructure in the Pacific but in an increasingly strategic way in step with regional reform efforts, as discussed in the Working Paper on the Regional Advisory Service. New aid funding for transport and other infrastructure continues to be available from development banks and from AusAID, NZAid, US (the Compact in the north Pacific), France (especially telecommunications) and the EU.

When a senior infrastructure finance specialist was asked at the December 2004 Asia Pacific Infrastructure Forum (APIF), “what is the main thing required of governments in order to facilitate expanded private and PSP investment in infrastructure”, his response was that governments need to act with greater predictability, within competitive tender models and under well specified scopes of works. The private sector is willing to take on risks that traditionally have been borne by the public sector, but only at affordable costs of capital within a climate of policy and regulatory certainty.

⁸ New investments are being implemented in Samoa in competition with Samoa Tel. In Fiji, the same changes are ready to commence in policy and investment terms, awaiting implementation in a newly competitive industry. The entry of Digicel in PNG is caught up in the Cabinet and the courts, and matters are under negotiation in Tonga, Cook Islands and elsewhere.

⁹ Refer to the Working Paper on the Regional Advisory Service, posted on the RETA website (www.pacific-infrastructure.org) for further discussion of the RAS concept.

¹⁰ Refer to the Working Paper on Governance and Regulation, posted on the RETA website, for further discussion.

In telecommunications, the high prices of mobile phones, land lines and internet access have attracted new entrants but this has often aroused fear and opposition from the incumbent telecom monopolies. One problem is that the incumbent telecoms companies and SOEs have typically been financed by “cheap” loans from donors¹¹. The debt burden undermines the capacity to grow the telecoms and internet businesses in the Pacific. The case for writing off the debts as part of a reform and financing package is substantial, given the vital role of the telecoms sector in supporting business and economic growth. If this does not happen, the incumbents will continue to oppose rational competitive models in the sector and continue to dampen the countries’ competitiveness.

¹¹ The US Government’s \$30m+ loan for the development of telecommunications networks in the FSM and Palau is a case in point.

3 Pension and Provident Funds and the Financing of Infrastructure

The marriage of infrastructure to long-term investment funds and notably pension funds has boomed in many well structured economies since the 1990s – with the exception of the Pacific or parts of East Asia, where infrastructure investment continues to languish. The reason, as already noted, relates to poor governance, failure to properly corporatize key enterprises, as well as the unpredictability of policy in many Pacific countries. Policy and regulatory uncertainty can be a killer of long-term infrastructure investment. In addition in some countries, pension funds (e.g., provident funds) have not been an independent source of capital for sound investment but rather have been subject to political control.

The key policy point regarding pension, provident and superannuation funds is to attract a significant proportion of long-term savings to sound long-term infrastructure investments, with returns that flow to the community both in terms of sound long-term income and more secure savings for retirement or illness. Such funds need to be managed by professionals under sound and transparent investment charters, free of political control.

While in some countries an abundance of long-term funds conditionally available for infrastructure at low rates (below 10%, in domestic currency), in others including most of the Pacific, such capital funds are scarcely available or only at high rates, often over 20%. With implementation of regulatory and governance reforms, there is good potential for the Pacific to attract low-cost private sector funds in the future. While external assistance can be a critical catalyst to infrastructure development, not least in outlying regions, there is a need to avoid the common assumption that soft loans and grants are somehow the key to infrastructure investment in the Pacific.

4 Public and Private Sector Participation: Some Key Issues

The public and private sectors each have certain natural advantages and disadvantages; the trick is to structure contracts and risk allocations so that the respective public and private sector roles are optimized.

The role of the public sector is to plan and deliver good quality infrastructure services at the most competitive cost. This includes infrastructure services to underserved areas, which traditionally require a service subsidy. To do this effectively, the public sector does not necessarily need to own or operate the infrastructure assets, but it does need to carefully allocate those responsibilities to the most efficient service provider. The test, when ministers seek a particular outcome, will be whether a privately tendered alternative can be contracted for and delivered by the successful private sector parties on better overall terms, measured by projected costs and benefits, than the public sector “comparator”.

4.1 Reasons for Public Sector Model Applied to Infrastructure

The evolution of infrastructure service provision in the Pacific, as with the colonial powers, has generally, but not universally, been through public sector provision, and financed from consolidated revenue. Often services were and are deemed essential, such that financial capacity of users should not dictate access or user charges. Invariably the efficient means for delivery have been judged to be through a single (monopoly) provider, notably for assets with sharply increasing returns to scale (roads, telecommunications, pipelines, airports, water supply and electricity transmission and distribution).

There has been a reluctance to allow private ownership of such resulting monopolies, and hence the spread of the public sector model. In some cases new technologies and competitive models (digital telecommunications and electricity generation) have created scope for competition in terms of service provision using common monopoly (backbone) assets. This has hastened the spread of private sector financing models and created a need for regulatory frameworks that can determine access costs for use of the monopoly assets. There have also been successful examples of competition *for* the market of a monopoly provider, with tendering of the monopoly rights to qualified bidders under a regulatory framework. However this tendency to shift services to the private sector has been less marked across the Pacific than in larger economies, in part reflecting the smaller size of Pacific economies and utilities.

Another reason for the spread and survival of public sector delivery is that under public ownership, despite notions of public accountability, there is often less transparency and accountability and a greater capacity to cross-subsidize groups, without the public becoming informed as to the extent of the subsidy or cost. This capacity to conceal the real cost of provision and cross-subsidy appeals to political and bureaucratic interests, making the costs and benefits of service provision hard to detect and often buried within broader allocations across the government. The lack of clarity in the level of costs and benefits of public sector provision makes the benchmarking of performance and cost data of government-owned entities important¹². There is also experience that a fuller degree of accountability and better

¹² Please refer to the Working Paper on Benchmarking, posted on the RETA website.

incentives to deliver quality customer service can be achieved by contracting the service out to parties who are under commercial incentives to perform.

4.2 Contractual Private Sector Service Delivery

The public sector is charged with delivering services deemed essential and where there are external and community benefits to public provision. The traditional arguments have been that simply allowing pure private sector delivery will often be more costly to many persons and can create inadequate coverage – cherry picking – and leave the less viable services to government. While this asymmetry can be addressed by cross-subsidizing remote or low income delivery with full cost recovery for others, the perceived complexity of mixed public/private delivery of services has in the past restricted use of the private sector.

However, the incidence of failure of public sector and aid financed infrastructure in the Pacific, together with evidence from many studies (mainly from larger economies), argue for a new model of infrastructure service delivery. Increasingly the evidence shows that in the case of telecommunications, shipping, and transport for example, there are major benefits in applying private sector incentives to design, investment and management. Because there is a major policy and regulatory role for government, such models maintain a measure of public sector control and are commonly labeled public-private sector partnerships (PPP). The various forms of PPPs are categorized in Box 2 below.

Box 2: The Main Options or Classifications of PSP

- **CT** - Competitive Tenders on existing and new services where no assets ownership issues involved
- **DBO** - Contracts to Design and Build, followed by Operations and maintenance, assets always in public ownership
- **MC** - Management Contracts, of existing public facilities, possibly with expansion
- **LC** - Leasing Contracts, over existing and/or expanded new facilities with a management contract
- **BOT** - design, Build, Operate, and Transfer back to government contracts at future date
- **BOOT** - Build, finance, Own, Operate contracts, revenue through public subvention as per contract
- **CONC** - Concessions, revenue through charges to customers per contract (CONC)

The models of private sector partnerships are now expanded in many jurisdictions and sectors to include a process whereby a specialist government PSP team prepares scopes of works and contracts for service provision over the life of an asset, with scope for transfer of the asset at some point to the government, possibly for re-tender. The question to be addressed in the sparse island states of the Pacific is whether and where the private sector partnership model can beneficially be applied.

4.3 Value for Money and the Choice of Public or Private Sector Delivery

A key feature of many successful PSP models is a preliminary analysis by the government agency demonstrating value-for-money from private sector delivery compared with public sector provision. The estimated value of public sector provision is known as the

“comparator”. This process can either be formalized, or based on judgments that may or may not be documented. Often there is resistance to such assessments because of embarrassment to parties in the public or private sectors, but clearly as with the broader use of benchmarking, developing a public sector comparator can be a fundamental input to decisions of whether to continue with public sector delivery or shift to alternative PSP models.

Various dimensions of private design, construction, finance, and management of formerly public services have been successfully implemented. The challenge is to prepare and apply comparators, and where a project is indicated as a candidate for PSP, to prepare contracts that can attract sound private sector bids and deliver more efficient outcomes than are available through traditional public sector provision. This “comparator” model can apply, in principle, to both infrastructure assets and to service provision.

Where there is an intrinsic monopoly element, e.g. because a single source of a grid or port or transmission line is cheaper, or where the small scale of the market dictates sole supply, a regulatory element should be included in the contract and possibly through an independent regulatory agency to prevent abuse of monopoly power¹³. It is important to note that sole supply does not preclude competition for the sole supplier rights, however, and this contestability should be encouraged wherever feasible.

A vital dimension to economic regulation is to create predictability in tariff adjustment and cost allowances so that the income of infrastructure projects is deemed less risky and thus more likely to attract lower interest rates and so a lower weighted average cost capital (WACC) – debt and equity. This in turn should lower total costs including to customers.

4.4 Trans-Pacific Infrastructure Services and Private Sector Provision

For many of the key services that are critical to island states, there is a case for a shift from national provision to private trans-Pacific service provision, something that is already happening in aviation, telecommunications (satellite and cable), and shipping. This creates a need for trans-Pacific corporate entities capable of designing and contracting for delivery to a number of participating countries and thereby avoiding control by a single jurisdiction, but continuing to meet national and international laws and agreements. As discussed below, trans-Pacific service delivery has yet to materialize, but it is starting to happen on a case-by-case basis in telecommunications, aviation and shipping. Again what is needed on the government side includes entities in the Pacific countries that have the expertise to negotiate more competitive service provision.

Other potential trans Pacific flow-on innovations for private delivery of public services include low transaction cost payments systems utilizing pre-paid cards, mobile phones and other private payment mechanisms that will allow payment for a range of services that traditionally do not produce revenue – e.g. for roads, bridges, transport, etc. But these new payment techniques do raise hope that there will be increased scope in the future for private sector delivery and financing of formerly public services. The fact that in Africa and countries such as Bangladesh and India, small scale finance and payments mechanisms are working well and spreading into new markets and devices suggests this “payments” dimension to reforms in the Pacific will be timely.

¹³ Support for cross sectoral regulation is currently in process in Vanuatu, Samoa, and Fiji. For further details, see the Working Paper on Governance and Regulation, posted on the RETA website.

Finally, it needs to be stressed again that a dominating influence on the capacity or otherwise to achieve expanded service delivery in the Pacific is availability of expertise in the public sector. The historically poor performance in governance of the public sector in the Pacific makes private sector investors wary of participating in public sector dominated services¹⁴. The public sector in many developing countries in the Pacific and elsewhere faces acute problems that flow from poor remuneration and traditions of supplementing low incomes in ways that may conflict with sound project development. As a result both government departments and the utilities face a challenge in having to manage through underpaid but often highly motivated executives.

4.5 Objectives of Government Partnerships with the Private Sector

The general objective of PSP is to achieve more outputs for the community at the same or lower cost, with improved quality. Box 3 below summarizes some key reasons.

Box 3: Indicative Reasons for Implementing Private Sector Partnerships

- **FISCAL RESTRICTIONS:** Private sector partnerships have proven in many jurisdictions to be an effective means for government to achieve new projects where there are tight fiscal constraints.
- **SUSTAINABILITY:** Many infrastructure projects across the Pacific have failed to be adequately maintained, both physically and financially. A future goal is to ensure that services delivered to the public are sustainable - i.e. that such projects are to be securely financed for the long-term or whole of asset life, and properly maintained. A well prepared tendered PSP contract can deliver the required characteristics.
- **TRANSPARENCY:** Well managed private sector partnerships can enable appropriate disclosure of project terms, selection processes and tariff arrangements. By having agreement on sound PSP principles, the government can preclude privileged deals and direct appointments that are inconsistent with public interest.
- **RISKS:** Given the perceived political and related risks on certain investments, e.g., infrastructure investments, where long term tariff policies are crucial, having a contractual partner in government is a way of providing projects that might not otherwise be forthcoming at affordable costs.
- **PROJECT SELECTION:** PSP projects can be selected so as to conform to public interest criteria. A sound PSP model introduces scope for obtaining bids, designs and management for priority projects funded by private capital, potentially at a lower cost than otherwise. This requires a high level of competence in the government and its agencies.
- **AVOIDANCE OF CORRUPTION AND CONFLICTS OF INTEREST:** There is a risk of (infrastructure) projects being a means for privileged parties linked to governments to make profits – as they can often do from the construction stage of a project, regardless of project worth
- **VALUE FOR MONEY:** The idea is to make sure defined scopes of works and contracts deliver best value for any contributed money or physical assets (e.g., land or property rights such as bandwidth, water, harbors), and that projects reach the respective communities that they intend to benefit at the best possible mix of price and quality.

¹⁴ Please refer to the Working Paper on Governance and Regulation, posted on the RETA website, for further discussion of this issue.

The sometimes greater capacity of the private sector to take risks and manage capital in comparison with many Pacific island governments is well documented. It is the ability to include incentive payments and charges in private sector transactions, the ability to quantify and measure success through the profit motive and capacity to accumulate capital that is central to the advantages of private sector structures. There is a lesser tendency to waste capital or run down assets when it reduces the private wealth and well being of the decision makers, staff and the corporate entities. While performance based remuneration and bonuses can and do work well in improving productivity and overall standards, usually this requires shareholder and market disciplines. Such bonus oriented systems do not obviously apply in the public sector, where rewards and promotions may often be for matters quite distinct from the quality of performance, or where such are political or hard to document. What is needed is usually greater transparency and contestability within the public accountability system, along with clear benchmarks of relative performance where practical.

People tend to work harder when there is a financial incentive. But what is not wanted conflicts of interest among public sector decision makers and private gainers, yet this is what currently happens when Ministers and officials are allowed to mix public and private sector roles. Central to the thrust of this paper is the notion that Policy, Regulation, Ownership, and Management should be all separate roles, defined and enforced within a sound corporate, judicial and regulatory framework. This implies that public servants must be paid salaries and enjoy conditions that enable the public sector to attract the appropriate levels of expertise and that regulatory functions and oversight of state-owned enterprises are effective in eliminating conflicts of interest¹⁵.

Apart from expected costs and benefits, there are risk concerns in all projects. The main attraction of a PSP arrangement is that it can facilitate allocation of risks to the respective players and sectors according to estimates of their capacity to mitigate those risks. Risks related to political behavior include policy change, cross-sectoral issues, tariff regulation, expropriation and other regulatory risks. In general mitigation of and responsibility for the costs of these risks are best assigned to the government, with explicit compensation clauses should they materialize. Risks associated with construction, design, financing and demand (or net income) are best allocated to the private sector, with the proviso that it is the responsibility of government to adhere to the contract in terms of tariffs, adjustment (indexation) and cost reviews, or else compensate. Similarly, if new policies or government decisions significantly change the competitive environment for businesses or materially affect demand and thus income, which may be a matter which triggers payments or compensation as per the contract.

The profit motive is seen by some as a source of unnecessary costs of a private sector project, given, for example, that private sector interest rates are generally higher than government rates and that a profit is sought on invested funds. The counter argument is that the reason private interest rates are higher is that government can combine its taxation, central bank, and police powers to make sure that its debts are always paid, even if the underlying project financed by government debt has a zero or negative rate of return. This explains both why sovereign interest rates are lower and hints at why many poorly-performing projects get financed. Clearly, lower public sector borrowing costs do not make a case for government doing more borrowing or investing, as the debt still has to be paid –

¹⁵ See previous footnote.

and if not from the project, then from taxes and charges borne by the community¹⁶. Big borrowing governments have typically been the most wasteful of community savings over time.

The above argument implies that the first focus should generally be on the project's expected internal total returns relative to total costs. The critical interest rate question is whether the project is charged for interest costs at rates which reflect the community risk for the risks of the project.

In Summary:

Savings and perceived benefits through public sector projects include:

- Alignment with government policy (jobs, environment, location, timing);
- Expected creation of external benefits not captured by market;
- Easier and apparently cheaper access to debt capital;
- Expansion of public sector jobs; and
- Capacity for project to be sustained even if privately unprofitable.

Savings and perceived benefits through private sector projects include:

- Capacity to contract for the provision of service over the total asset life and beyond, where incentives to maintain and reinvest are well designed;
- Acceleration of infrastructure provision at times of public sector restraint. At times when the availability of public capital may be constrained, private sector partnerships with the public sector may enable investment to proceed;
- Faster implementation. The allocation of design and construction risk to the private sector, combined with payments linked to the availability of a service, provides significant incentives for the private sector to deliver capital projects within short construction periods;
- Private and potentially contractual incentives to save on costs seem to work better than political commitments to cost savings. Politicians are reluctant to close losing ventures because of jobs and the resulting focus on earlier decisions; and
- Incentives to find additional revenue through synergistic projects should automatically follow in the private sector, given the capacity of private participants to accrue the revenue and step into new fields – whereas many opportunities are lost in the public sector where it is understandably unacceptable in most cases for public servants to act in an entrepreneurial manner and to pocket benefits of their own initiatives. Security and (political) safety, not innovation, are hallmarks of bureaucracy.
- Automatic alignment of project risks with capital costs – i.e., lenders and investors have to be convinced by the projects' projected costs and income streams before they commit funds. This involves assessments of similar investments elsewhere, and the associated capital and debt funding costs.

¹⁶ In some countries, the tax regimes are in place to capture revenue from the tourist and real estate expansion (Fiji) whereas in others (e.g., Cook Islands) there are neither property taxes nor capital gains taxes, with the result that substantial wealth is being accumulated free of taxation. If the outer islands are to be assisted and other social needs met, this will require all Pacific island countries to implement (low) tax regimes that are broader-based and fair in their incidence.

- Capacity to research and innovation to be encouraged by prospect of additional returns
- Incentives to close down when an enterprise or service is no longer economic, of the frequent persistence of failed enterprises under the public sector for fears of job loss.
- Can encourage government to explicitly fund desired cross-subsidies deemed in the public interest.

4.6 Models of Private Sector Partnership

Tables A2.1 and A2.2 in Annex 2 summarize key features of different versions of PSP and tabulate the advantages and disadvantages of a range of contracts for private sector participation in relation to infrastructure and service provision.

The contracts and laws governing private sector partnerships require that governments apply objective and transparent tests as to the expected benefits and costs of alternative public and private sector projects. There should be no presumption that either the private or the public sector is better able to deliver infrastructure and other community-focused projects.

There should be clear benchmark “comparators” of costs and quality from an estimated public sector provision before decisions are taken to delegate responsibility for management of public sector services to the private sector. This policy development usually requires an upgrade in the quality of the public policy framework and personnel.

In general a specialized agency of government, often under the Ministry of Finance, should be charged with administration of the principles of private sector partnerships, as set out in an Act of parliament or other documents approved by government.

The evaluation of infrastructure proposals should include independent evaluation of financing arrangements and a full assessment of risk. Governments should develop structuring, regulatory and monitoring agencies to ensure that value-for-money is delivered such that sound projects are brought efficiently into operation.

To illustrate the details that may be covered in a contract, a standard BOT contract will probably include detailed requirements on the services to be provided, typically, for a water project for example are included:

- Quality targets—water quality, industrial discharges, treatment and disposal of sewage
- Pressure
- Continuity
- Coverage
- New connection
- Suspension and reconnection of service
- Condition of assets
- Leakage and use of water resources
- Compliance with regulations and codes of practice (relating to all the above)
- Use of appropriate water and sewage treatment technology
- Quantity of water to be supplied

- Obligations in the event of emergencies (approval, cost, and reimbursement guidelines)
- Compliance with health and safety standards
- Operational standards

The regulatory process may also be defined in the contract, and so cover elements such as:

- The right of access premise and equipment.
- Rights to monitor investment and capital expenditure.
- The right to approve financing, construction, and operation agreements.
- The right to monitor insurance policies and guarantees.

4.7 Good Practice – How to Use Community Resources Efficiently

In order to work successfully with the private sector, governments need to be clear about the fundamental principles and objectives behind PSP. Under PSP, the private sector contractors become long term providers of services often with life-of-asset contracts, rather than simply builders of assets. They are contractually bound to combine the responsibilities of designing, building, and possibly financing assets in order to deliver the services needed by the public sector. What is particularly attractive to government and voters from a well executed PSP model is that the provision of services under a PSP structure is based on a contract. For example, under the Victoria, Australia model the following generally applies to all projects:

Outputs are clearly specified including measurable performance standards¹⁷,

- Asset maintenance standards are set, along with penalties for non-performance;
- The Government makes payments only upon delivery of the specified services, to the required standards
- A relatively long-term commitment applies, with the term depending upon the nature of the project;
- One or more private parties are legally and fully accountable to the Government for the delivery of the specified services;
- Risk allocation between the parties is clear and enforceable, with consequential financial outcomes;

¹⁷ As an example, on August 21st 2007, the Government of Victoria decided not to renew the maturing 2009 contracts for provision of rail (Connex) and tram services (Yarra Trams), and so the incumbent now has to compete with others (domestic and overseas) who can tender for the next contractual period. It is possible that the incumbents will win the new tender – but there is an incentive for firms with transport, ticketing and other expertise to put up better propositions, with better mixes of service quality and costs – all under contractual commitments. It should be noted that under these contracts there are incentive or penalty payments from and to the government according to whether service (e.g. “on-time” performance) exceeds or falls behind the specified standards.

The effect of these contractual incentives is that improved service quality (on time trips, state of rolling stock, ticketing times, multiple ticketing options, peak travel arrangements and special event services) become *outputs* that are in effect contractual, with penalties/incentives. The same can apply to analogous services in the case of toll roads, pipelines (pressure, ingestion of foreign materials into water pipes), airports (congestion, queuing times, gate competition, retail services), bus services and so forth.

- There is clear articulation of the Government's responsibilities, with respect to the monitoring of outcomes; and
- There are specific mechanisms incorporated so as to achieve ongoing value for money throughout the life of the project.

The clear specification of required outputs encourages innovation in devising means of delivering those outputs, with a view to reducing costs and expanding revenue. Thus, the Government limits detailed specification of inputs and design specifications and focuses only on outputs. In general, the Government is open to proposals that meet required outputs in ways that facilitate extra revenue for the parties.

5 PSP in Small Pacific Economies

5.1 Responsiveness to Market Conditions

The depth of the Pacific market for developing small infrastructure systems is relatively untested, so there is a risk of designing a conceptually excellent system that fails to have enough takers for the model to be developed on a national level and to make a difference. On the other hand, as noted where possible in the country papers, there has been interest in small energy and water systems expressed through unsolicited offers as well as proposals in relation to mobile phones, shipping, aviation, ports and airports. The examples of Digicel, Virgin airlines subsidiaries (Pacific and Polynesia), stand out, as do applications and latent interest in port, bus, toll road and airport franchises (commercial in confidence in several Pacific countries). There are also examples of business interests in gold mines, food processing, hotels and so forth, where they have also expressed interest in expanding their own energy or water production to serve the local community. This may even be true for road development. There needs to be a system of setting enforceable performance standards through contracts or regulation¹⁸ or maybe even use of the Swiss Challenge System¹⁹ in the bidding process to help the private sector to initiate projects, not least in developing access in isolated areas.

5.2 Issues Emerging from the Pacific RETA Workshops

The RETA workshops conducted in the Pacific have led to a common set of conclusions regarding the key reforms and mechanisms needed for delivering needed infrastructure through private and public finance. While institutional arrangements to facilitate private sector partnerships and finance vary by country, common principles apply. As discussed in the Introduction (Box 1) a need for clear policy reform and pro-competitive regulation has emerged as a precursor to increased finance for infrastructure, thereby creating a stable and transparent environment within which expanded regional investment is attractive to regional companies and beneficial to the local communities.

Key features of PSP within such an environment are as follows:

- In general the public sector has planning expertise and, typically, sets scopes of works, while the private sector is engaged for technical design, construction, finance and management;
- In some cases the “partnership” element is that government provides the governance and regulatory framework and little more; in other cases government may also provide rights to land, radio frequency and other property and regulations that affect private investment;

¹⁸ See the Working Paper on Benchmarking, posted on the RETA website, for further discussion of the links between benchmarking and regulation.

¹⁹ The Swiss Challenge System was originally developed as a way of overcoming the disadvantages of unsolicited proposals from the private sector, but could also be the basis of competitive outsourcing in cases where the incumbent provider is a government entity. Under the System, the government gives challengers an opportunity to make better offers than the original proponent (or government entity), then allows the original proponent to counter-match. This is the approach to outsourcing adopted by the US Government under a regulation known as ‘A76’. Further information can be found through the World Bank’s online Rapid Response Unit (www.rru.worldbank.org).

- A frequent means of partnership is that government defines the scope of works (say for a water treatment plant or generator or for a distribution scheme for water and electricity). The private sector is then invited to tender for the project, with government possibly retaining equity in it deriving from land or other rights provided (access to spectrum, harbor, raw water, etc.)
- In many cases, governments enact PSP legislation defining either the roles to be performed in the sector or the roles of the reform agencies (PSP and regulatory). Governments usually blend PSP laws with corporate law and corporatization laws, which define and limit the powers of public sector authorities including Ministers, as well as requiring clear charters of responsibility for Boards and management of state owned and corporatized entities.

The need for expanding infrastructure was also highlighted by analysis of where economic growth can come from, with tourism offering significant growth opportunities. There is also scope for investment in infrastructure by local currency pension funds, for which infrastructure assets have the capacity to generate commercial returns.

In the critical areas of communications and international transport the need for a regional approach, free of protected national monopolies has emerged as a key requirement. While the details differ, for telecommunications in Samoa, Tonga, Fiji, Cook Islands and PNG for example, there is currently both the entry of new cross Pacific investors and the prospect of far better services being delivered, so long as access is allowed and not blocked by national incumbents.

A regional focus for telecoms and transport (shipping, ports, airports and aviation) almost by definition requires a private sector model since collaborative joint government ventures rarely work in terms of business service delivery²⁰. As it happens, new multinational entrants are indeed implementing aggressive investment and competition strategies that have the capacity to revolutionize the Pacific telecommunications and aviation sectors. This sort of development will be impeded if local monopolies are supported by governments on the short-term justification of avoiding job transfer and asset write-downs.

The case for independent regulation being facilitated by new policies has been demonstrated to be crucial²¹, whether single or multi sector, so the parties can state their cases to bodies free of conflicts of interest. In Samoa for example, the development of an independent regulator has enabled investors to proceed despite past political interventions – comforted by the prospect of the neutral regulatory umpire preventing arbitrary sectional outcomes.

5.3 Operations Performance and Asset Maintenance

The issue of asset maintenance is dealt with in detail in a separate Working Paper²². Discussed here are aspects related to PSP and private finance. That maintenance is of central concern in Pacific countries was illustrated at the Sydney Workshop. In the country

²⁰ As an example, Air Pacific (now Fiji's national airline) was conceived as a regional, i.e., joint-government owned airline.

²¹ Please refer to the several National Strategies and country reports, and to the Working Paper on Governance and Regulation, posted on the RETA website.

²² Working Paper on Asset Maintenance, posted on the RETA website.

consultations the RETA the team sought to discuss practical steps with a view to formulating guidelines. The expressed concern in Sydney was that realistic cost assessments of infrastructure O&M be passed ‘up the line’ to utility or central government managers responsible for budgeting. Our conclusion has generally been that in the absence of sound corporatized structures it is hard to implement incentives that will deliver sound O&M outcomes. More widely implemented benchmarking, as recommended, would facilitate means of rewarding by performance – but government entities often limit what they are willing to they reveal about performance and failure to impose effective reporting systems is widespread. For these reasons, among others, corporatization with full autonomy under regulation and contracting mechanisms with the private sector offer the best hope for O&M improvements in Pacific infrastructure. Certainly corporatization can be a key step to better husbanding and improved utilization of existing resources.

Maintenance is subject to some new approaches being adopted in PSP contracts, including a shift to financing via life-of-asset contracts. Though such models require teams with experience in finance, legal, technical and related contracting skills, a reform sequence starting with corporatization and commercialization and often public-private partnerships can generally facilitate such contracts for asset maintenance, within an overall model of accountability and incentives. Vested asset ownership arrangements – i.e., leasing or private asset sales where there is a life-of-asset contract that makes it profitable to look after assets and to work them intensively both in-house and by contract outside can be very effective at addressing longstanding asset maintenance issues that are common in, for example, roads and ports maintenance. Increasing contracted hours per asset serves to decrease unit costs.

With a sound contract for asset acquisition or leasing, the asset owner will insist on rigorous conditions for maintenance of the asset, which in turn underpins the financing contract since the asset can be re-possessed if not managed and maintained according to contract. This model of sound asset husbandry is a far cry from the asset degradation witnessed with many government or aid-financed Pacific assets. It has been observed in a number of countries that the majority of the assets in the “ownership” of ministries of public works are dysfunctional or “dead capital”²³.

A major conclusion of any infrastructure financing review is that there is no substitute for sound economic and corporate governance. Contracts for asset maintenance need to be set within corporatized enterprises able to create the “carrots and sticks”, the incentives and obligations that should govern expenditure of public moneys. The fact that an asset may be barely utilized or left to rust in a remote location may genuinely be no individual’s fault but rather due to poor models of asset acquisition where there is no proper vesting of responsibility for the asset and its condition – and where no person’s livelihood is at stake if the asset rusted away. The fault is usually the system, not the individuals.

Contracting out road maintenance and construction, as in Samoa, has the capacity to shift the responsibility for asset maintenance to private parties with appropriate incentives. It is crucial of course to create as competitive a market as is feasible through a broad-based contracting-out model that enables a number of firms to be formed on the prospect of winning contracts through competitive bids.

²³ Some 80% of the heavy plant pool held by the Department of Works in Fiji, ostensibly to support roads maintenance and other government civil works, is reportedly beyond repair.

With a vested private asset - say in a firm that contracts for maintenance of roads and ports or whatever, the physical asset and its condition is the security for future income, and so it is looked after. What is needed in the ministries acquiring infrastructure is the expertise to contract for leasing and management of assets, allowing those assets to be fully utilized, contracted out and with appropriate rewards for the asset managers and owners. We see an urgent need for departments such Works, Water Supply, Roads and other ministries or sub-departments that use infrastructure assets, to acquire people with contracting and financing expertise – persons who can deliver sound asset contracts to the government entities; contracts that have incentives for asset maintenance, possibly as part of leasing conditions.

When assets and services are contracted in and out, this enables intelligent and commercially beneficial use of the same assets in *both* public and private sectors, with matching returns of funds from user charges, and with resulting higher utilization rates making unit costs (per hour) far lower and ownership more profitable.

A problem with governmental use of grants-based ODA funding of new infrastructure in the past has been governments have generally not maintained assets, blaming inadequate funding. In our view, the problem is deeper than funding and relates to institutional issues including a lack of corporate incentives to efficiently manage capital and labor whether from ODA or not. What is needed is a sound form of corporatization of the enterprises such as works, water, electricity and ports, including soundly based Statements of Corporate Intent agreed with the Government that define and limit the roles of Ministers and managers.

5.4 Work Practices and Infrastructure Funding

Work practices in many Pacific economies are reflective of similarly inefficient practices in former colonial powers – which have now moved to performance based contracts. What makes financing of expensive assets affordable is their intensive use in the most valuable activities and in association with efficient work practices. Students for example seek work on weekends to finance their studies – the old notion that weekend and holiday work rates should be 1.5 or double time is not reflective of the fact that different people prefer to work at different times. To impose penalty weekend rates is to burden some industries (tourism) where people may often be happy to reschedule in other ways, as part of the negotiations.

Under well designed corporatization of state enterprises, there are transparent incentives to choose and maintain the best assets, and to replace depreciated assets, with the result that there should be reduced wastage of funds and resources, and a capacity to remunerate the smaller numbers of persons needed to properly maintain assets. Also, when assets have reached the end of their useful lives, they should be promptly sold²⁴, so that the corporatized entity collects and retains the revenue, rather than see it disappear into consolidated revenue as at present in many Pacific countries. A key to efficient use of infrastructure funds including aid funds is a sound corporatization program within which sound asset maintenance contracts and termination arrangements are embedded.

²⁴ Asset write-off procedures for non-corporatised entities in the Pacific are often so cumbersome that managers sometimes feel it is easier to store scrapped assets away indefinitely (but still keep them on the books) rather than try to sell them off. Autonomy over asset disposal – a key responsibility that comes with full corporatisation – will relieve entities of the cost of storing useless junk and through sales, even as scrap, will provide some finance for asset renewal.

Where a sound review and reform process has been followed by separation of policy and regulation from service provision under corporatized entities²⁵, accountable under corporate law and with boards independent of political interference, the history of asset performance and service delivery is generally better. Workers are certainly paid better after corporatization and contracting out, than they were before. Thus union opposition to such reforms usually dissipates upon implementation.

5.5 Community Service Obligations in the Pacific

Where assets are required for work in places where the costs cannot be recovered from user charges, e.g., remote islands, it is the proper political and financial function of government to finance what they deem appropriate levels of service, usually through contracts for provision of community service obligations (CSOs). Some services may be funded directly by Ministry of Finance through a budget allocation, but this should be transparent. An unacceptable outcome is that assets are provided in remote locations and left largely idle and un-maintained because of inappropriate or inadequate incentives. What is generally needed is a life-of-asset commitment at the time of contract signing, as specified in the scope of works and terms of the contract.

Full cost recovery for infrastructure services is not feasible in many remote communities, which means private sector provision is feasible on a sustained basis only with a subsidy, through what may be labeled funded community service obligations. Where governments seek to provide infrastructure services for delivery in remote islands or uneconomic communities at what they deem appropriate levels of service, it is essential that there be analyses of the alternative uses that such public funds could be put, in that community or elsewhere. The subsidy should be seen to be an efficient application of public funds for social purposes. Contracts for provision of community service obligations - for example those services funded by Ministry of Finance - should be transparent. The fact that there is a need for a subsidy or CSO element in infrastructure service provision need not preclude either private sector participation or private finance for the bulk of infrastructure services, so long as there are clear and contractual assurances up front as to what elements of service will be covered through government payment. Similarly, any constraints on tariffs or coverage obligations through the regulatory process need to be specified contractually, ideally with indicated indexation formulae.

Grants and soft loans will often be available to finance remote services and CSOs for example, and indeed it is possible to finance investment in infrastructure with contracts which include aid contributions. Typically however, private investors seek answers on investment approvals at speeds that are hard to deliver in the case of aid funds, given the required procedures. On the other hand, in some cases investors seek the co-assurance of ADB and World Bank/IFC type funding as part of a cocktail of finance, so that there is an element of leverage over the government – owing to the assurances that the official institutions can extract from the governments.

²⁵ For a discussion of related issues, refer to the Working Paper on Governance and Regulation, posted on the RETA website.

6 The Sequencing of Infrastructure Reform – the Precursor to Sound Private Finance

As noted in the Introduction (Box 1), there is a sequence of reforms that needs to be considered as a precursor to private sector participation in and finance of infrastructure, starting with placing the enterprise and its service delivery on an accountable and commercial basis. A key item on the “commercialization” agenda is pricing reform, with customer charges to reflect the costs of *efficient* operation, ideally as judged by an expert independent regulator. An issue with financing via state owned entities is that cross subsidies between classes of customers are often hidden. Because of the social need to assist some low income or remote customers, proposals to introduce private finance and/or ownership must also have a strategy for dealing with CSOs.

Governments can partially or fully recoup costs through user charges or asset sales, or can contract for asset investment and/or management by the private sector. Central to whether the partnership between the private and public sectors is beneficial or not is what is often labeled the quality of *economic governance*. In general the private sector sources of finance need a “PEG” by which is meant:

- (1) Predictability of income and costs
- (2) Enforceability of contracts signed, and
- (3) Governance – documented, transparent and accountable systems.

Economic governance as an issue is covered in the Working Paper on Governance and Regulation, posted on the RETA website. For the present discussion governance refers to the way in which laws, institutions, government planning, regulatory and other policies may work together with private sector initiatives, disciplines and capital to achieve government and community objectives. The dialogue on private sector partnerships in particular is about the contractual forms of this cooperative yet competitive process. The goal is to deliver efficient and sustainable infrastructure and related services with private sector finance and management expertise, often with explicit Ministry of Finance transitional subsidies to some community groups. An essential part of this contractual process – the reason it works – is the ability to allocate the project and other risks to the public or private sector party best able to mitigate the risk. This creates an environment where both parties have incentives to work together to optimize the outcome and manage the risks.

Because infrastructure services are usually essential and involve few or even sole providers, there is scope to make the income from sale of services very secure (usually and desirably *without* government guarantees) thereby attracting low risk and thus low cost investment funds from the private sector. Whereas investments with high risks can usually be financed only at high rates, once the regulatory environment is sound, such rates may significantly reduce and the investments can be absorbed by local financial markets including pension and insurance funds. This process secures a local capacity to finance long term infrastructure investments and reduces the risk of exchange rate losses. For the model to work, local sources of finance (e.g., pension funds) must be managed with a high degree of integrity, business expertise, and attention to the needs of contributors. There must also be adequate safeguards against political intervention or misuse of funds.

Successful PSP contracts are generally initiated by government based on scopes of works developed in expert agencies, usually connected to the Ministry of Finance. Central to the process is a strengthening of government planning, contracting, financing, regulatory, and monitoring expertise. While PSP units can be formed and located in a number of ways that suit the country, there is merit in establishing a central body, possibly within Finance or SOE/Public Enterprise ministries with access to experts seconded from line ministries, the private sector and research groups. The main bottleneck in the Pacific to date is in poor capacity to prepare sound contracts. Authorized expert groups are needed that can design, lead and implement a sound transition to private delivery mechanisms. Governments should, through legislation and funding, facilitate the formation of professional PSP management entities within the Ministry of Finance or planning ministries, and hold the officials accountable according to the approved charter.

Some may question whether the small island states of the Pacific are suitable for PSP innovations. Others may argue that what is needed in some sectors are *regional* enterprises, or private enterprises that span many national jurisdictions, so achieving economies of scale and scope – and this does seem to apply, for example, to telecommunications, aviation, and shipping where private multinational companies are active. Recent encouraging experience with PSP in the Pacific has demonstrated its potential role in improving service delivery (e.g., in telecommunications and in roads maintenance in Samoa), but there is a need to prepare for it thoroughly through sound governance, regulation, and institutional reform.

Other sectors of infrastructure and service delivery suited for private participation are power generation and distribution, roads maintenance, and O&M for water supply and sanitation. Properly structured national and regional PSP contracts are a significant step in the right direction for the island communities and nation states. Importantly, development bank seed capital could be used in some PSP projects, as well as funding to support both the agencies that prepare PSP contracts and the regulatory processes required. Multilateral agencies such as the ADB, the IFC and others can further support PSP, by strengthening the contractual terms of aid finance for infrastructure in terms of maintenance issues, supporting the formation of expert reform groups within key government Ministries, and providing expertise and access to appropriate training.

There are signs of developing momentum in PSP contracting in telecommunications (satellite²⁶ and mobile phones²⁷) and transport (aviation²⁸ and shipping²⁹) and in some countries roads maintenance and the power sector. An external benefit to communications reforms could be to expand the quality and level of education and training, e.g., via the internet. The ability of digital technologies to serve diverse markets (voice and data communication, TV) is a powerful reason to abolish barriers to competition across the

²⁶ There is a range of official and informal government, development bank and private sector initiatives regarding extending satellite and fibre optic cable in the Pacific - all of which have the potential if properly managed to greatly increase connectivity in the Pacific and so improve the tourist and business base of the region.

²⁷ See the proposed expansion of the Irish Digicel group, which has been successful in the Caribbean, and which is gaining traction in the Pacific (eg Samoa) despite considerable issues relating to the rights of incumbent and typical government monopoly providers..

²⁸ The Virgin group is now hubbing out of Brisbane and other locations focused on serving Pacific states, augmented by trans Pacific (Australia to USA) services in 2008.

²⁹ Private shipping companies are awaiting reforms in key economies, and indicate a willingness to expand should port PSP contracts be tendered.

spectrum of services. At a minimum there is a need for regulators to create an atmosphere of certainty in these markets to attract private sector finance. In many sectors the action is real – private companies are waiting on government for approvals to proceed or expand.

Notwithstanding the clear opportunities, it will not be easy to get new PSP style infrastructure investment - it will require substantial cooperation across states, donors and agencies. Foreign investment is discouraged by poor governance and regulation and by the reluctance of many governments to expose traditionally government-dominated sectors to competition. Corruption and political interference in the preparation and selection of tendered contracts kill long-term investment.

7 Infrastructure and Network Assets

In the Pacific, the financing issue is made critical by the smallness, sparseness and poorness of many key economies, despite remarkable potential. The fact that key infrastructure assets are ideally part of multi-island *networks* such as telecommunications, airports, ports and shipping, and more generally are key inputs to tourism, means that there is a premium on sound corporate structures that facilitate cross-network contracting. But if network economies are not delivered, and worse, if several governments of the Pacific lack effective governance structures, the region in general will be less dynamic as a target for infrastructure investment. As a case in point, though private sector funds may be available worldwide under appropriate conditions at rates below 10% for infrastructure finance of say 30+ years, such funds are not yet in evidence in the Pacific region; the conditions for it haven't been met.

Despite this, there are many beacons of progress – good examples are emerging in telecommunications, aviation, ports and tourism. The RETA is thus timely given its capacity to highlight some success stories and the scope for more. The Caribbean, in some respects quite similar to the Pacific, is an example of how small populations can attract large incomes from tourists and business investment, once competition is facilitated.

Tourism is generally agreed to be a key sector in economic growth in many Pacific countries including Vanuatu, Fiji, Samoa, the Cook Islands, and Palau (and large but mainly undeveloped potential in FSM). Island tourism can create substantial local income and wealth, such as it has in the Caribbean. But to attract premium tourism requires the synchronous development of networks and communications – aviation, shipping and digital links, such that it becomes economic and convenient for foreigners to holiday and work in Pacific paradises.

7.1 Scope for Competition, Issues with National Monopolies

There is a need to have the structure of infrastructure industries set to reflect the scope for competition – both between potentially competitive service providers, as well as through “competition for the market”. The latter form of competition is a means of achieving better outcomes in cases where unit costs are lower under a single provider – i.e., a natural monopoly. For example, where there is scope for competition (whether local or international) among airports, airlines, ports, electricity suppliers and telecommunications services, the ideal structure is one regulated by competition. However, retaining a national carrier or telecoms company through subsidy or preference schemes (much less through legislation) as a matter of policy undermines the scope for financing competitive services from the private sector. Few investors want to compete against the potentially tax-financed cheque books of state owned airlines or telecoms companies.

The case for continued ownership of national monopolies in aviation, shipping, or telecommunications is not strong. National monopolies are subject to inefficiencies and staffing/union problems, and there is always potential need for the government to prop up the state-owned entity or give preferred finance deals to keep it in business. Following divestment by government of, for example, the national airline, it will be generally easier for new entrants to get finance for expanded routes and connections to the respective country, with tourism a major beneficiary. What the new “open competition” model can also do is in effect promote competition for the travel and communications space of each Pacific country

– from the party best able to convince the regulatory and government bodies that they can deliver the services.

7.2 Sources of Risk – Political Intervention (not Infrastructure Assets)

Some well managed funds in Pacific countries with large resources are constrained by prudential concerns from investment in the country's own infrastructure assets – which are seen as highly risky. But it is not infrastructure assets that are risky, since their services are essential; these often have monopoly and regulated returns and suffer few of the specific risks that characterize other commercial investments. Rather, it is the government created investment climate that is risky, with the fear that politicians will intervene outside tendered or other contracts, making the income stream from infrastructure services both unpredictable and “un-bankable”.

7.3 Satellites and Telecommunications

The main bottleneck in expanding telecommunications in the Pacific relates to satellite and undersea cable capacity and the need for a regional solution to increasing access³⁰. The Pacific Islands Telecommunications Association (PITA), UN ESCAP and others are focused on how to expand the bandwidth accessible to Pacific countries. Apart from Fiji (with its access to the Southern Cross fiber optic cable) and PNG (with access to cables via Australia), most Pacific countries depend on satellites for key telephone, internet and data access, operating in the face of a growing constraint in satellite transponder bandwidth. Expanding that capacity is a priority given that telecommunications are a key to finance and other sectors in the Pacific. One suggestion is that a group of Pacific telecoms operators under a joint association could commission a commercial entity to bargain for purchases and sale (to Pacific telecoms companies) of long- and short-term satellite capacity, including from a new satellite. These matters are currently under investigation, as are proposals to extend undersea fiber optic cables to the benefit of Pacific countries currently having no cable access.

³⁰ Refer to the Regional Strategy paper, posted on the RETA website, for further discussion.

8 Selected Examples of Recent Infrastructure PSP Developments

8.1 Telecommunications Developments and Competitive Potential

Many of the Pacific countries that participated in the RETA consultations exhibit the striking and expanding benefits from market liberalization, competition, and disinterested regulation. Costs of calls are falling, and internet access is increasing along with speed and service quality. Penetration, e.g., in Samoa and Fiji is rising rapidly, to the extent that some worry about excessive use by younger people and expenditure on a new high status possession, the mobile phone. What is clear is that prospects for new levels of connectivity in the Pacific have never been better. Private firms are investing, expressing interest, and making offers of new services. The barriers are increasingly governmental and regulatory and the need is for increasing attention to access regimes and pricing that ensure that key gateways and nodes do not become bottlenecks. Thus, the implementation of a pro-competitive regulatory framework is critical.

The previous model of a dominant national monopoly carrier is being rapidly eroded both by the entry of mobile phone companies and by moves to facilitate competition, notably wireless as it suits the Pacific. The phase-in of digital telecommunications sharing common data “reservoirs”, gateways and often needing satellite transponder access has meant that all modes of telecommunication are now potentially competitive with a common digital core – voice, data, wireless, internet, television – since they all draw on the same digital technologies and capacities and all compete for bandwidth. The internet and broadband communications and the convergence of computers, telephone and other data devices are promising yet more competition. The case for removing regulatory barriers between forms of telecommunications products as well as delivery modes is strong, since all services are potentially deliverable on a range of digital devices. The major bottleneck is international capacity via satellite - where limited transponder capacity in this part of the world is constraining service. There are moves within PITA and UNESCAP and elsewhere to facilitate dedicated satellite capacity through Ku band satellites focused on about 8 geographic regions of the Pacific. The C band satellite capacity, with its superior capacity in rainy periods, essential for weather and security purposes, will continue to be needed.

It is clear from a range of assessments that expansion of the Pacific economies depends crucially on quality communications – notably telecommunications. Telecommunications competition has often been viewed as difficult to implement in small island economies, owing to scale economies; but new technologies and developments in the Caribbean and now the Pacific are exposing the falsity of that proposition, as confirmed by expert groups such as the ITU. Initial experience in Fiji and Samoa and now Tonga is instructive of the emerging potential in the Pacific for competitive and much lower cost and high quality telecommunications and internet access.

It is likely that tourism and telecommuting to the Pacific could greatly expand if the quality and route offerings of both aviation and telecommunications services expand in the manner currently indicated as feasible. There are hundreds of millions of people seeking “island escapes” from city life in expanding Asian communities – notable China and India, but also the rest of the world; and so the market is barely tapped. The current moderate demand for tourism in the Pacific will change rapidly once airline services expand as is likely over next decade, built around new low cost airline models that are now transforming the European and Asian skies. Bookings on such airlines are also mainly by internet as this facilitates

lower cost models, and customers thus need internet to make smart use of airlines. Fast broadband telecommunications can therefore make geographical isolation on attractive islands a plus rather than a minus for those who need to stay in touch, and so expand tourism and business conferencing in the Pacific. Removing protected state enterprises – in aviation and telecommunications - will be crucial to enabling private sector funding of new competitive entrants.

We note also that telecommunications offer hope and wireless connectivity to those in remote islands – on a basis that would not have been economic until recently. While there will probably be a need for transitional elements of subsidy, the promises of WiMax and other technologies are changing the possibilities for remote communities. Accordingly we see the telecommunications reforms as fundamental in efficiency and equity terms. Whether through rapid response to threats of cyclones or tsunami, or broadband access to education and health delivery and assessments, the digital age can be made to deliver real transformations in the lives of Pacific islanders, and so must be right at the top of reform and implementation agendas.

Before reviewing the issues across the region in the workshop, it will be useful to recall country discussions.

8.1.1 Fiji

The Fiji Government has been planning reform of the telecommunications sector since 2003, including the updating of the telecommunications policy of 1998, introducing a new legal and regulatory framework, establishing an independent regulatory authority, and doing away with the exclusive rights enjoyed by current operators in the telecommunications industry and establishment of a more liberalized competitive system. Liberalization has been included in Government policies and agreements with the telecommunications sector since 1998.

In 2003 the International Telecommunication Union prepared a Fiji ICT Case Study, which was submitted in March 2004. The reports indicated the major obstacle in developing the telecommunications sector was the exclusive rights which created monopolies.

When the Fiji National Provident Fund acquired the first batch of 49 per cent of ATH shares in 1998, the purchase agreement stated FNPF would cooperate with Government in removing all exclusive rights, specifically mentioning Vodafone, FINTEL and certain Telecom Fiji connections. The Telecommunications Policy Statement of 1998 and the sale of Government shares of ATH to FNPF in the same year both included a transition from the monopoly model to the competition model.

A Telecom Bill was to be tabled in the parliament in December 2006, and the Interim Government has said it wishes to implement this legislation. There were indications that passage of the Bill was likely by the end of 2007.

One capacity advantage Fiji telecommunications has over other Pacific countries is that Fiji is on the Southern Cross fiber optic cable and thus is not reliant on satellite coverage, which has narrower bandwidth (but is cheaper to acquire).

Recent developments:

Telecom Fiji as part of the implementation of the competition policy have included expansion of a new wireless CDMA system with 55 base stations providing coverage, and with the wireless phones providing digital communications – voice and data.

Digicel has also been granted a provisional license, and while not yet marketing services, the brand is being established (e.g., Rugby 7s sponsorship) and with the expansion of Digicel in all of the Caribbean and now in PNG, Samoa and potentially Tonga and Fiji, making plain the intent of Digicel to be a major service provider in the Pacific island states.

Fintel is now facilitating WiMax services – like long distance WiFi – with about three licenses issued.

Unwired of Fiji is now providing portable wireless connectivity up to 1 Mbs. Unwired has had a license since 2001. On offer to date is portable but not genuine mobile capacity at this stage, awaiting installation of additional towers. Unwired has a range of technical options and plans, and licensed access to differing parts of the radio spectrum. Unwired confirms that on the basis of small island state performance in the Caribbean, there is a sustainable future for a number of competitive players in the Pacific island countries, at great benefit to customers and industry.

There are concerns that Fintel's access to the Southern Cross cable be deregulated, allowing access to others.

The number of ISPs in Fiji (4?) should be expanded after passage of the Telecommunications Bill – at present there would seem to be substantial scope for, and benefit from facilitating new entrants.

Land access issues for towers, as in other Pacific countries, has been an obstacle, but it would appear that the negotiation processes are working.

Funding arrangements for delivery of the goal of universal service obligations in

8.1.2 Samoa

In telecommunications, the market has been strengthened for the benefit of consumers in Samoa by a successful drive by government to liberalize the sector. Regulatory reform was recommended in a 2002 World Bank study, adopted energetically by the government with new legislation to introduce competition in the mobile market in 2005. The mobile service in Samoa at the time used outdated equipment and had limited coverage (essentially just Apia), and there was little landline service in rural areas; extending coverage through a mobile service made sense.

Three mobile service licenses were tendered; 5 bids were received. Digicel in a joint bid with local company CSL won signed an agreement in April 2006 and began operating a mobile service in November; it now has about 60,000 subscribers, utilizing some 42 base stations providing 95 percent coverage of the two main islands plus Apolima and Manono. (Digicel has encountered no land problems for these stations (15m x 15m) because they proactively engaged the landowners in pursuing agreements and pay a rental rate far in excess of the rate recommended by the government.)

Digicel operations in Samoa are praised for high quality and affordable cost. Telecom Samoa Cellular, an analogue service owned by NZ Telecom, was assumed to remain as a

competitor in the liberalized market, but they were instead bought out by Digicel; thus there are now only two licenses active in Samoa. (Digicel now operate in Samoa and PNG, with operations in Fiji likely soon; negotiations continue in the Solomons. The team understands that Digicel are likely to invest in TCC in Tonga, following rejection of their offer to buy Tonfon in Tonga.) Digicel has taken substantial staff from SamoaTel, and claims to have 20% of the staff level but similar revenues. Digicel has become the new yardstick of telecom performance in Samoa.

The government-owned SamoaTel owns and operates the landline system (16,000 subscribers) throughout the country (the 'copper') and is the international gateway for internet data and voice. (Digicel has very recently been granted an international gateway for voice only; SamoaTel have an exclusive license for voice-to-fixed line). Internet Service Providers (ISPs) must at present operate through SamoaTel. ADSL (a phone line based broadband technology) does not yet exist in Samoa because of issues involving competitive ISP access to SamoaTel's copper. The Ministry of Finance and the regulator (see below) are keen to privatize SamoaTel as soon as possible – a scoping study for this is starting now.

Both companies strongly endorse cross-sector coordination in laying of cable. High urban water table and frequent flooding, salt contamination, etc., drastically shorten the life of the copper system, which needs constant replacement. SamoaTel has also begun operating a mobile phone network (8,000 subscribers), but Digicel dominates that market. No serious gaps in top or middle-management or technical skills. Performance benchmarking is conducted extensively by both SamoaTel and Digicel with data sent to ITU, but both regard the data as highly proprietary.

There are 3 ISPs in Samoa at present. Computer Services Ltd (CSL) is one, now a partner of Digicel. CSL has been in operation for 20 years as an IT company (60% shares held by the National Provident Fund) and has almost fully localized the staff, but finds that recruitment of needed skills locally is very difficult. Training in IT and telecom is urgently needed. CSL claim that SamoaTel has built a S\$7m fiber-optic cable around Upolu but it is not open-access, so competitive ISPs such as CSL do not use it. Internet service in Samoa is slow and fees are high compared to Fiji. CSL is trialing wireless internet to businesses and government, and currently have 80 percent of the government market. Internet volume is growing at 35% per year, despite currently low penetration of personal computers (only 3000 PCs in the Apia Township).

An expatriate regulator was appointed in July 2006, with jurisdiction presently limited to telecom, but expansion to multi-sector regulatory capacity is under discussion. The regulator is fully independent – his decisions cannot be overruled (even the Supreme Court can at best ask that a decision be 'reconsidered'). The office of the regulator has strengthened the confidence of potential bidders in transparency and a level playing field: it is expected that 6-7 ISPs and two full international gateways will soon be operating competitively in Samoa, despite the small market size; this is widely seen to be due mainly to the new regulatory capacity. Samoa leads the region in legislation facilitating regulation and office of the regulator, and could be used as a model for other countries. However, supporting staff for the regulator at present is minimal, requisite skills for the office can't be found in Samoa and recruitment of qualified staff is expected to remain difficult.

Telecom capacity in Samoa (and the Pacific) is constrained by limited satellite capacity – the rest of the world is much better covered. Options for addressing this at present are unclear.

However, bandwidth would be substantially improved if Samoa could access a submarine cable between Hawaii and New Zealand owned by Telecom NZ, but timing and finance of this is uncertain.

8.1.3 Tonga

TCC was established in 2001, taking over as a government-owned local firm from Cable and Wireless International. TCC now owns and operates 100% of the 'copper system' (landlines) and about 60% of the mobile market, but is the junior competitor in internet services.

In telecommunications, Tonga is on the brink of major sectoral changes and technical innovation. Remote area mobile phone coverage seems set to improve with the introduction of WiMax technology, and connectivity internationally will become more convenient with the current introduction of roaming agreements; both innovations are from the government-owned TCC. International players with more technology and finance are likely to enter the Tonga telecom markets as TCC intends to sell a minority share, and TonFon their entire operation, to overseas telecom companies.

Shoreline, owned by the Royal family, is also a player in telecommunications, operating a mobile phone service (TonFon) of about 20,000 subscribers in competition with the government-owned Tonga Communications Corporation (TCC, with about 30,000 subscribers). Shoreline seeks a buyer for this service, and has been approached with an offer from Digicel. The gap between Digicel's offer and Shoreline's valuation of TonFon was reportedly great, and no agreement was reached. Shoreline still seeks a buyer of TonFon. It is reported, however, that Digicel is still keen to enter the market in Tonga, and may buy a substantial minority portion of TCC.

TonFon has not offered a roaming service (a capacity to integrate service and billing with other mobile services globally) as they view the Tonga market too small to justify the cost; but TCC is introducing roaming (with Vodaphone) in mid-March 2007. This TonFon position is at odds with other assessments.

TonFon and TCC compete also as internet service providers (ISPs). As there is no fiber optic network, international and inter-island internet traffic is via satellite, for which TonFon buys commercial bandwidth (Intelsat). However, the Royal family also owns Tongasat that has cheap bandwidth available, but for unclear reasons this cannot be accessed by either TonFon or TCC. Such access, according to TCC, would afford Tonga a much faster and cheaper internet service. Meanwhile, many Pacific island countries are locked in to long term contracts with Intelsat. Telecom regulation is limited to a small office (2 staff) in the PM's Department; otherwise there is no independent regulator of telecommunications in Tonga.

To extend mobile phone coverage in remote areas (Ha'apai and Vava'u), TCC is introducing WiMax, a wide-area wireless technology capable of carrying voice services as well as internet. The technology greatly reduces the cost of installing rural mobile telephone services. WiMax may have great promise for the Pacific; TCC's installation is among the first in the region. A limiting factor for WiMax in remote areas, however, is that it requires a continuous power supply (solar power can be used), whereas landlines do not.

8.1.4 PNG

Major developments, and policy debates, are in process as we write. The second RETA meeting in PNG in June 2007 suggested PNG shortly could dramatically move along the pathway evident elsewhere – towards competitive and less regulated telecommunications. A new management team was put in place in PNG Telkom in 2005 anticipating major policy change, including an expanded role for regulation via the Independent Consumer and Competition Commission (ICCC). Given that PNG has population of 5.9 million and mobile penetration of only around 1%, with limited roaming rights to date the level of satisfaction of residents and business with PNG telecommunications, including mobiles, was very low.

The telecom sector has until recently been dominated by the government monopoly provider, Telikom PNG. The government has made strenuous, but so far unsuccessful, efforts to privatize the company. In the meantime, the main news in the sector is the arrival, in November 2006, of Digicel, the same Irish company established in the Caribbean that has been part of pervasive changes in the mobile and internet markets in Samoa and Fiji. Digicel now claims that they are established in all Pacific island countries except Tuvalu and Tokelau, underscoring the RETA's observation in other countries that Digicel is not deterred by either small markets or high risk.

The hallmarks of Digicel's entry into the Pacific have been speed, technical quality, and coverage. The incumbent (usually monopoly) telecom providers have typically reacted first with legal action and then with stepped-up investment to try to match Digicel's product. In PNG, Digicel plans to launch in July 2007 with 100-150 stations (against Telikom's 40 stations) and subsequently to cover the country with a total of 600 stations. To support this, they are also building their own network rather than riding on Telikom's existing one. The amount that Digicel plans to invest in PNG is not known to the RETA team but it is clearly enormous. Teledensity in PNG is currently very low (~2%) – Digicel's investments will create markets for 21st century services in some very remote places. Digicel is, to an astonishing degree, undeterred by the attendant risks; they cite their successful against-all-odds entry in Haiti, one of the poorest countries in the world, as evidence that the model works.

A new entrant to an untested market might reasonably insist on (i) favorable government attitudes and legislation supporting liberalization of the market where the incumbent is a monopoly and (ii) a sound regulatory environment, before deciding to invest. Digicel claims that they don't actually insist on both of these; one or the other is necessary and sufficient. In PNG, according to management, Digicel's entry was assisted crucially by the impartial regulatory environment provided by ICCC; lack of a clear government telecom policy or legislation has not helped but has not hindered them.

The ICCC has issued a telecom license to a new company called GreenComm in addition to Digicel. Telikom PNG has raised a legal challenge to both licenses arguing that ICCC does not have the authority to terminate its monopoly. The ICCC is concerned at the number of recent court cases and the budget and capacity demands imposed on them as a result.

8.2 Ports

8.2.1 Fiji Ports Corporation Limited

The ADB has financed a number of TAs focused on port reform and that have direct relevance to the issue of how ports in the Pacific could go forward in partnership with the private sector and other transport and tourist sectors³¹. The management of the corporatized FPCL expressed interest in going further down the pathway of public-private partnerships, given the scope for financing investments on the substantial proportion of Suva Port real estate that is now in freehold.

The exciting possibility exists in Suva of creating a port precinct of the “Docklands” kind – where new real estate, transport hubs and tourist, residential and premium hotel capacity is privately financed in the Suva Port area on land now in freehold.

What would seem appropriate to the RETA Team is a further reform-driven process whereby the private and public sector potential is drawn out through the public-private partnership model – enabling private investment on public freehold land (155 acres). There is also scope for private tendering of stevedoring business.

Achievements of Port Reform to Date

In Fiji, a separation of maritime powers has been implemented – separating policy and regulation from port service provision, with services being provided by a fully corporatized Fiji Ports Corporation Limited, FPCL. However the Minister of Public Enterprise is on the Board of FPCL.

Throughput on freight and containers are now substantially better than pre-reform, but standards could still be raised, along with funds from a privatization process and to sustain new investment. Software used for container management is the same as some other leading ports – e.g., Brisbane and Apia. Staffing numbers have been reduced to 350 in FPCL.

There is also scope for corporatization of the navigational aids business, as successfully implemented elsewhere.

The status of Fiji Government Shipping Services (GSS) should be re-visited, as there would seem no need to have such a company given the pure service provision role and the scope for private sector entry or tendering for the business and assets. There has been a steady decline in the number of ships under GSS, from 37 in 1971 to 14 today.

³¹ The Meyrick & Associates' report for the ADB produced a work plan for implementing reform and sector reorganization. . . Prior to the port sector reorganization in 1997, two agencies governed the ports sector: The Ports Authority of Fiji (PAF) and the Marine Department of the Ministry of Communications, Works and Energy (MCWE). These operated under two Acts: The Ports Authority of Fiji Act of 1975 (PAF Act) 1 and the Marine Act of 1986. The reorganization charter obtained Cabinet approval in July 2004, and provided for “(i) the establishment of a new port management company; (ii) the amendment of the Fiji Maritime Safety Authority (FIMSA) Act and repeal of the amended Port Authority of Fiji Act of 1999; and (iii) the retrenchment of surplus staff once the new port entity had been established. As a result, in July 2005, the ports sector saw further rationalization through the amalgamation of the PTL and MPAF into a Government's Commercial Corporation (GCC), the Fiji Ports Corporation Limited. The CEO of the new organization was appointed in February 2005. The Sea Ports Management Act was adopted in June 2005. The new port management company, Fiji Ports Corporation Ltd (FPCL) was fully established on 1st July 2005. The regulatory functions of MPAF will be transferred to FIMSA. The retrenchment of surplus staff has already commenced and was completed in August 2005”.

Tariffs are still set by a process that ends up with Cabinet – and that is an issue to be addressed if there are to be further steps towards competitive private sector service provision under a PPP model.

The goal in port reform is an efficient port in the first place (i.e. in terms of containers/tonnage per hour, turnaround, linkage with other forms of transport), enabling beneficial flow on effects from proper use of all complementary assets of the port, including land. To function efficiently, the Port Corporation, FPCL, must be able to contract with other interested parties, e.g., in relation to freight connections rail and trucks and other vessels, airports, passengers, and hotels. Success with port privatizations around the world have been notable, once the structures were reorganized (i.e. separating regulation and policy) and usually following a corporatization process. Small ports, e.g., in Australia and New Zealand, have been successfully privatized and have achieved both reduction in pressures on government finances and expanded investment by the private sector in and around ports and related infrastructure.

In general port real estate is potentially the most valuable land in the capital – but only if there are well managed lands and wharf investments. The landlord model of ports development is capable of creating substantial wealth, tourism and a much expanded tax base, to generate higher levels of economic activity and GDP.

Government's port sector reform aimed at the Government operate commercially in a competitive environment, thereby making these entities more efficient, productive and accountable. In the 1997 reorganization, (i) the Ports Terminal Limited (PTL) was established to undertake stevedoring, cargo handling, storage and pilotage, and management of Suva and Lautoka ports and (ii) the Maritime & Ports Authority of Fiji (MPAF) to regulate and supervise all marine activities within the international ports, including port asset management, maritime sector regulation, and policy formulation then the task of the Marine Department. In addition, further reform was envisaged for MPAF to separate its landlord asset management functions from its regulatory functions.

9 Potential Targets for Policy Actions and Private Sector Transactions

9.1 Promoting Private Sector Participation (PSP) in Infrastructure in the Pacific

Several Pacific countries have made notable progress in promoting private sector participation in infrastructure. As examples, the Fiji Electricity Authority has successfully outsourced diesel power station operations and maintenance and has signed contracts with a number of independent power producers for power generation. The Samoa Ministry of Works, Transport, and Infrastructure has successfully outsourced all national roads maintenance, while in PNG, rural infrastructure (especially transport) is being promoted by a private sector fund established by a subsidiary of the country's largest copper and gold mine.

While each case has unique characteristics and none is exactly replicable, a sample of other Pacific infrastructure entities suited to PSP is suggested in Box 4 as targets for transactions, building on the successful engagement with the private sector that has begun in the Pacific. The background to each of these opportunities is discussed in the respective National Strategies³². The potential transactions need to be assessed and prepared in detail by expert groups appointed by the respective governments (as discussed above in section 6).

Box 4: Some Potential Infrastructure Opportunities for Private Sector Participation

- Fiji Government Shipping Services
- Fiji Mechanical Services
- Fiji Ports Corporation
- Palau National Communications Corporation
- PNG Telikom, in association with license approved for new entrants
- FSM Telecom, in association with license for new entrants
- Samoa Shipping Corporation (leasing)
- Samoa Tel
- TCC Tonga
- Shoreline (Tonga) mobile assets TonFon and generation and distribution assets of Shoreline
- Telecom Vanuatu Ltd, in association with license approved for new entrants

Included is a mix offering scope for tendered trade sales and retail share offerings from key infrastructure utilities, in association with currently needed regulatory and governance reforms (most of which, but not all, have commenced). Of course each transaction would require its own feasibility study within a sectoral policy overview, something well beyond the scope of the RETA, but that sits well within related projects, e.g. of the ADB.

On the issue of funding, it is expected that national and regional superannuation and heritage funds investment will increasingly become available, in addition to the conventional bilateral and multilateral sources, once the infrastructure assets are appropriately structured and regulatory institutions in place.

³² Posted on the RETA website.

While the prime goal of private sector participation is to create new private investment and financial autonomy for utilities supported by regulatory reform, it is assumed that other critical issues facing infrastructure and examined in this project are also addressed through means such as corporate restructuring, policy development (e.g., for subsidies) improving governance, and increased funding for maintenance, training, and implementation support.

To summarize, opportunities for private sector participation have been identified against the following background.

1. There is immediate scope for a number of investments and public private partnerships in infrastructure across the Pacific, particularly in communications and transport. Recommended reforms and transactions are based on the finding of the RETA consultations with stakeholders across the Pacific.
2. The Pacific island countries have substantial and internationally recognized natural wealth, which can be captured in eco-tourism and other investments. A more strategic approach needs to be adopted by countries and development partners that looks beyond sector-specific infrastructure needs and promotes balanced investments that focus economic activity in areas where the region's true comparative advantage lies, together with labor market and other institutional rules adjusted to encourage employment in new markets and innovation.
3. The telecommunications and transport sectors are demonstrably appropriate for regional private investment supported by facilitating structural and pro-competitive regulatory frameworks. They are also the sectors most catalytic of growth given that expansion of tourism and small and medium businesses increasingly depend on widely available broadband internet access – a particular challenge for island communities.
4. Sound regulatory and governance reforms are required in tandem with sustained investment. A sound structure for new investments will create a win-win-win situation for the people in each country, the investors, and for the region. Successful transactions would send a signal to the world economy that the Pacific means business in terms of economic reform and that there are growing opportunities.
5. Post implementation of such reforms, infrastructure will become an attractive investment to superannuation and heritage funds. Being in local currencies, such funds lower risks to the recipient sectors and, if properly regulated, Pacific infrastructure will begin to play an important role in securing the savings of persons participating in the funds.
6. The summary details of potential transactions are elaborated in the back of each of the National Strategy papers for the Cook Islands, Fiji, FSM, Palau, PNG, Samoa, Tonga, and Vanuatu. The proposed transactions are representative of a model for infrastructure investment that suits the region, as it they build upon the region's undeniable (if hidden) strengths.

10 Annex 1: Overview of Findings - PSP and Finance in Infrastructure

	Finding	Country Examples and Implications
1.	<p>There is substantial waste of capital resources across the Pacific, e.g., under-utilized and wasted capital assets in many key ministries and state owned enterprises. The urgent need is for commercialization and corporatization of key business units. Lead candidates for reform are components of electricity, public works, ports, airports, roads, telecommunications, water supply Contracting out and leasing of assets should be prime options. Assets should be intensively utilized in both public and private sectors under sound contracting rules and incentives.</p>	<p>As an example, of which there all too many, in Fiji, about 80% of road maintenance assets are unusable, and lie around rusting. The problem is not individuals but incentives. There is a need for corporatized structures and incentives – so assets get “owned” and maintained, under a sound system of transparency and accountability. Corporatized entities, once they can “own” assets, may borrow against them or the land lease/title, and so secure new investment funding.</p> <p>Funding agreements will typically oblige the borrower/lessee to meet the financier/asset owner’s standards – as specified in a lease contract for example. The leasing model is well known and works well for aircraft - it needs to be applied and adapted for other Pacific infrastructure. The covenants on lease documents oblige the asset manager to husband the asset properly, cf current practice. It is no accident that private assets such as cars and homes are better managed and maintained – the need is for application of the corporatization model and asset vesting so that there are incentives not to waste capital – or convert live and ODA financed assets into “dead Capital”.</p>
2.	<p>Economic and social development in the Pacific hinges crucially on further regional and national development of tourism, as a premium and competitive product. . But tourists, from rapidly growing catchments (India, China, East Asia...) require improved telecommunications, expanded network and better flight frequencies associated with competitive airlines.</p>	<p>All countries in the Pacific need reforms to airlines – open skies - and digital communications (telecoms, mobiles and broadband internet). These needs are already being reflected in some countries (Samoa, Fiji, PNG, Tonga) but could be accelerated. Competition and regulatory policies also need to evolve consistently to facilitate quality tourism for expanding competitive market – including China, India and other parts of Asia.</p> <p>New technologies in ‘phones and internet are lowering costs of business and marketing.</p>

3.	<p>The policy reform process is under-developed of regulatory proposals. Sound regulation is critical, but cannot repair damage from unproductive industry structures. There is a need for political and private sector leadership teams to drive a policy reform agenda in most Pacific countries.</p>	<p>There is a need for reform-driving units, to set policy agendas drawing on best practices elsewhere attuned to local conditions. Such units are usually housed in Ministry of Finance / Public Enterprise and require Ministers who champion such reforms. The units would usually involve experts from line ministries and state-owned enterprises (SOEs).</p> <p>The opportunities emerging in telecoms and aviation are from a mix of new technical possibilities and competitive business models.</p>
4.	<p>The model of corporatization needs to be refined, to clarify the roles and restrictions on management, board and Ministers.</p>	<p>In many Pacific countries, Ministers serve on and even Chair the Boards of what are to be independent SOEs. What is needed is for SOEs to be run under incentives to efficiency, sound asset management and replacement and competitive commercial pricing. Where there are monopoly areas, the independent regulator is required.</p>
5.	<p>Fishing would benefit from better definitions of sustainable fishing rights and auctions of licenses. Traditional export bases (agriculture, fisheries) while holding opportunities, need better infrastructure (ports, airports, power) in order to expand to premium markets.</p>	<p>Premium fishing market needs to be studied – typical view is that future is bleak – in contrast to growing world demand for premium seafood. Example of failure of cannery in Levuka, Fiji is more about failure to corporatize/ privatize a potentially profitable tuna market.</p>
6.	<p>Tourist expansion requires complementary developments in construction, roads, airports, ports.</p> <p>Cruise lines increasingly offer packages with a mix of sea and air travel, based around preferred islands, airport and airline deals and landing/docking fees. Need to be competitive in all elements of packages.</p>	<p>Some joint venturing may be appropriate – e.g., between small island-focused airlines and groups of resorts – as is common in Africa focused around game camps and small airlines (Botswana). Landing and docking fees need to be set within a model that treats airports, airlines, ports and hotels as all in an internationally competitive business. No such thing as a monopoly airport in the world of tourism.</p>
7.	<p>New models of low cost airlines, with quality equipment, now make it possible to greatly expand the frequency and suitable timing of flights – but the trans Pacific market needs to reach critical mass and this requires regional cooperation and in some cases a willingness to code-share, merge and facilitate new entrants. Protection of national airlines is less sensible than merger code-share deals.</p>	<p>Samoa, Fiji, Tonga, Cook Islands are all exploring these airport and airline reforms. New trans-Pacific flights 2008 – could facilitate network expansion – mix of large and small planes and new airlines and services. New low cost airlines open to negotiations.</p> <p>New services are emerging and aircraft orders and announcements suggest the scope for Pacific airline expansion will be enlarged in 2008, if domestic policies also facilitate such expansion.</p>

8.	<p>The policy reform process is under-developed of regulatory proposals. Sound regulation is critical, but cannot repair damage from unproductive industry structures. There is a need for political and private sector leadership teams to drive a policy reform agenda in most Pacific countries.</p>	<p>There is a need for reform-driving units, to set policy agendas drawing on best practices elsewhere attuned to local conditions. Such units are usually housed in Ministry of Finance / Public Enterprise and require Ministers who champion such reforms. The units would usually involve experts from line ministries and SOEs.</p> <p>The opportunities emerging in telecoms and aviation are from a mix of new technical possibilities and new corporate entrants and business models.</p>
9.	<p>Social obligations – water, electricity and telecommunications charges. All countries face the question of how to create affordability of essential services without undermining the viability of service provision. This issue is particularly acute for islands and remote and small communities that have no possibility of a viable service at commercial rates.</p>	<p>The general response in all countries should be that decisions on assisting remote communities to access services is a social matter for political resolution in terms of overall budget allocations. In general water, electricity and telecommunications, landing and other user charges should be set at commercially sustainable rates, with the Ministry of Finance compensating the utilities for any subsidy that is determined politically. To raise charges to commercial and residential users to subsidize remote users puts the entire burden on those who do use the service at (over) commercial rates and puts the utilities at risk. It is unreasonable to expect utilities to make allocations for subsidized consumption without additional funding.</p>
10.	<p>Solid waste and pollution of coast line and recreational areas is a problem in most Pacific countries. The need is to create incentives and resources to improve the environment including the quality of water, removal of “dead equipment”, removal and treatment solid waste and fill (including recyclables incentives and penalties for metal, cardboard, plastics).</p>	<p>Cook Islands is effectively dealing with solid waste – private firms are collecting/exporting scrap. The international market for used scrap metal – containerized, is profitable and can help finance a clean-up. There would seem from international experience to be a need for a mixture of Carrots and Sticks” in addressing solid waste and refuse problems. At a minimum penalties for dumping obsolete equipment/waste and an incentive for recycling.</p>
11.	<p>One barrier to expanding telecommunications is the lack of capacity in satellite/cables. There are possibilities being considered that could lead to a regional capacity-commissioning body – PACITEL which would aim to expand the reservoir of digital capacity for the Pacific.</p>	<p>Satellite and expanded fiber cable options between major islands are being considered by PITA and UN ESCAP. This all suggests a timely opportunity for a new regional tourism strategy. Private parties and countries such as India and China have expressed interested in expanding satellite capacity across the Pacific.</p>
12.	<p>Ports corporatization, regulatory reform and privatization. Port areas can be</p>	<p>Landlord model - given potentially prime real estate assets in key harbors, offers possibility</p>

	slums, high crime areas – but also the choicest real estate in the market (harbor views). What is required is a mix of regulatory and corporatization reform, sound land and leasing policies and a willingness to commission creative designs integrating shipping, other transport and residential and tourist precincts.	of substantial capital raisings through selective private sector asset financing – e.g., “Dockland” models where premium real estate with water views raises funds for corporatized ports companies. Suva an example, also Apia, Rarotonga...
13.	Need for independent regulation of monopoly pricing, competition issues and corporatization governance. Ministers and politicians should be free of commercial involvements and conflicts of interest, at penalty of losing their position and with other penalties.	While there are sound examples of independent regulation – e.g., Samoa in the case of telecommunications – and while there are regulatory bodies such as the Commerce Commission in Fiji, decisions may be overturned by Cabinet, thereby defeating the goal of separating politics from business.
14.	Pension fund finance of infrastructure - public-private partnerships in infrastructure in many countries in the world are increasingly financed by pension (superannuation and provident) funds, insurance funds and other financial institutions. These entities have statutory obligations to secure sound returns to those whose savings are invested – none of the funds, public or private – are subject to political control. and lower costs of capital – and	The pension funds are attracted to long term assets providing essential services – and offering regulated but secure and commercial returns. The high level of security of infrastructure service income usually means funds are available at lower risk premiums which means lower interest rates ultimately The national provident funds and other like funds need to be structured so as to be at arms length from political and vested interests – otherwise the temptations arising from the existing large government controlled pools of funds will lead again to poor decisions and wastage of peoples savings.
15.	Tax reform issues – in some countries there is considerable wealth being created that pays no tax at all – since there is neither a property tax not capital gains tax. This creates the inequitable paradox that while huge wealth may be created, e.g., through successful tourist development, little revenue is obtained apart from indirect receipts and income tax flow through from profits.	The Cook Islands is an example of a Pacific country with no capture of revenue from land appreciation. Fiji has taxes in place. The numbers here are very substantial, and will be more so once tourism develops, if docklands emerge from corporatization of ports, and as economic reform generally succeeds. The need is for the regime to be in place before vested interests have earned a capacity to lobby successfully against such tax reforms.
16.	Ambiguous mineral exploration and extraction rights can deter or prevent exploration and development of primary resources.	Need clear <i>ex ante</i> mineral rights, prospecting and taxation laws, possibly tailored to the project in special cases, where there are significant external and environmental effects to be funded or compensated.

11 Annex 2: Summary of PSP Structures

Table A2.1: The Effectiveness of Alternative PSP Structures

	Improved Service	Enhanced Operational Efficiency	Enhanced Risk Sharing	Life Cycle Costing	Accelerated Implementation	Leveraging of Public Funds	Implementation Constraints
Private Outsourcing							
Contracts to Design and Build, followed by Operations and Maintenance, assets always in public ownership (DBO)	Possible	Yes	No	Not generally, but contract could have conditions that achieve this. No	No	No	Low
Management Contracts – of existing public facilities, possibly with expansion. (MC)	Possible	Yes	No	No	No	Possible	Moderate
Leasing Contracts (over existing and/or expanded new facilities with a management contract. (LC)	Possible	Yes	Some	Possible	Possible	Possible	Moderate to High, until a working expert PSP group established
Integrated Private Development							
Design, build, operate, and transfer back to government contracts at future date (BOT)	Yes	Yes	Some	Yes	Yes	Yes – can be joint venture with public sector under corp'n law	High, until a working expert PSP group established
Private Investment							
Design, build, finance, own operate, contracts – revenue through public subvention as per contract (BOOT)	Yes	Yes	Yes	Yes	Yes	Yes	Very High, until a working expert PSP group established
Concessions - revenue through charges to customers as per contract. (CONC)	Yes	Yes		Yes	Yes	Yes	

Table A2.2: Advantages and Disadvantages of PSP Relationships

	Main Features	Application	Strengths	Weaknesses
Contracts to Design and Build , followed by Operations and Maintenance, assets always in public ownership (DBO)	<ul style="list-style-type: none"> - Contract with private party to design & build public facility (O&M) - Facility is financed & owned by public sector - Key driver is the transfer of design and construction risk. 	<ul style="list-style-type: none"> - Suited to capital projects with small operating requirement. - Suited to capital projects where the public sector wishes to retain ultimate operating responsibility. 	<ul style="list-style-type: none"> - Transfer of design and construction risk. - Potential to accelerate construction program - Retains land and assets in public control 	<ul style="list-style-type: none"> - Possible conflict between planning and environmental considerations. - May increase operational risk – since there is asymmetric information on project management - Commissioning stage is critical. - Limited incentive for whole life costing approach to design. - Does not attract private finance
Management Contracts – of existing public facilities, possibly with expansion. (MC)	<ul style="list-style-type: none"> - Enables existing asset maintenance and operations to be taken off budget 	<ul style="list-style-type: none"> - Achieves management efficiency over public capital if sound contract and tender 	<ul style="list-style-type: none"> - Transfers management and operation risk to private sector 	<ul style="list-style-type: none"> - Leaves capital or asset risk with public sector, unless contract covers asset maintenance
Leasing Contracts (over existing and/or expanded new facilities with a management contract. (LC)	<ul style="list-style-type: none"> - Enables existing assets to provide new lease funds for other use by government - maintenance and operations to be taken off budget 	<ul style="list-style-type: none"> - Depending on contracts, can achieve many of same objectives of BOT. Effective with existing or expanding public assets 	<ul style="list-style-type: none"> - Capital flexibility 	<ul style="list-style-type: none"> - Government still responsible for ultimate assets

	Main Features	Application	Strengths	Weaknesses
Design, build, operate, and transfer back to government contracts at future date (BOT)	<ul style="list-style-type: none"> - Contract to design, build and operate a public facility for a defined period, then hand back to the public sector. - May be financed by the public or private sector, or jointly, but assets generally remain in public ownership throughout the contract. - Key driver is the transfer of operating risk in addition to design and construction risk. 	<ul style="list-style-type: none"> - Suited to projects that involve a significant operating content. - Particularly suited to water and waste projects. - In order to attract co-financing by private sector, the government partner needs to stand behind contract commitments, in terms of contracts, tariffs and their indexation 	<ul style="list-style-type: none"> - Transfer of design, construction and operating risk - Potential to accelerate construction - Risk transfer provides incentive for adoption of whole life costing approach - Promotes private sector innovation and improved value for money. - Improved quality of operation and maintenance. - Contracts can be holistic - Government able to focus on core public sector responsibilities. 	<ul style="list-style-type: none"> - Possible conflict between planning and environmental considerations. - Contracts are more complex and tendering process can take longer - Contract management and performance monitoring systems required. - Cost of re-entering the business if operator proves unsatisfactory. - Does not attract private finance and commits public sector to providing long term finance.

	Main Features	Application	Strengths	Weaknesses
Design, build, finance, own operate, contracts – revenue through public subvention as per contract (BOOT)	<ul style="list-style-type: none"> - Contract with a private party to design, build, operate and finance a facility for defined period, after which the facility reverts to the public sector. - The facility is owned by the private sector for the contract period and it recovers costs through public subvention. - Key driver is the utilization of private finance and transfer of design, construction & operating risk. - Variant forms involve different combinations of the principle responsibilities. 	<ul style="list-style-type: none"> - Suited to projects that involve a significant operating content. - Particularly suited to roads, water and waste projects. 	<ul style="list-style-type: none"> - As for BOT plus: - Attracts private sector finance; - Attracts debt finance discipline; - Delivers more predictable and consistent cost profile; - Greater potential for accelerated construction program; and - Increased risk transfer provides greater incentive for private sector contractor to adopt a whole life costing approach to design. 	<ul style="list-style-type: none"> - Possible conflict between planning and environmental considerations. - Contracts can be more complex and tendering process can take longer than for BOT. - Contract management and performance monitoring systems required. - Cost of re-entering the business if operator proves unsatisfactory. - Funding guarantees may be required. - Change management system required.
Concession (CONC)	<ul style="list-style-type: none"> - As for BOOT except private party recovers costs from user charges. - Key driver in water projects can be Polluter Pays Principle - utilizing private finance and transferring design, construction and operating risk. 	<ul style="list-style-type: none"> - Suited to projects that provide an opportunity for the introduction of user charging. - Particularly suited to roads, water (non-domestic) and waste projects. 	<ul style="list-style-type: none"> - As for BOOT plus: - Facilitates implementation of the Polluter Pays Principle; and - Increases level of demand risk transfer and encourages generation of third party revenue. 	<ul style="list-style-type: none"> - As for BOOT plus: - May not be politically acceptable - Requires effective management of alternatives / substitutes, e.g., alternative transport routes; alternative waste disposal options)

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1 Introduction and Summary

It is widely perceived that, in the Pacific, infrastructure assets commonly do not perform as well as they should, i.e., service quality is below design quality. Assets often do not reach their design lives before needing extensive rehabilitation or replacement, and there is a significant element of waste in the past use of infrastructure investment funds. Sector managers have few short-term options to improve assets, because current budget allocations for maintenance are insufficient and are difficult to change. In the consultations carried out to date, a common finding is that poor maintenance is at the root of many infrastructure service problems but that awareness of this is low among the people who make real budgetary decisions, be they Board-level utility directors, senior civil servants in the Finance Ministry, or parliamentarians.

Where budget constraints on maintenance are most severe, there is limited awareness at senior bureaucratic and political levels of the cost of 'adequate' or service-enhancing maintenance; or of the value of the economic losses suffered when asset performance is constrained. Raising this awareness where it counts is chiefly a service provider responsibility. Further, however, there is often a built-in bias in favor of capital budget financing in place of operational budget financing (i.e., a preference for asset replacement over asset servicing), due to differences in sources of funds for the respective budgets. Under these conditions, maintenance is under-resourced and is deferred until an asset breaks down, and well beyond the point when performance of the asset begins to suffer. At that stage, maintenance expenditure is mainly reactive rather than preventative, asset repair is more costly than proper maintenance would have been and, more importantly, services interrupted by assets out of commission impose heavy economic costs and constrain development.

It is commonly observed that maintenance is under-funded when resources are allocated by central government agencies or others external to direct service management, as is usually the case in roads for example. In such cases, the communication of budget needs from the service provider to the decision makers is often incomplete, unclear, and unpersuasive. In many cases, the service provider is under-staffed in critical maintenance skills and in estimation of the costs of proper maintenance, and therefore itself has a poor idea of what its maintenance needs actually are. If poor asset performance persists for a lengthy period, it may become ingrained in management's expectations. In the absence of incentives to lift the quality of service delivery, the sector stagnates with under-performing assets and reaches a stable point of low performance, a situation readily observable in many sectors (see below)¹.

On the other hand, a good awareness by the service provider of maintenance needs may not translate into adequate resources from government, if the needs are not communicated persuasively. Though there are usually standard formats required by central agencies for budget requests, these are often better suited to maintaining the funding status quo and are ill-suited to presenting a case for more support to O&M.

¹ For descriptions of all infrastructure sectors in the countries that participated in the consultations and integrated recommendations for dealing with the critical issues (including maintenance), see also the national and regional strategies and country reports that have been prepared by the RETA (posted on the RETA website www.pacific-infrastructure.org).

Even with better-designed formats, if service provider managers have faced chronic shortages of funds for maintenance, and they need a rapid and hefty increase to avoid asset deterioration, a more pro-active approach to justifying the request to civil servants and to politicians may be required, including personal presentations, offers to conduct guided tours of assets, etc. In many respects, achieving a substantial upgrade to an O&M budget is similar to a concerted marketing/promotion exercise.

Viewed as an investment, the cost-effectiveness of good maintenance, i.e., a comparison of the costs of good maintenance versus the costs in the form emergency rehabilitation and loss of services in the absence of maintenance can be easily demonstrated by the use of standard economic/financial analytic techniques. Many service providers, such as roads maintenance departments, water and sewerage utilities in some countries, and even in otherwise well-staffed corporatized entities in the region lack staff that are trained in these techniques. Such training could be provided to service providers periodically as a short course (even through distance education arrangements) and, if done on a regional basis, would be a low cost and effective means of strengthening the tools of service providers to justify proposed maintenance expenditures to decision makers.

There is an urgent backlog of remedial work building up in some infrastructure sectors in the region because of chronic poor maintenance, though experience is highly variable and patterns are emerging as discussed below. Countries are concerned about how to finance the backlog work and how to finance current expenditures on maintenance in a way that will ensure that assets perform to the standard for which they were intended, up to the end of their useful design lives.

2 Observations from the Consultations

The RETA is focused on six infrastructure sectors in the Pacific Developing Member Countries of the ADB: (i) telecommunications (ii) water supply and sanitation; (iii) power supply; (iv) roads; (v) marine ports; and (vi) domestic shipping services. A brief summary of the chief observations of the status of maintenance by sector in the countries visited during the consultation process is provided in Table 1 overleaf.

Table 1 identifies maintenance as a serious issue in all eight countries that have been visited by the RETA so far. By sector, the issue affects primarily roads and shipping, followed by water/sanitation and ports. The power sector is affected in three of the eight countries, while the telecom sector is free of significant maintenance issues in all eight countries. Also identified in Table 1 is the institutional structure of the sector in each country, as this is a factor in observed maintenance practices, as discussed below.

Table 1: Summary of the Maintenance Issue by Sector in the Countries Visited

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Telecoms	Significant maintenance issues are not evident. The sector is under a 100% government monopoly.	Significant maintenance issues are not evident, though there is uneven telecom development across the States. The sector is under a 100% government monopoly.	Significant maintenance issues are not evident. The sector has recently been opened to competition in the mobile and internet markets.	Significant maintenance issues are not evident. Competition has recently been introduced in the urban mobile and internet markets. However, there are serious issues regarding the obligations of the service providers in rural areas which policy and regulation is needed to resolve.	The sector is struggling with competition issues, but significant maintenance issues are not evident. The sector has traditionally been a 100% government owned monopoly for landline and mobile telephone services (mobile services have only very recently (2006/7) been introduced), but there is competition in internet services.	Significant maintenance issues are not evident. Competition in mobile and internet services was introduced very successfully in 2005, greatly improving coverage and lowering user costs.	Significant maintenance issues are not evident. The former government monopoly service provider (TCC) has faced competition in mobile and internet services for several years. The private sector competitor, linked to the Royal family, is to be sold; private sector participation in TCC is also a likely prospect.	Significant maintenance issues are not evident. The government is seeking (thru legal actions) to break the monopoly of the traditional provider (TVL) so as to improve coverage and lower costs, similar to the Samoa model.

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Water/ Sanitation	<p>Lack of trained staff/skills for maintenance; insufficient funds in maintenance budget; no cost recovery or demand management</p> <p>No water treatment facilities exist; distribution losses are high (but immeasurable as users are not metered).</p> <p>Water supply systems in the outer islands are largely dysfunctional.</p>	<p>Maintenance is poor in all four States. Water losses are high (~50 percent of the raw water intake). Sewage collection systems commonly overflow in urban areas and treatment facilities are overloaded.</p> <p>Water quality is not well monitored. In Kosrae, the water sector is a Municipal function with no cost recovery.</p> <p>The sewage collection and treatment system in Chuuk is defunct (to be rehabilitated).</p>	<p>Lack of trained staff/skills for maintenance; insufficient funds in maintenance budget; limited cost recovery and limited.</p> <p>Water losses are high; water treatment systems are overloaded and ill-maintained, and water quality is variable. The water supply is unreliable, with frequent interruptions. Sewage systems are overloaded; the collection system is clogged. A Trade Waste program is planned.</p>	<p>Water quality is monitored, but the sector has little cost recovery and maintenance is chronically under-funded. Sector is aid-dependent. Water losses are ~50 percent of the raw water intake.</p> <p>The sewage collection and treatment system is overloaded; there is no spare capacity in either the water supply or sewerage systems to cater for growth.</p>	<p>Significant maintenance issues are not evident. The urban and rural water service providers are both corporatized and well-managed.</p> <p>The urban sewage system (POM) is also well maintained in comparison with other countries.</p>	<p>Lack of trained staff/skills and capacity for maintenance; political interference in budget allocations (though SWA is corporatized). Water losses are high at ~40 percent of the raw water intake.</p> <p>Rural water supplies are being extended under an improved maintenance and performance monitoring regime that is being applied to the urban systems.</p>	<p>Significant maintenance issue not evident. The water service provider is a cost-recovery corporatized body.</p> <p>There is no centralized sewage collection and treatment system in Tonga.</p>	<p>Significant maintenance issues are not evident in the urban water supply (Port Vila only, operated under a private sector concession).</p> <p>Water supply elsewhere is under the PWD and is of poor quality.</p> <p>There is no centralized sewage collection and treatment system in Vanuatu.</p>

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Power	<p>Significant maintenance issues are not evident in Rarotonga.</p> <p>The urban power sector is under a corporatized service provider.</p> <p>The outer islands are supplied by the Office of the Minister of Island Affairs (OMIA). They are under-resourced, ill-maintained, and dysfunctional in many areas.</p>	<p>Adequately maintained in all States except Chuuk, which has received a US grant for rehabilitation. Introduction of prepayment meters in all States has boosted cash flow and maintenance.</p> <p>All power service providers in FSM are corporatized under the respective States. The power utility in Chuuk, however, until recently lacked a commercial orientation or good management.</p>	<p>Significant maintenance issues are not evident.</p> <p>The sector is under a corporatized service provider. Diesel maintenance is outsourced and there is considerable participation of the private sector as IPPs.</p> <p>Remote off-grid power supplies are administered by the Ministry of Energy with services contracted to the PWD, and are poorly maintained and unreliable.</p>	<p>Cost recovery is insufficient for adequate maintenance. Prepayment meters are being introduced which will improve cash flow and maintenance funding, but the tariff level is an issue.</p> <p>The sector is under a corporatized service provider but there is extensive political influence in operations (undermining a commercial orientation).</p>	<p>Maintenance was poor through the 1990s but is improving now following corporatization in 2002.</p> <p>An IPP is operating but the contract has failed due to specification of the bulk power purchase price in foreign currency.</p> <p>Minor rural power stations throughout the country (under the Ministry of Finance) are poorly maintained.</p>	<p>Lack of trained staff/skills and capacity for maintenance.</p> <p>The sector is under a corporatized service provider which historically has been under considerable direct political influence over operations and investments. There is little outsourcing or other forms of private sector participation.</p>	<p>Significant maintenance issues not evident.</p> <p>The sector (including Tongatapu, Ha'apai, and Vava'u) was taken over by a private company linked to the Royal family in the latter half of the 1990s. It is now to be sold on to another private operator or transferred back to government. A new Electricity Act providing for strengthened regulation of the sector is due to come into force.</p>	<p>Significant maintenance issues are not evident in the urban (Port Vila and Santo) power supply.</p> <p>The urban power sector is under private sector concessions (as well as two rural power concessions). There are no commercial rural power supplies elsewhere.</p>

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Roads	<p>In Rarotonga, primary urban roads maintenance issues are not evident; but secondary and access roads are reportedly in poor shape. Insufficient funds for Outer Island road maintenance.</p> <p>There is no capacity to monitor roads conditions systematically and schedule maintenance.</p> <p>The sector is under the Ministry of Works (Rarotonga) and OMIA (outer islands).</p> <p>No outsourcing.</p>	<p>Roads are poorly maintained with chronic under-funding throughout FSM. Several States have no assured budget for road maintenance at all. Road construction and maintenance is aid-dependent.</p> <p>The sector is under State government departments.</p> <p>There is no capacity to monitor roads conditions systematically and schedule maintenance.</p> <p>No outsourcing.</p>	<p>Insufficient funds for maintenance; limited outsourcing; government ownership of heavy equipment (dilapidated), which is under-employed because of insufficient road maintenance budget.</p> <p>Roads authority exists but is under-resourced. Outdated assessment of annual maintenance needs. Capacity to monitor roads conditions systematically and schedule maintenance under-utilized..</p>	<p>Roads maintenance chronically under-funded; aid-dependent. Major new aid-funded road works nearing completion in 2007; maintenance requirements have not been estimated or budgeted.</p> <p>The sector is under the Bureau of Public Works.</p>	<p>Maintenance of the national highway system has been a chronic issue. Now being addressed through AusAID transport sector support program (A\$50m/year).</p> <p>Government allocations to national roads maintenance greatly increased recently.</p> <p>A new corporatized National Roads Authority has been established. Rural roads maintenance assisted by private sector PNGSIL subsidiary of Ok Tedi mine.</p>	<p>Significant maintenance issues are not evident. Government has greatly increased allocations to roads maintenance in recent years.</p> <p>The sector is under the Ministry of Works Transport and Infrastructure (MWTI), now functioning as a contracting agency for roads work.</p> <p>MWTI has successfully outsourced roads maintenance and roads quality has improved.</p>	<p>Insufficient funds for maintenance; no outsourcing; government ownership of (dilapidated) heavy equipment, which is under-employed because of insufficient road maintenance budget; outdated assessment of annual maintenance needs.</p> <p>The sector is under the Ministry of Works, but is to be transferred to Ministry of Transport.</p>	<p>Insufficient funds for maintenance; no outsourcing; government ownership of (dilapidated) heavy equipment, which is under-employed because of insufficient road maintenance budget.</p> <p>The sector is under the Ministry of Infrastructure and Public Utilities.</p>

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Ports	<p>Maintenance issues are not evident in urban ports (Rarotonga and Aitutake), which are under the corporatized CIPA. Stevedoring services are outsourced in Rarotonga only.</p> <p>Outer Island ports under the OMIA are dilapidated due to lack of resources, trained staff/skills and capacity for maintenance.</p>	<p>Significant maintenance issues are not evident, except in Kosrae where considerable political influence over operations and expenditures is evident.</p> <p>All commercial ports in the FSM are under State corporatized entities.</p> <p>Stevedoring services are outsourced in all States but are not competitive or well regulated.</p>	<p>Significant maintenance issues are not evident in the six commercial ports under the corporatized and well-managed Fiji Ports Corporation Ltd (FPCL).</p> <p>Stevedoring services provided by a wholly-owned subsidiary of FPCL, not outsourced. Ports are regulated by the Commerce Commission.</p>	<p>Significant maintenance issues are not evident, but the commercial port is under the total effective control of a private stevedoring company operating without competition or regulation. The private company maintains the port out of commercial interest, but the facility itself is owned by Koror State. There is no Ports Authority.</p> <p>The port dates from WWII and will need overhaul soon.</p>	<p>Serious maintenance issues are evident in the major ports of Lae and POM; many small Provincial ports are dilapidated. The PNG Ports Corporation is the corporatized entity responsible for all ports, taking over from the previous Harbours Board. The Ports Corporation, remains underfunded and not yet functioning effectively.</p> <p>Stevedoring services are not outsourced.</p>	<p>Significant maintenance issues are not evident.</p> <p>The sector is under the corporatized Samoa Ports Authority.</p>	<p>Though the sector is under the corporatized Ports Authority of Tonga (there is only one commercial port, in Nuku'alofa), the PAT lacks commercial orientation, trained staff/skills or capacity for maintenance. The PAT is subject to poor assessment of maintenance and upgrading needs.</p> <p>The port is in poor repair and needs urgent upgrading (including safety systems).</p>	<p>Two commercial ports under the corporatized Ports Authority; O&M outsourced in both.</p> <p>Poor maintenance in the Santo port due to poor supervision of private sector contract. In Port Vila, ports O&M carried out under a well-executed contract by a private company that owns and operates the domestic port outright. Maintenance issues are not evident in outsourced port operations in Port Vila.</p>

	Cook Islands	Federated States of Micronesia	Fiji	Palau	Papua New Guinea	Samoa	Tonga	Vanuatu
Shipping	Sector services are provided by a private company. However, political intervention in revenue/tariff issues constrain revenues, undermining incentives for investment and maintenance.	Domestic shipping is very limited. There are no scheduled domestic shipping services.	Non-corporatized non-commercial government-owned service provider dominates shipping but there is competition from private sector. Government service provider is heavily subsidized and undermines the commercial viability of the sector and incentives to invest in upgraded services or proper maintenance. Private and public fleets dilapidated.	Domestic shipping is very limited. There are no scheduled domestic shipping services.	Domestic shipping sector is commercially closely aligned with international shipping companies. Significant maintenance issues are not evident.	Significant maintenance issues are not evident. Sector services are under the corporatized Samoa Shipping Corporation. Tariffs for scheduled routes are held below cost by government, charter rates are not regulated and SSC is commercially oriented and profitable in charter services, cross-subsidizing scheduled routes.	Sector services are provided by 1 government (dominant) and 2 private shipping companies. However, political intervention in revenue/tariff issues and subsidies to government company constrain revenues, undermining incentives for investment and maintenance. Serious maintenance issues are evident in the public and private fleets.	Sector services are provided 100% by the private sector. But the sector is not commercially viable under present unregulated, unlicensed conditions. Vessels are not restricted to particular routes; highly competitive tariffs are inadequate to support a commercial service and undermine incentives for investment and good maintenance. Most of the available fleet is unseaworthy.

The chief observation in respect of maintenance throughout these sectors is that the adequacy of maintenance – the degree to which it is a critical issue – is highly correlated with how a sector is organized institutionally, suggesting that the solution to chronically poor maintenance lies in institutional reform. The worst problems with maintenance are generally evident in sectors which are operated by departments operating as a generally subsidized public service, often (but not always) including roads, water supply and sanitation services, centralized plant pool maintenance activities, domestic shipping services and associated maritime navaid networks, and rural or outer islands facilities in general (all services). Perversely, it is in the most heavily subsidized sectors that there is strongest evidence of lack of awareness of sector status and resource needs at the senior levels in government where fundamental budget decisions are made. This occurs even when critical issues of public safety are at stake, as in the case of domestic shipping services in several countries².

A common complaint heard in such cases from sector managers is that their pleas to government for resources to address maintenance and urgent rehabilitation issues “fall on deaf ears”. Indeed such requests from sector managers to government decision makers have often been strident³, but largely ineffectual. That some infrastructure sectors in the Pacific have been limping along for years is evidence that their current institutional arrangements contain no incentives, penalties, or other corrective mechanisms to deal with chronic under-performance, and that information flowing from the operations level to decision makers within government has little or no impact on policy or practice.

The problem of poor maintenance by government departments has multiple sources but relates primarily to poor assessment and poor communication of needs to those in authority to make decisions. It has been observed that many government-operated services, of which road maintenance organizations are a prime example, are understaffed in critical skills and are unable to make accurate assessments of maintenance requirements. Further, the budget request from the service provider to decision makers is often of poor quality and unpersuasive. Addressing either of these gaps requires capacity building within the service provider through recruitment and training. Capacity building itself is a need to be conveyed to decision makers, in this case those involved in public sector personnel management and national training programs. If enough impetus for enacting these improvements is not forthcoming from the service provider, an ‘external push’ from regulatory/supervisory agencies (see below) may be needed. Regulation has provided crucial support to sector reform and improvement of maintenance in PNG and Samoa.

In contrast, maintenance is far less of a critical issue (and in some cases is no issue at all) in sectors that have been corporatized and/or privatized, and are operated as commercial entities. These sectors seem always to include telecoms companies, but in some countries also include power companies supplying urban markets and commercial marine ports. *Commercial orientation* provides the appropriate management incentives, and shortens the lines of communications between operations and management, to ensure that assets are protected and perform as

² It has been observed in more than one country that poor maintenance in the shipping sector has been so serious for so long that vessels fail to meet minimum standards of seaworthiness and under applicable international conventions should be scrapped. To varying degrees, other sectors are affected similarly, but shipping stands out because of the safety issues.

³ A good example is provided by a recent status report issued by Mechanical Services of the Department of Works in Fiji, *Mechanical Section*, date unknown.

designed and that 'best-practice' methods are upheld. Two important findings in this regard have come from the consultations so far:

- (i) it is the commercial orientation of the service provider that is important, not whether it is government or privately owned; and
- (ii) the strategic importance of a sector in terms of its role in providing an essential service, whether a reliable water supply, inter-island transport services or roads that are safe to use, or other, appears to have little or no influence on decisions of central government to support maintenance.

It is concluded that attempts to address poor maintenance as a budgeting process issue (e.g., injecting more performance data and sector information into the existing budget processes by opening wider channels of communication between sector managers and the budget decision-makers) may be effective in attacking the problem in the short term. In the long run, however, what is needed is a comprehensive effort at sector institutional reform, capacity building, and regulation, i.e., the deliberate creation of appropriate market conditions and incentives for improved performance⁴.

⁴ Refer to the working papers on (i) Governance and Regulation and (ii) Finance and Private Sector Participation for a full discussion of the roles of institutional reform (in particular, corporatisation) and regulation in improving infrastructure service delivery. The papers are posted on the RETA website (www.pacific-infrastructure.org).

3 Assessment of Maintenance as a Critical Issue

At the risk of being repetitive, it is emphasized that the effects of chronically poor maintenance go beyond the risk of allowing services to decline in quality; they undermine government's ability to provide services at all or even protect the public safety. Institutional constraints which inhibit or cancel incentives for better performance and protection of assets represent more than an 'efficiency' issue, but go to the heart of government responsibility to the public. The institutional reform processes that have begun in many countries in the region in the past ten years appear to have been designed in cognizance of this.

Examples of poor maintenance leading to crises in service delivery can be found in Fiji in the domestic shipping sector, plant pool maintenance services and national roads, and (to a lesser but still serious extent) the water supply and sewerage sector; in Vanuatu in the domestic shipping and roads sectors; in Tonga in the roads sector; and in the Cook Islands in virtually all outer islands services. In PNG, the quality of maintenance and service delivery in the power sector has historically been variable, with generally good performance in the late 1980s and early 1990s undermined by a substantial decline (exacerbated by drought) through much of the latter 1990s to 2003, when the power utility was corporatized. Maintenance of assets and capacity building, especially in internal training capacity, has improved since 2003, in step with much improved regulation.

In general, rural services, which in most countries are not commercially operated (at least for domestic markets), routinely suffer the worst constraints on maintenance and consequent poor service delivery. In each case, it can be shown that assets have deteriorated to the point that managers now spend their limited resources in reaction to asset failure rather than pro-actively for asset improvement and protection, and that in many cases assets have become unusable and/or represent a serious hazard.

There is, however, nothing intrinsic to these sectors – no inherent weaknesses that place them in disadvantage compared to other sectors – that lead to such poor results. The problems in these sectors can be addressed through appropriate reform. In Samoa, the roads sector has been reorganized since 2002 under a government budget allocation that matches needs, allowing most rehabilitation and routine maintenance work to be outsourced to the private sector⁵. The government has been able to sell off its road maintenance plant pool and reduce its direct involvement in roads maintenance to contract supervision and performance monitoring, and overall the quality of the roads is improving. Prior to this change, incidentally, the private sector in Samoa had not been routinely engaged in road maintenance and there were not many local companies that had the experience or equipment to work in the sector. Once the government had established a steady market that the private sector could participate in, companies were formed that could meet the need⁶.

In this example it can be seen that adequate allocations for maintenance in a sector will not only ensure better asset performance but can substantially reduce the burdens on government of managing the sector, by creating conditions appropriate

⁵ See the Annex to this paper for further details of the Samoa reforms and other brief case studies relating to infrastructure maintenance in the Pacific.

⁶ The working paper on Finance and Private Sector Participation has more on the conditions needed to attract the private sector into infrastructure services and thus build private sector capacity for these functions.

for private sector participation. Starving a sector of adequate maintenance funds on the other hand is a measure of false economy, and will actually cost the government more in terms of ultimate expenditure and lost economic value than the costs of adequately maintaining the assets in the first place. Poor maintenance, while it saves funds in the current budget cycle and perhaps the next, will lead to

- (i) sooner than necessary asset renewal or replacement;
- (ii) emergency allocations for work and equipment to address service interruptions due to sudden asset failure which, because they have to be implemented quickly under emergency conditions, are almost inevitably obtained at higher cost than if an adequate budget had been planned in advance; and
- (iii) chronic under-performance of assets which, because of their run-down condition, cannot produce the full services for which they were designed, and therefore chronic loss of economic returns from the asset.

The benefits of adequate routine maintenance to avoid such economic and financial costs can easily be demonstrated by employing standard techniques of economic and financial analysis, and in many countries such techniques should be used in building the case to government for increased maintenance support.

4 Proposed Approaches to Tackling the Issue of Poor Maintenance

The above three factors have faced governments in the Pacific, in sectors such as roads, marine transport systems, water supply, and rural services in general, with a stubborn lack of performance in return for high and often uncontrolled costs. In contrast, expenditures for proper maintenance result in least costs over the life cycles of most infrastructure assets, and great improvement in opportunities to bring the capacity of the private sector (and the financial benefits of competition) into sector operations.

Resolution of the 'maintenance problem' is a long term issue requiring constant vigilance – it cannot be addressed as a discrete project but is part and parcel of good management processes. There are no long term guarantees that these processes will be sustained, except if proper incentives (positive and negative) for good performance and good maintenance are somehow built into the system. Different managers will respond to incentives in different ways, but the existence of credible incentives will ensure that, over the long term, decisions will tend to support good outcomes. In the Pacific, there are short term means to assist existing service providers to begin to address maintenance issues and long term means to build structures that provide appropriate incentives.

4.1 The Short Term

The first step in coming to grips with sectors that are suffering from chronically poor maintenance is to assess, realistically, the costs of operating and maintaining the assets in place, and to make credible allocations to meet those costs. This can and will usually be done in the context of a review by government of sector performance and the launch of a broad sector reform program (although, as shown by the above example of roads sector improvements in Samoa, these processes need not be time-consuming; what is needed is political determination to get on with the job) but can be done at the initiative of the service provider with external assistance as needed. In many cases, an increased allocation to maintenance in itself will create the right market conditions for private sector entry into the direct provision of services and/or O&M services on contract, thereby reducing the direct burden on government and lowering costs through competitive forces, as well as giving government, through contract monitoring, a powerful financial lever to enforce performance quality standards.

The following steps are recommended to address maintenance problems in the short term.

1. **Assessment of Needs:** as previously discussed, many service providers lack the ability to assess the maintenance requirements of their assets adequately, due to insufficient technical skills. External assistance can be effective in conducting a baseline review of maintenance requirements and costs and should be provided where needed (neighboring utilities can help in this regard, through possible twinning arrangements). Nevertheless, it is essential that the skills gaps in the service provider be identified. Once the gap is understood by managers and their government overseers, personnel recruitment can be re-aligned and short- and long-term training programs, including twinning arrangements, can be designed and implemented. There

are no prerequisites to identifying the technical skills gaps and work on that can begin immediately.

2. **Budget Preparation and Communication:** a specific skill area in which there is an almost universal gap where chronic maintenance problems exist, is in budget preparation, related financial/ economic analysis, and request submission to central authorities. A round of consultations between the service provider and the central budget authority will normally resolve any issues or misunderstandings regarding required formats and inclusiveness in budget and submission preparation. The preparation of budgets (and financial management functions generally) will require ongoing training capacity in the same way that technical training is provided. This can be arranged with external assistance supporting a series of short courses and possible twinning arrangements with neighboring utilities.

To bolster the case for more allocated resources to cover maintenance needs, financial and economic analysis could be a useful addition to the submission. Certainly, where a substantial increase in maintenance resources is required compared to recent past allocations, it would make sense for governments to view maintenance as an 'investment' to which the standard tools of analysis would apply. A short course in such analysis, even through distance education arrangements, would give service providers these tools.

3. **Benchmarking:** also, if chronically poor performance is ingrained in management thinking as the 'norm', little is done to lift performance as there are no targets. Because of this, a culture of poor maintenance can easily develop, and has been often observed. Continuous performance monitoring, coupled with awareness of what improvements are feasible to achieve, will help management to define new targets and thus reallocate resources towards asset improvement. This process is benchmarking, as discussed in a separate working paper. Though benchmarking is often difficult to initiate and sustain in organizations that lack clear performance incentives, it is an immensely powerful management tool. Raising awareness of the benefits and process of benchmarking has been initiated with the service providers consulted by the RETA, and these efforts need to continue well into the future, with external assistance as required. A list of standard indicators for each sector has been proposed, and can be applied immediately by service providers which have not already adopted benchmarking as a process. Ultimately, however, experience has shown that benchmarking often fails to 'stick' as a routine process without pressure from government or regulatory agencies (see below).
4. **Private Sector Participation** is a long term opportunity for infrastructure service providers that requires an enabling environment, especially a steady and predictable market for services, to come to fruition (there is a separate working paper on this issue). However, the private sector has begun to increase its involvement in some sectors where conditions are not ideal and where services continue to be under-funded, at least on an experimental basis. The PWD unit in charge of the maintenance of public buildings in Fiji, for example, has started a pilot program of inviting private sector bids for maintenance services in a class of government buildings in Suva (government residential quarters). Based on this experience, the unit hopes to persuade government to expand the program gradually, in concert with increases in maintenance support. In launching the pilot program, the PWD is gaining experience in contract preparation, tendering, and supervision.

Similar pilot programs can be attempted by other service providers in the region, which could include buildings and grounds maintenance, plant maintenance, and even management/administrative functions such as billing and revenue collection.

5. **Enforcement:** lastly, rigorous application of existing regulatory and supervisory functions of government can have salutary effects on service providers in the short term, by helping to overcome longstanding inertia in asset management. Enforcement of existing water quality standards by the environmental protection agency in many countries will compel water and sewerage providers to review the assets under their control and determine what maintenance should be carried out to meet standards, in place of paying a fine for non-compliance. Similarly, the enforcement of existing occupational health and safety regulations by the Ministry of Labor or equivalent (as observed in Fiji) will compel service providers to review how assets are provisioned and operated. In the Cook Islands, the budgetary authorities for government-run service providers such as roads and water supply have adopted a policy of monitoring performance and maintenance expenditures. Through such means, countries can immediately begin to review compliance with existing regulations and supply service providers with incentives for short term improvements within existing budgets.

4.2 The Long Term

As mentioned, the solution to the problem of poor maintenance is a long term, basically continuous, process. It is not an isolated problem and has no isolated solution, but has direct links to issues covered elsewhere in the RETA such as regulation, governance, private sector participation, training, and benchmarking. The resources that go into maintenance are ultimately a management decision. The RETA team concludes that proper maintenance will, on average in the long term, be conducted by service providers that are subject to appropriate incentives (rewards and sanctions). Incentives are provided either by markets (i.e., consumer demands expressed in a competitive environment) or by regulatory/supervisory functions of government, or both. In the Pacific, it has been observed that those infrastructure services in which maintenance problems are most severe are supplied by service providers that lack appropriate incentives. Incentives are absent because of a lack of competition or a lack of accountability, and often both.

Many of the sectors relevant to the RETA are not likely to become competitive in the foreseeable future (e.g., roads and ports facilities in general in most countries, water and sewerage, and electricity) though many will be able to benefit from private sector participation as discussed below. But an incentive system can be established in these sectors through institutional and regulatory reform.

1. **Corporatization** (also discussed in the separate working papers on Finance/PSP and Regulation/Governance) is a process of institutional reform of a sector that establishes incentives and accountability. Fundamentally, it orients the service provider to a commercial mode of operation. Management is authorized to control and allocate resources available to the service provider with relative autonomy. The resources are usually (but not always) collected from the users of the service and are outside of central government budget decisions. Subsidies to the service are often paid by the central government, but to work, these must be transparent (delimited according to clear rules) and allocated by management to operations, maintenance, and

investment as management deems appropriate (but for which management is still accountable to government).

Under a corporatized entity, management has discretion over resources paid into the organization that are directly related to performance and the quality of service. For example, a corporatized electric utility will depend for the bulk of its resources on consumer payments for power. Power outages will limit supply and revenues and, by increasing customer dissatisfaction, exacerbate difficulties with revenue collection when the power is on. There is therefore a powerful incentive on management to ensure that power outages are minimized and customer satisfaction is high. This will translate into an increasing concern for good maintenance and, with management's more direct command over resources, greater allocations to maintenance. Accountability for performance, starting with top management and extending down through the administrative and technical functions of the organization, is ensured by regulation, a key component of the institutional reform process as discussed below.

Corporatization can be a lengthy endeavor even if spearheaded consistently by possibly successive governments and with considerable external assistance. The corporatization process for water and sewerage services in Fiji, for example, was begun in about 1997 and is not yet complete. Nevertheless, recent reform initiatives across the region (e.g., in the ports sector in Fiji, roads in Samoa and in PNG) have provided a wealth of positive experience that countries can put to use, thereby cutting the time and development costs that the process would otherwise require. Legislation enacted in recent years in Fiji, Samoa, PNG, and in Vanuatu can provide models that with little modification can be applied by countries that are in earlier stages of the process. Corporatized entities can also provide models indicating the type of staff structures that will be required, and they will have expertise (and training capacity) that might be shared through twinning arrangements, aided by external assistance as required. Ultimately, however, successful corporatization results from a sustained government will to push it through, and this will be encouraged by observing the success of corporatization in neighboring countries. Lessons learned from the region, observed by the RETA, indicate that there are powerful tools available to progress the corporatization process in countries where the government has made at least an initial decision to embark on it.

2. **Regulation**, as discussed in a separate working paper, is integral to a successful corporatization process but is also an essential element in the improvement of infrastructure service delivery and a stimulus to better maintenance, even when corporatization is not pursued. It has been observed in countries in the region (notably PNG and Samoa, but emerging also in Fiji and Vanuatu) that regulation is much more than the application of government rules, but acts as a constructive catalyst to management initiative. In a number of cases (e.g., PNG Power) in the course of the consultations, management cited regulatory influence as a direct cause of management decisions to bolster maintenance allocations and strengthen training capacity (which also contributes to better maintenance). Regulatory influence works because management realizes that they will be held accountable to meet performance standards that are externally observed.

Under these conditions, management has incentive to monitor its own performance and seek solutions to the constraints on performance (including

poor asset performance that will be improved through better maintenance). The process of benchmarking will thus become a valuable tool of management, but conditions for benchmarking sustained as a routine management process will be especially conducive if a positive partnership develops between the service provider and the regulator (which has occurred, for example, in PNG and Samoa) and benchmarking indicators are jointly developed and monitored as part of the regulatory process. Benchmarking has not yet been observed working explicitly in this role. However, much encouraging progress with regulation has occurred in the region and, as in recently successful corporatization, this experience can provide much to the region in the form of workable legislation, budget arrangements, and training requirements. As regulation continues to strengthen in many countries, it is proposed that benchmarking be incorporated into the regulatory process in the early stages, even as legislation is first drafted and considered at political levels. More than through other means, benchmarking is likely to be 'institutionalized' through regulatory development.

3. **Private sector participation**, as discussed in a separate working paper, in the long term can assist service providers to handle the routine of maintenance, and under contractual conditions that enable management to enforce standards of performance. Over time, an increasing portion of a service provider's technical operations, plant maintenance, and administrative functions including billing, customer service, revenue collection, asset registry maintenance could potentially be outsourced. Service providers can gain experience in contract specification, tendering, and contract supervision even in the short term (see above). There is a number of service providers in the region that have successfully engaged the private sector in such contracts (e.g., roads sector in Samoa) and these can provide contract models and possibly training through twinning arrangements for others wishing to take advantage of outsourcing opportunities.

5 Annex: Case Studies

The issue of poor maintenance is manifest in a wide range of infrastructure sectors in all Pacific island countries and, in contrast with other critical issues such as investment finance and regulation, shows up continuously in day-to-day operations. Among the countries visited for intensive consultations by the RETA, poor maintenance is most often an issue in water/sanitation and roads, but is serious also in power, ports, and shipping in many countries, as summarized in Table 7.1 below. The telecom sector alone appears to have largely overcome poor maintenance as a constraint on operations. The following brief case studies, selected from two of the countries that participated in the consultations, typify some of the constraints of, and potential opportunities to address, the issue of poor maintenance in the long term.

Roads Sector, Samoa: Typical of many other countries in the Pacific, Samoa's road network had traditionally been the responsibility of Public Works under the Ministry of Works, Transport, and Infrastructure (MWTI). The Works Department owned and operated its own pool of heavy plant for maintenance, which in itself was difficult to keep in working order and was expensive to operate. Government budget allocations for roads maintenance was insufficient to cover the high costs and maintenance was deferred, with the inevitable result that roads standards were poor. In 2002, however, there was a change in policy in which the government recognized (i) roads standards need to be upgraded and this will require higher budget allocations for maintenance, and (ii) the current arrangements were inherently high-cost and inefficient, and meeting the needs for road maintenance could be more sustainable by accessing private sector capacity under competitive conditions.

Under the new policy, Samoa was divided into a number of road maintenance zones. Road construction and road maintenance was fully outsourced to the private sector, with separate contracts covering each zone. Prior to the policy, private sector companies fully positioned to operate such contracts did not exist in Samoa. What makes this case interesting is that the provision of a credible long term market for road maintenance, created by government's demonstrated commitment through sufficient resource allocation to maintaining roads standards, was enough to generate the formation of such companies, and apparently stimulated enough private sector investment in equipment to allow the government to divest its own ownership of heavy plant (and the equipment maintenance burden that goes with it).

Government expenditures on maintenance are close to assessed needs. The MWTI, formed in 2003 as the Ministry of Transport and the Ministry of Works were amalgamated, now plays a regulatory and supervision role, and enforces safety standards. Outsourcing of roads maintenance (and of ports) has been a resounding success – private sector capacity has grown with the need. Through this process, Samoa has built up valuable experience in contract management and supervision.

Shipping Sector, Fiji: Shipping services in Fiji are conducted by Government Shipping Services (GSS) and a number of private shipping companies. GSS, now under the Ministry of Works, has about 50% of the domestic shipping market, which it serves with 14 vessels, a mix of roll-on/roll-off, cargo, passenger, and landing craft vessels. In 1971, GSS operated 37 ships, but most have since been written off as beyond repair; the average age of the government's remaining vessels is more than 28 years. Six ships were scuttled as beyond repair in 2006. Most of the government vessels will soon need to be retired, but there is currently no budget available to

replace them. (GSS estimates that F\$10m-\$12m is needed for urgent vessel replacements, if the government is committed to remain in shipping services.) The government vessels mainly provide free cargo shipping services to the government, with limited commercial cargo and passenger services operating under heavily subsidized tariffs.

Government shipping rates are approximately 50% of the private sector shipping company rates, the latter approved by the Price and Incomes Board. Some uneconomical routes served by private shipping companies are subsidized. All revenues collected by GSS are transferred to the Fiji Islands Maritime Safety Administration (FIMSA) and are thus not retained for operation and maintenance. GSS allocates the budget granted by the Ministry of Finance to keep its vessels in service, but recognizes the impending loss of vessel capacity due to old age. Maintenance is carried out on privately-owned slipways, which also provide maintenance services; GSS claims that these services are not cost-competitive. The maintenance of government vessels is not adequate to meet safety standards and, ultimately, to keep them afloat.

Under these conditions, government shipping services are not sustainable and will likely disappear, through attrition of assets. To avoid this inevitable outcome under current circumstances, government would need to greatly increase allocations for vessel maintenance and, in view of the advanced age and disrepair of existing assets, plan for very large capital investment for asset replacement in the near and medium terms. However, the private sector is already active in domestic shipping services in Fiji, and this presents an opportunity to resolve the pressing issues of government expenditures in both the current and capital budgets of the sector, while improving efficiency. Full privatization of the domestic shipping sector in Fiji (by sale and/or scrapping of government assets in shipping, and issuing of well-supervised and regulated shipping licenses) would not restrict service or undermine government's social obligations and would relieve government of a massive investment requirement to replace aging vessels and a continuous burden of expenditure on operation and maintenance, staffing, and training. Indeed, private sector shipping services are to come under stricter regulation and licensing of routes by FIMSA in late 2007, a move largely supported by the private shippers, as it would restrict entry into and stabilize established routes.

The GSS is also responsible for maintaining the maritime nav aids system in Fiji, but the system is in an advanced state of disrepair. The nav aids technology is largely visual and thus outmoded; upgrade to a GPS system would be highly desirable. Under privatization, GSS could assume a regulatory/inspection role, and would continue to be responsible for the maintenance and upgrade of the nav aids system. This function could be carried out effectively, to the general benefit and improvement of the sector, at far less cost than the government now faces in trying to operate and maintain its own shipping service.

Mechanical Services, Fiji: Mechanical Services of the Ministry of Works and Energy is responsible for holding, maintaining, fuelling, and hiring out to government agencies government-owned heavy equipment for civil works including road maintenance, and government-owned passenger vehicles. Much of the plant held, especially the heavy equipment, is left over from past overseas grant- and loan-funded civil works projects. Government allocations have not been adequate to maintain the plant: eighty percent of the equipment is non-functional and beyond repair. Government clients of Mechanical Services (including the PWD) must routinely meet their plant needs by hiring from the private sector at commercial rates,

reportedly some 2.5 times higher than the government rates. Thus the status quo appears to retain a heavy burden of maintenance of government-owned plant, while most plant services are carried out by the private sector at commercial rates. Mechanical Services does not outsource any of the maintenance of the plant pool to the private sector. Privatizing the plant pool might thus eliminate maintenance costs while not materially increasing plant hire costs. Alternatively, a corporatized entity for Mechanical Services could provide equipment leasing services under guaranteed standards of performance and availability.

As root causes of poor maintenance, we see:

- (i) lack of technical skills to assess the needs for, and carry out, adequate maintenance;
- (ii) poor communication of maintenance needs and costs between service providers and budget authorities;
- (iii) poor financial planning and tariff formulation;
- (iv) in competitive markets such as shipping, poor regulation of markets and tariffs to ensure economic viability;
- (v) limited use, or poor supervision, of the private sector in maintenance and operations; and
- (vi) poor safety regulation.

There are some powerful unifying themes in the matrix. The over-arching need is to establish credible budgets for maintenance in each service sector. In order from the short term to the long term, needs are to implement:

- (i) realistic assessment of annual maintenance costs;
- (ii) awareness by decision-makers of the realistic costs;
- (iii) where applicable, tariff reform to ensure higher cost recovery, matched with reform of subsidy policies;
- (iv) effective regulatory intervention to preserve (a) standards of public safety and, where applicable, (b) sector economic viability; and
- (v) rationalization of incentives for excellence in service delivery and maintenance through institutional reform (corporatization) supported by appropriate legislation.

The particular emphasis placed on these steps, and their timing, will vary somewhat by sector and by country, but all sectors are essentially on the 'same road'. This opens great opportunities for regional sharing and self-help approaches, and provides much scope for individual sector initiative as well (no need to wait for regional programs to get started) supported by strategically-applied external technical assistance.

Appropriate approaches to address these needs are:

- (i) training, in
 - a. technical maintenance procedures and overall assessment,
 - b. financial management, budget preparation, and as applicable, tariff formulation, and

- c. contract management and supervision;
- (ii) establishment of regulatory guidelines, especially to protect public safety and thus to define required investment needs and operation and maintenance procedures; and
- (iii) drafting of legislation as required and support for corporatization.

These approaches will promote the creation of viable markets and an environment conducive to private sector participation in operations and maintenance. The second and third of the appropriate approaches above are also addressed in the working papers on Finance, PSP, Regulation, and Governance.

Volume III Part 4: Working Paper: Benchmarking

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1 Introduction and Summary

This paper describes the overall approach that the RETA has taken to benchmarking in each of the relevant infrastructure sectors, the status of benchmarking as a process in each sector as observed so far in the consultations, and proposed future activity in benchmarking. The six sectors included in the RETA are (i) water supply/sanitation, (ii) electricity supply, (iii) roads, (iv) marine ports, (v) shipping services, and (vi) telecommunications.

The purpose of benchmarking is to provide information that is useful to set priorities in each infrastructure sector and thus improve performance, but the process and its results will be valuable in different ways to different stakeholders. There are three groups that benchmarking should address, each seeking to identify a characteristic set of needs:

1. **Governments (national and local):** performance monitoring and regulation, priorities in reform initiatives, subsidies and recurrent budget allocations, and capital investments;
2. **Utilities:** priorities for capacity building, maintenance expenditures, and capital investments; and
3. **ADB and development partners:** priority areas in which to open dialogue with governments regarding future programmed assistance.

Benchmarking as an ongoing process is ultimately sustained by sector management, but can be instilled by appropriate government and regulatory supervision. The most challenging aspect of benchmarking is in the initial stages of establishing capacity for it and establishing the executive practices that make the best use of benchmarking as a management tool. Once this is done, benchmarking may be sustained by the self-interest of managers to keep key information flowing to support strategic and tactical decisions and to document their performance to regulators.

The experience with benchmarking across sectors and countries in the Pacific is varied. Table 1 below contains a tabulated summary of the status of benchmarking in the countries visited during the consultations. In general, benchmarking appears to be most ingrained in sectors which are relatively more commercialized and better regulated (and hence, in the main, are the better performers). The cause and effect relationship is in fact difficult to discern: while benchmarking supports better decision making and better management (benchmarking causes good management and better performance), it may equally be that it is simply a hallmark of better-run utilities (good management causes benchmarking) – in either case, good management and benchmarking are closely associated. Less ambiguous is that poorly-performing service providers rarely engage in benchmarking; it is possible that such entities resist benchmarking simply to avoid highlighting poor performance. The impetus for benchmarking in such cases will almost inevitably have to be imposed externally (e.g., through regulation).

The effort to get benchmarking going at the outset of the process in many organizations could be assisted by awareness-raising of benchmarking as a valuable management tool, provision of training and technical support and, through the design of the benchmarking process, limiting the scope of data requirements, standardizing indicators, and keeping them simple. Indicators will change over time to meet

changing needs and may be elaborated as an organization's operations grow and/or become technologically more sophisticated. A proposed list of key indicators for each of the infrastructure sectors relevant to the RETA is attached as the Annex to this paper. These have been discussed with sector managers and are subject to modification.

Benchmarking, however, is a long term process that requires much more than awareness raising and short term assistance to build and sustain momentum. As it has in the telecom sector, benchmarking will develop in tandem with institutional reform, increasing management accountability, and the pressures that are imposed by regulation and an increasing commercial orientation.

2 Proposed Approach to Benchmarking

Benchmarking's potential as a management tool is fully realized when it is undertaken long term rather than as a discrete project leading to one-off results, as only then can it be used to monitor performance improvements through time. The prime objective of a benchmarking program is to instill it as a *process* and to facilitate exchange of benchmarking information across sectors and countries of the region. It is desirable that benchmarking be standardized across sectors and as far as possible between sectors, to enable a composite picture of infrastructure performance in the region. Accordingly, the following two criteria are proposed for the selection of key indicators in each sector:

- (i) they should be simple, based on data which in most cases will be easily available, and few in number (between 10 and 20), and
- (ii) they should, as far as possible, be consistent across sectors, measuring similar quantities for technical and financial performance, efficiency, etc.

Sector managers themselves need to drive the routine process, but national policy, regulation, and regional assistance can play very important roles. In the consultations so far, it has been observed that there is close correlation between commercialization of sectors and awareness of benchmarking as a management tool. As examples, in nearly all countries consulted shown in Table 1, the telecom sector is fully commercialized (whether competitively or as a monopoly), and all commercially-oriented telecoms companies undertake some form of performance benchmarking; whereas benchmarking is uncommon in the roads sector, which in most countries is at best just beginning to take steps towards corporatization. Other sectors, such as ports and domestic shipping, present a mixed picture, but again, benchmarking awareness is likely to be associated with the most commercialized operations. Therefore, as governments are driving the infrastructure reform process, the time is opportune to include in the agenda strong directives from the top to initiate standardized benchmarking processes, not least so that the effectiveness of reform can be monitored.

The need for an external 'push' to initiate benchmarking through regulation is strongly emphasized as it has been the experience of the RETA, in common with several previous regional attempts by development partners and NGOs, that regional assistance has largely failed in getting benchmarking *processes* going in a sustained way. This is certainly true in the Pacific and quite probably applies generally elsewhere.

Table 1: Status of Benchmarking in Selected Countries

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Water Supply/ Sanitation	<p>In Rarotonga, water is supplied by the non-corporatized PWD. Benchmarking is not currently carried out, though the Cooks participated in the ADB Water Sector Benchmarking survey carried out in 2005.</p> <p>Most data are unavailable as there is as yet no water treatment or metering of consumption, and no revenue is collected.</p> <p>In the outer islands, water is supplied essentially by the communities with assistance from PWD; no operational data are collected.</p>	<p>Water supply is under the Fiji Water Authority on the two main islands and Levuka; elsewhere water is supplied by the PWD. The FWA is undergoing corporatization.</p> <p>Benchmarking data are not routinely collected, but Fiji participated in the 2005 ADB Water Sector Benchmarking survey. The ongoing corporatization process has produced much operational data that could form the start of a continuing benchmarking process.</p>	<p>The Samoa Water Authority supplies water to the urban areas of the two main islands, and in an expanding number of rural areas. Detailed benchmarking has begun under a system designed to monitor rural water supplies, and this system is now being extended to the entire water supply system. Samoa participated in the 2005 ADB Water Sector Benchmarking survey.</p>	<p>The water supply and sanitation sector is under the Bureau of Public Works, and is a non-corporatized government service. There is little quality control monitoring, many customers are not metered, and no benchmarking is carried out. Physical performance efficiency, e.g., extent of water losses, is not known.</p>	<p>Two government-owned companies supply water and sanitation services in PNG, one (Eda Ranu) to the National Capital District (Port Moresby) and one (the PNG Waterboard) to the District and (in future) Provincial towns in PNG. Both companies undertake benchmarking. The PNG Waterboard participated in the ADB 2005 regional benchmarking study.</p>	<p>Water and sanitation services are provided at the State and Municipal level in FSM. Benchmarking is carried out only in Yap, though both Yap and Kosrae participated in the ADB 2005 regional benchmarking study.</p>	<p>The water sector in the main island of Tongatapu is well organized under a corporatized utility. Performance data are reported to management and the Board. Tonga did not participate in the 2005 ADB Water Sector Benchmarking survey. Indicators used are not yet known.</p> <p>The water supply in Ha'apai and Vava'u is under local management; no details are yet available.</p>	<p>The treated water supply in Port Vila is provided by UNELCO, a private company operating in the sector under a concession agreement. UNELCO maintains detailed data on performance (and participated in the 2005 ADB Water Sector Benchmarking survey.)</p> <p>The water supply elsewhere is under the (non-corporatized) PWD; benchmarking is not currently carried out.</p>
<p>Sector benchmarking was begun in 2001 under an ADB power and water regional benchmarking study which was assisted by the PWA (interrupted due to the death of the lead consultant in 2003, but completed for eight utilities in 2005). Though PWA activities in recent years have been limited due to financial constraints, the PWA remains keenly interested in resuming benchmarking activities among its member utilities.</p>								

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Electricity Supply	<p>The urban power sector (Rarotonga) is under the corporatized The Aponga Uira (TAU). Benchmarking data are occasionally but not routinely collected by Te Aponga. The benchmarking system in use was designed under the ADB benchmarking survey project of 2000/02.</p> <p>Outer Island power supplies are under the Office of the Minister of Island Affairs and are in run-down dysfunctional condition. No benchmarking is carried out.</p>	<p>The Fiji Electricity Authority routinely collects benchmarking data for reporting to management and the Board. These data are not made public. The FEA is not currently a member of the Pacific Power Association, but did participate in the ADB benchmarking survey of 2000/02.</p>	<p>The national power utility (EPC) is a corporatized entity. Benchmarking data are occasionally but not routinely collected by the EPC. The benchmarking system in use was designed under the ADB benchmarking survey project of 2000/02.</p>	<p>The national power utility (PPUC) is a corporatized entity and participated in the ADB benchmarking survey project of 2000/02. Then status of more recent benchmarking activity by PPUC is not known.</p>	<p>The PNG power sector is under the government-owned but corporatized (2002) PNG Power Co. Routine benchmarking is not carried out, but the company did participate in the 2000/02 ADB regional benchmarking study.</p> <p>Rural power supplies not under the control of PNG Power are under the Ministry of Finance and, apart from occasional surveys /inspections, are not monitored or benchmarked.</p>	<p>The FSM power sector is under the respective State-government owned power utilities, all corporatized entities. Benchmarking is not carried out, though all participated in the 2000/02 ADB regional benchmarking study.</p>	<p>The power sector in Tonga has been, until 2007, under the private sector Shoreline Co, and is now being transferred to government until a new private investor can be found. Benchmarking data have been occasionally but not routinely collected by the Shoreline Co. The Company participated in the ADB benchmarking survey of 2000/02.</p>	<p>The urban power sector (Port Vila and Santo) are under a private company (UNELCO) operating in the sector under concession agreements (the company has concessions in two rural areas as well). Benchmarking data are collected by UNELCO for power operations but are not made public.</p>
<p>The Pacific Power Association (PPA) is based in Suva, and was the lead agency for the above-mentioned ADB regional benchmarking study which began in 2001. Past regional benchmarking efforts in the power sector have been constrained by confidentiality issues.</p>								

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Roads	Rarotonga roads are under the PWD, while in the outer islands they are the responsibility of the communities (with PWD assistance). Little capacity to monitor roads quality and performance is present in the Cook Islands. No benchmarking is carried out.	National roads are under the Department of National Roads, an entity undergoing corporatization. A database of road assets (RAMS) is kept but not well maintained due to insufficient staffing and skills. RAMS is, however, a potential benchmarking tool. Secondary and agricultural roads are maintained by users and are not monitored by government.	Maintenance of national roads is outsourced to the private sector since 2004/05; contract performance is supervised by the Ministry of Works, Transport, and Infrastructure. Contract data could provide the nucleus of national roads benchmarking, but no routine benchmarking is presently carried out. Road asset monitoring tools are lacking.	The roads system is under the (non-corporatized) Bureau of public Works. Roads maintenance is not planned, but reactive. Little capacity to monitor roads quality and performance is present in Palau. No benchmarking is carried out.	Roads sector management and maintenance is being re-structured under a corporatized National Roads Authority. Roads maintenance has attracted substantial increases in allocation from government in recent years and is benefiting from large bilateral assistance to the transport sector. Roads sector assets have been managed under a RAMS (Road Asset Management System) database, but this is currently not well maintained. No other benchmarking is carried out.	Roads maintenance is under (non-corporatized) departments of the respective State governments. Maintenance in all States except Yap is severely under-funded and poorly managed. No benchmarking is carried out.	The primary (national) roads are presently under the Ministry of Works and are being transferred to the Ministry of Transport (both non-corporatized). Roads maintenance is severely under-funded and roads backlog maintenance requirements are growing. Little capacity to monitor roads quality and performance is present in Tonga. No benchmarking is carried out.	The roads sector is under the Ministry of Infrastructure and Public Utilities, which contains the (non-corporatized) Department of Works. Roads maintenance is severely under-funded and roads backlog maintenance requirements are growing. Little capacity to monitor roads quality and performance is present in Vanuatu. No benchmarking is carried out.
There is no known regional association for roads authorities in the Pacific. There has been no regional benchmarking efforts carried out in this sector (as there have been for water and power) and benchmarking is not developed; in the Regional Strategy it is proposed that roads performance monitoring and maintenance planning tools (RAMS, such as are used in Fiji and PNG), which could also be employed for benchmarking, be disseminated with associated training to roads maintenance entities through out the region.								

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Marine Ports	<p>The corporatized Ports Authority is responsible for the commercial ports at Rarotonga and Aitutake; other ports are under the non-corporatized PWD and are in poor shape.</p> <p>No ports sector benchmarking is carried out.</p>	<p>Four commercial ports are under the corporatized and commercially oriented Fiji Ports Corporation Ltd; stevedoring services are provided by a wholly owned subsidiary.</p> <p>Benchmark data are routinely recorded but not made public. Minor ports are under the Ministry of Works. No benchmarking for minor ports is carried out.</p>	<p>The commercial ports of Upolu and Savai'i are under the corporatized Samoa Ports Authority, with stevedoring services outsourced (non-competitively). Benchmarking data are occasionally but not routinely collected.</p>	<p>The commercial port in Palau is owned by the State of Koror, but operated by a private (non-competitive) stevedoring and port maintenance services contractor. No benchmarking is carried out.</p>	<p>The ports sector is under the government-owned PNG Ports Ltd. Full corporatization of the sector has not been completed. Benchmarking is not carried out.</p>	<p>The commercial ports (one in each State) are owned by the respective Ports Authorities in each State but are operated by (no-competitive) stevedoring contractors. Maintenance is the responsibility of the Ports Authorities.</p> <p>Benchmarking in the ports sector is not carried out in any State</p> <p>However, Kosrae State has prepared a public sector asset database, including ports, and also bridges, buildings, power stations,, and other infrastructure. The database represents a nascent effort at benchmarking.</p>	<p>The corporatized Ports Authority of Tonga (PAT) operates the port of Nuku'alofa (only); other ports are under the Ministry of Transport. The PAT appears to carry out little financial, investment, or maintenance planning.</p> <p>No ports sector benchmarking is carried out.</p>	<p>The Department of Ports and Harbours owns the international ports at Port Vila and Santo, with all operations outsourced. The domestic wharf in Port Vila is owned and operated by the private sector (same company that operates the international port in Port Vila).</p> <p>Benchmarking data are collected in Port Vila (though not made public) but not in Santo.</p>
<p>There is an Association of Pacific Ports (including Australian and NZ ports), whose Secretariat is now in the Secretariat of the Pacific Community (SPC) in Suva. The Association is preparing to conduct regional benchmarking functions.</p>								

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Shipping Services	<p>Shipping services are privately operated (one company). Shipping services and amenities are poor.</p> <p>It is not known if benchmarking is carried out.</p>	<p>The shipping sector is operated by Government Shipping Services in competition with a number of private shipping companies. Vessels are dilapidated and performance is poor.</p> <p>Benchmarking is not carried out in the sector.</p>	<p>Domestic shipping is provided by one corporatized government-owned company which is overall profitable despite tightly controlled domestic passenger fares, because of a lively and uncontrolled charter service.</p> <p>Routine benchmarking is not carried out.</p>	<p>There is no commercial domestic shipping sector in Palau.</p>	<p>Domestic shipping services in PNG are private sector but not competitive.</p> <p>It is understood that no benchmarking is carried out.</p>	<p>Inter-State cargo is carried by international shipping companies. There is one government-owned ferry vessel for passenger traffic, which is not often used and only on charter.</p> <p>Benchmarking is not carried out in the sector.</p>	<p>The bulk of domestic shipping is provided by a government-owned company, operating in competition with 2 smaller private companies. The government-owned company has undertaken a broad effort in performance monitoring to support acquisition of a new vessel, but has not yet made benchmarking a routing process.</p> <p>No benchmarking or is carried out by or on behalf of the private shipping companies.</p>	<p>Domestic shipping services are provided entirely by the private sector. Two government-owned vessels are in service (operated by the private sector).</p> <p>Most vessels are unseaworthy and services are unreliable.</p> <p>No benchmarking in the sector is carried out.</p>
<p>There is no known Pacific regional association of domestic shipping companies, though it is understood that there are national associations in some Pacific countries (e.g., Solomon Islands) and there exist associations that include international shippers which operate in the Pacific and could potentially contribute to regional shipping sector benchmarking activities.</p>								

	Cook Islands	Fiji	Samoa	Palau	PNG	FSM	Tonga	Vanuatu
Telecommunications	<p>The sector is under a government-owned monopoly (TCI) with no near-term prospect of market liberalization as steps towards sector regulation have not begun.</p> <p>The service provider conducts routine benchmarking and shares results with the regional industry association (PITA) but does not release data to the public.</p>	<p>The previous government-owned monopolies TFL and FINTEL (one for domestic landline service and one for international communications) are facing increasing competition in a recently liberalized market. There are now a number of private companies competing in the mobile and internet markets.</p> <p>It is understood that all companies conduct routine benchmarking and those that are members of PITA share results with the Association but do not release data to the public.</p>	<p>The previous government-owned monopoly now faces competition in a fully liberalized but well regulated market.</p> <p>It is understood that all companies conduct routine benchmarking and those that are members of PITA share results with the Association but do not release data to the public.</p>	<p>The previous government-owned monopoly (PNCC) now faces competition in urban mobile services, but the sector is not regulated.</p> <p>The status of benchmarking by PNCC or the mobile competitor is not known.</p>	<p>The incumbent government-owned monopoly (Telikom) faces competition in a market being liberalized under competition policy of the regulator. The competition policy has been challenged by the Government; the result for telecom market liberalization in PNG is not currently known.</p> <p>It is understood that Telikom conducts routine benchmarking and shares results with PITA but does not release data to the public.</p>	<p>The national government-owned monopoly FSMTC operates all services. There is no near-term prospect of market liberalization. The sector is not regulated.</p> <p>It is understood that FSMTC conducts routine benchmarking and shares results with PITA but does not release data to the public.</p>	<p>The previous government-owned monopoly (TCC) faces competition from a private company owned by the King (now being divested). The sector is not regulated.</p> <p>It is understood that both companies conduct routine benchmarking and share results with PITA but do not release data to the public.</p>	<p>The incumbent monopoly (TVL) with minority government ownership faces potential competition in a market being liberalized through government legal challenges. No regulation of the sector is in place yet but legislation has been enacted.</p> <p>TVL conducts routine benchmarking and shares results with the regional industry association (PITA) but does not release data to the public.</p>
<p>Routing benchmarking is carried by the telecom companies in seven of the countries visited, and the data are shared with the Pacific Islands Telecommunications Association (PITA) on request. However, all companies appear to regard performance data as proprietary and are not prepared to release them to other parties. As mentioned in the text, it is not known whether there is a legal basis for withholding data, especially on the part of government-owned telecom monopoly companies.</p>								

2.1 Lessons Learned

There have been isolated national-level and sector-specific successes in instilling benchmarking in the region, in which external assistance has played an important role. For example, rural water supplies are being developed in Samoa under the Samoa Water Authority, in which external funding of water supply and distribution assets is accompanied by the development of a rural water supply monitoring system that will be used to track the performance of the new facilities, and institutional strengthening of the SWA. The utility now intends to extend the same system to benchmarking its entire operation including the urban water supply. Considerable external expertise (much of it local) has been provided to assist the development and replication of the system and the collection and analysis of data. As another example, in PNG, an ADB-supported project to improve capacity for roads maintenance and design and fund an investment plan for roads rehabilitation led to the establishment of a National Roads Authority (NRA) and the implementation of a Roads Asset Management System (RAMS) which is a tool intended to become the core of a road sector benchmarking system¹. A similar system has been implemented in Fiji under a similar reform process.

Both of the above examples demonstrate progress towards instilling benchmarking as a process in sectors that were targeted at the national level for new investment in assets and for sector reform or institutional strengthening. Over time the degree of success or otherwise of these projects to instill benchmarking as a long term process will become more apparent, but early signs are encouraging.

However, there is also *regional* experience in initiating benchmarking processes in infrastructure in the Pacific, and lessons from this are becoming clear. In 2000/01, the ADB launched a multi-year regional TA to undertake benchmarking in the power and water supply sectors of the Pacific, working through the Pacific Power Association and the Pacific Water Association. Nearly all of the utilities operating in the two sectors in the Pacific are members of the respective Associations. A lead consultant was appointed in 2001 and completed work in the power sector at the end of 2002, and began work on the water supply sector in 2003². The consultant worked closely with the Associations and, through them, productively engaged the member utilities, specifying standardized key performance indicators and analyzing data and preparing a regional comparative report³. The outputs of the TA, especially in regard to the power sector, were generally highly regarded and were valued by the utility participants.

Less encouraging, however, was the aftermath: benchmarking activity in either sector at the *regional* level has not been sustained; neither Association is actively pursuing a further round of data collection or reporting. (This is not to say that some individual utilities are not conducting benchmarking activity – as noted in Table 1, a few still do for their own purposes. These include the utilities in Samoa, Vanuatu, and PNG in

¹ The corporatization process of the NRA in PNG, as in the similar development in Fiji, is still underway. Due to staffing and training constraints, RAMS' potential for benchmarking is not yet fully realised, but this is one of the objectives of the corporatisation process.

² The consultant passed away suddenly at the end of 2003, and further work on the TA was suspended. A second consultant was appointed to complete the work in the water sector during the last quarter of 2005 but by then, the strength of the Pacific Water Association and the number of water utilities willing to continue in the process had considerably declined, and results were not as comprehensive as had been earlier achieved for the power sector.

³ See *Final Report Performance Benchmarking* October 2002, Pacific Power Association and Asian Development Bank, and *Performance Benchmarking for Pacific Power and Water Utilities*, December 2005, Asian Development Bank.

the water supply sector, and Fiji, Cook Islands, Tonga and Vanuatu in the power sector.) The head of one of the Associations explained to the RETA team that the Association is not further pursuing regional benchmarking as it lacks the personnel and financial resources to do this without external assistance.

Under the current RETA, the team has held discussions with regional associations and with sector managers in all countries that participated in the consultations, focused on past experience with benchmarking, the initiation of benchmarking processes and especially the specification of the key performance indicators for each sector (attached as the Annex to this paper). Although some of the key indicators for particular sectors have been accepted by some sector managers, a regional consensus on the indicators in each sector has not yet been formed.

2.2 A Way Forward

It is concluded that regional technical assistance is not an effective means to initiate sustained benchmarking processes, if that is the sole focus of the assistance. Depending on the time, resources, and persistence put into the effort and into follow-up with participating utilities, regional assistance projects can be effective to varying degrees at instigating once-off benchmarking activity, and thereby generate useful data and analysis. However, it will not be successful at launching sustained benchmarking processes. As discussed in the Introduction, benchmarking is not an objective but a means, one of a set of tools that governments and sectors should employ to improve service delivery. Benchmarking cannot be sustained in isolation from a wider reform agenda, which may include institutional reform (e.g., corporatization) and new legislation but must also include, at a minimum, mechanisms for improved SOE performance monitoring and regulation. Regulation, in pursuit of its own mandate, is well positioned to require and help build sustained benchmarking processes in the sectors under its jurisdiction⁴.

Regional assistance can *support* sustained benchmarking if the assistance is provided in the context of a wider reform agenda, by providing short term technical expertise to help design initial processes and to demonstrate the productive application of benchmarking data to management decisions, and by handling truly regional functions (in cooperation with regional associations as appropriate) such as working towards standardization of key performance indicators in each sector and assisting with data collection methodologies (design of questionnaires, etc.). These activities might best be carried out under a Regional Advisory Service or similar regional capacity in the context of the regional reform agenda⁵.

2.2.1 Role of Regulation

As discussed in the working paper on maintenance, if chronically poor performance is accepted by management as the 'norm', little is likely to be done to lift performance, as there are no targets. Continuous performance monitoring, coupled with awareness of what improvements are feasible to achieve or what targets the government may require, will cause management to set appropriate targets and allocate resources towards achieving them.

⁴ Applies equally well to SOE performance monitoring institutions, such as the Ministry of Public Enterprises in Fiji, which are not strictly regulators.

⁵ For further details, see the draft paper on the Regional Advisory Service and the Regional Strategy paper, both posted to the RETA website (www.pacific-infrastructure.org).

Regulation, as discussed in a separate working paper⁶, is an essential element in the improvement of infrastructure service delivery and can act as a stimulus to better performance and a catalyst to management initiative. Regulatory influence works because management realizes that they will be held accountable to meet performance standards that are externally observed. The regulator and the service provider both have an interest in seeing that a transparent and manageable (simple) benchmarking process begins and is sustained. Regulation, an external impetus, can be effective at imposing benchmarking as a management process which, out of management self-interest, will likely become voluntary as it becomes better ingrained in practice.

As regulation continues to strengthen in many countries, it is proposed that benchmarking be incorporated into the regulatory process in the early stages, even as legislation is first drafted and considered at political levels. More than through other means, benchmarking is likely to be 'institutionalized' through regulatory development.

2.2.2 Getting the Message Across – Regional Assistance and NGOs

Benchmarking is an outcome requiring persistence. Those sector managers who are currently unaware of what benchmarking can provide as a management tool, not surprisingly, usually lack capacity for benchmarking and presenting and interpreting its results. TA projects designed to promote or accomplish benchmarking in one or more sectors, either regionally or nationally, usually begin by preparing a questionnaire (e.g., an Excel spreadsheet), distributing it to sector managers, and waiting for data to be sent back. This approach has rarely worked in the past; response rates to such questionnaires are notoriously low and acquiring even a minimal data set is a lengthy and often unrewarding task. Success usually requires considerable legwork in the form of repeated follow-up reminders to managers. If the external assistance is the only impetus behind the data collection effort, managers will have little or no incentive to engage in the process. As mentioned above, even with success in producing one-off results of new data and analysis, new benchmarking activity is very unlikely to be sustained by such efforts. Equally important, the most concerted efforts will have disappointing results if they are not backed up by genuine policy and regulatory support from within the countries concerned.

Provided reform and benchmarking processes have the requisite national impetus, NGOs can provide some support, particularly at the regional level. Regional associations to varying degrees have assisted benchmarking processes and the exchange of information, training, and technical expertise among the members. Pacific associations exist for the power, water supply, telecoms, and ports sectors, and they can contribute an important coordinating and dissemination role to regional efforts to support benchmarking.

The RETA has consulted these associations to discuss (i) the set of standardized key indicators in each of the sectors that is supported by their member organizations and by the associations themselves, and (ii) ways in which the associations might play a role in regional benchmarking efforts. It has been found that the telecoms sector already engages in routine benchmarking activity in cooperation with the Pacific Islands Telecommunications Association (PITA). Also, as mentioned both the Pacific

⁶ See the Working Paper on Governance and Regulation, posted on the RETA website (www.pacific-infrastructure.org).

Power Association and the Pacific Water Association were closely involved in an ADB-sponsored benchmarking exercise for the power and water sectors in 2000/03.

It has not been possible for the RETA to access the detailed benchmarking records from the associations, as utility managers have expressed reluctance to release data on the basis of confidentiality. It is not known to what extent confidentiality is a legitimate, i.e., trade, issue. It seems improbable that all refusals to release information have a legal basis, or that the information is not intended to be in the public domain, particularly on the part of government-owned monopoly service providers. This is a further reason for benchmarking processes to be incorporated into the functions of the regulatory agencies that exist or are emerging in the Pacific.

3 Implementation

Benchmarking activity and the promotion of it at the regional level needs to continue in a series of steps as follows.

Step 1: For each sector in each country, the benchmarking begins by identifying basic data on the scale of operations, including:

1. Institutional structure and asset ownership (government department? corporatized utility? private sector participation?);
2. Forms of regulation currently in force or planned (technical performance, public health/safety, environmental, financial (tariff)) – describe the network of regulatory practice;
3. Geographic extent of services, percent population served, urban/rural dichotomies, etc.;
4. Total assets, total staff, annual volumes or throughput, total customers by category; and
5. Performance monitoring already in place? If a sector or utility in a country already engages in benchmarking, access the results (and if not available, explore the reasons why not and suggest reforms to improve availability) and apply lessons learned to other sectors and countries.

This step has been undertaken by the RETA resulting in a set of proposed key performance indicators for each sector (see the Annex).

Step 2: As far as possible, data are collected on standardized key performance indicators for each sector. To be standardized, the proposed indicators must be ratified within each sector, a process that might be spearheaded by regional associations with assistance from a Regional Advisory Service or similar regional capacity, in the context of a wider regionally-supported reform process.

Step 3: International 'best practice' values need to be determined for a small number of performance indicators for each sector. These are used to compare performance in the region with the rest of the world, and thus demonstrate potential scope for improvements. The relevant and appropriate indicators for the Pacific will vary across sectors, but will be chosen from the following areas:

1. Service quality standards ('accepted' operating standards, including fault/interruption rates);
2. Attention to maintenance (e.g., percent of total annual operational expenditure – international best practice in this area will generally conform to a standard ratio of asset value); and
3. Financial performance (is the sector commercially viable under 'best practice'?).

In accordance with the above steps, the approach proposed to implement benchmarking within infrastructure sectors in the region, and in recognition that the success of benchmarking as a sustained process depends on appropriate synchrony

with wider reform, particularly the development of regulation and SOE performance monitoring capacity, is as follows:

1. Achieve consensus on key indicators through sustained dialogue with sector managers and, to the extent possible, with regulatory authorities (step 1 above);
2. Collect initial data sets from all participating infrastructure sectors in the region;
3. Identify draft international 'best practice' benchmarks for each sector;
4. Pursue dialogue with and the active assistance of regional and national trade associations (power, ports, etc.) in standardizing key indicators and providing continuous liaison and coordination with their utility members; and
5. Engage in dialogue with development partners to incorporate promotion of benchmarking, including assistance with data collection and provision of appropriate training and equipment, into ongoing and future planned infrastructure support programs in the context of the regional reform agenda.

4 Annex: Proposed Standardized Key Indicators for Each Sector

A tentative set of key indicators for review and comment is listed for each sector below. It is proposed that these lists form the basis for initiating a regional consensus within each sector of the appropriateness and usefulness of the indicators, and eventual adoption by the relevant utilities as a ‘standardized’ set. Once such consensus and standardization is achieved, regional comparisons of performance – one of the most powerful applications of benchmarking data in terms of pointing out weaknesses and realistic targets for improvements – will become possible.

Where important distinctions exist between urban and rural operations (as would be expected), data should be collected separately for each.

4.1 Water Supply/Sanitation

1. Percent population served with (i) piped water supply, (ii) reticulated sewerage service
2. Sewage connections as percent of water supply connections
3. Water consumption per connection
4. Percent water supply provided 24 hrs/day
5. Annual water supply outages per 1000 customers
6. Annual sewer overflows per 1000 sewage connections
7. Percent expenditure on maintenance (annual expenditure on maintenance / total annual operating expenditure), (i) water supply, (ii) sewerage
8. Treatment capacity factor (annual volume treated / design capacity of treatment works), (i) water supply, (ii) sewerage
9. Water losses (total annual treated volume less total volume sold)
- 10a. Water supply average price (water sales revenue / total water volume sold)
- 10b. Sewerage treatment average price (sewerage revenue / total water volume sold)
11. Percent water supply customers metered (total meters / total customers)
12. Return on Total Assets (operating profit / average total assets)
13. Revenue collection efficiency (total collected revenue water supply and sewerage / total invoices for water supply and sewerage)
14. Water supply customer/staff ratio (water supply connections / number FTE water supply staff), (i) water supply, (ii) sewerage
15. Lost time injury duration rate (person-days lost due to injuries on the job / total person-days of FTE staff)
16. Training expenditure as percent of payroll (training expenditure per annum / total payroll)

4.2 Electricity Supply

1. Percent population served
2. Electricity consumption per connection per major customer category
3. Percent electricity supply provided 24 hrs/day
4. Private sector participation
5. Capacity Factor (annual generation / technically feasible generation)
6. Reserve plant margin ((Installed plant capacity less peak demand) / peak demand)
7. Specific Fuel Oil Consumption (annual diesel generation / liters of fuel consumed) and Lubricating Oil Consumption (Liters of lubricating oil consumed / annual diesel generation)
8. Percent customers metered (total meters / total customers)
9. Losses ((Energy Sent Out less Metered Energy Sales) / Energy Sent Out)
10. Labor productivity (annual generation / FTE generation and T/D employees)
11. System Average Outage Frequency (SAIFI: number of customer interruptions / total customers) and System Average Outage Duration (SAIDI: total customer hours interrupted / total customers)
12. Electricity average price (electricity sales revenue / total volume sold)
13. Return on Total Assets (operating profit / average total assets)
14. Revenue collection efficiency (total collected electrical sales revenue / total invoices for electricity)
15. Electricity customer/staff ratio (electricity connections / number FTE electricity supply staff)
16. Lost time injury duration rate (person-days lost due to injuries on the job / total person-days of FTE staff)
17. Training expenditure as percent of payroll (training expenditure per annum / total payroll)

4.3 Roads

1. Percent of roads in good/fair condition, (i) sealed, (ii) gravel
2. Percent of rural population with good road access
3. Total number of vehicle registrations by major category (e.g., motorcycles, light vehicles, heavy vehicles), urban and rural.
4. Ratio of actual expenditure on maintenance per km to assessed needs, urban and rural, (i) sealed roads, (ii) gravel roads
5. Private sector participation
6. Road User Charges per vehicle ([petrol taxes, wheel taxes, direct road use tolls, etc] / vehicle registrations)
7. Road safety: fatalities per 10,000 vehicles
8. Registered vehicle/staff ratio (number of registered vehicles / number full-time equivalent (FTE) road maintenance staff)
9. Lost time injury duration rate (person-days lost due to injuries on the job / total person-days of FTE road maintenance staff)
10. Training expenditure as percent of payroll (training expenditure per annum / total payroll, road maintenance)

4.4 Marine Ports

- 1a. Number of seaports and cargo storage capacity, for international shipping
- 1b. Number of seaports and cargo storage capacity, for domestic shipping
- 1c. Number of petroleum offloading / storage depots
2. Private sector participation
3. On-shore cargo handling facilities exist? international and domestic ports
4. Capacity factor of bulk handling equipment, international and domestic ports
5. Berth occupancy, international and domestic ports
6. Cargo throughput per berth-meter, international and domestic ports
7. Vessel average turn-around time, international and domestic ports
8. Average cargo dwell time in short term storage areas, international and domestic ports
- 9a. Average revenue per ton of cargo, international and domestic ports
- 9b. Profit as percentage of revenue
10. Throughput/staff ratio, international ports (total throughput / number FTE ports staff)
11. Cargo throughput/FTE employee, international and domestic ports
12. Lost time injury duration rate (person-days lost due to injuries on the job / total person-days of FTE ports staff)
13. Training expenditure as percent of payroll (training expenditure per annum / total payroll)

4.5 Shipping Services

1. Average no. crew per passenger carried
2. Average no. crew per ton cargo carried
3. Average Fuel consumed per ton/mile
4. Average Fuel costs per ton/mile
5. Average Non-Fuel operating costs per ton/mile
6. Percent Average Revenue per voyage in Average Total Costs per Voyage
7. Percent time per vessel in port – loading/unloading
8. Percent time per vessel in port – maintenance
9. Percent time per vessel in port – idle
10. Average voyage cargo loading as percent of cargo capacity
11. Average passenger loading as percent of passenger capacity
12. Cargo discharge and loading time per ton

4.6 Telecommunications

- 1a. Percent population served with land lines (land line connections / population)
- 1b. Percent population served with mobile phones (mobile connections / population)
- 1c. Percent population with internet access (internet accounts / population)
2. Number of companies active in (i) landlines, (ii) mobile phone service, (iii) internet services
- 3a. Annual line faults per 1000 customers
- 3b. Annual mobile network faults (including overloads) per 1000 customers
- 3c. Annual internet service faults per 1000 accounts
4. Capacity factor (annual phone calls / design capacity of land line system): land line services, mobile services; and internet (throughput (GB) / design capacity of internet service provider(s))
5. Private sector participation
6. Percent expenditure on maintenance (annual expenditure on maintenance / total annual operating expenditure): land line services, mobile services, internet services
7. Per-call average price (total calls / telephone sales revenue): land line services, mobile services; and internet services (total internet throughput (GB) / internet sales revenue)
8. Return on Total Assets (operating profit / average total assets): land line services, mobile services, internet services
9. Customer/staff ratio (connections / number FTE service staff):
10. Lost time injury duration rate, land line services (person-days lost due to injuries on the job / total person-days of FTE land line services staff)
11. Training expenditure as percent of payroll (training expenditure per annum / total payroll): land line services, mobile services, internet services