

PAPUA NEW GUINEA

INTRODUCTION

In general, water is abundant in Papua New Guinea. The high average rainfall ranging from 2000mm to 6000mm ranked PNG to be one of the wettest nations in the world. A few lowland areas are drier with annual rainfall of less than 1000mm. In contrast large areas of upland regions have average annual rainfall in excess of 4000mm and in some locations can rise to 10,000mm per year. Some islands in the New Guinea Islands Region, the Papuan islands in the Milne Bay Province and the Papuan Coast, however experienced water shortage problems during the prolonged dry periods but more pronounced during El Nino induced dry spells.

The regulation of Water Resources and Wastewater Discharge into the environment (groundwater, rivers, springs, lakes & sea) is the function of the Department of Environment and Conservation. The Environment Act 2000 provides comprehensive standards for protection of environment and water. The DEC issues Water Use Permits with conditions to be complied with by the Permit Holders. The Permits can be for groundwater exploration, extraction of groundwater and surface water or discharge of wastewater into a water body.

The extraction, treatment and distribution of water and the collection, treatment and discharge of wastewater are the functions of two State-owned water utilities. PNG Waterboard established under the National Water Supply and Sewerage Act, manages water supplies and sewerage services in eleven major centres throughout the country. On the other hand, Eda Ranu registered under Companies Act and solely owned by the Government, operates the Port Moresby City Water Supply and Sewerage systems. The water supply and sanitation services not operated by the two utilities are operated and managed by Provincial Governments or Local Level Governments.

The Drinking Water Quality Standards in PNG is adopted from the WHO Drinking Water Quality Guidelines. The Standards regulated under Public Health Act and are currently undergoing revision adopting the 1998 Guidelines. The Department of Public Health is responsible for the administration of the Drinking Water Quality Regulation.

The Department of National Planning and Rural Development is responsible for the overall sector planning and budgetary allocation. The development of Water Supply and Sanitation is a priority activity under the Government's Medium Term Infrastructure Development Strategies.

The majority of people in PNG who live in rural communities have access to questionable water quality and inadequate sanitation. The 2000 National Census showed that PNG now has a population of 5.1 million people. It also confirmed that less than 15% of the population live in urban areas with access to safe water and with adequate sanitation. **Table 1** shows population in the major urban centres with access to safe water and adequate sanitation.

Table 1. Urban Population.

Town/ City	Population: (2000 Census)
Port Moresby	252 469
Lae	78 038
Madang	27 394
Wewak	19 724
Mt. Hagen	27 782
Goroka	18 617
Kundiawa	8 147
Mendi	17 119
Wabag	4 062
Vanimu	9 809
Kimbe	14 656
Rabaul/ Kokopo	8 885
Kavieng	11 560
Alotau	10 025
Daru	12 879
Popondetta	19 556
Kerema	5 116
Buka	6 443
Lorengau	5829
TOTAL	558 120

The urban areas of PNG are generally provided with good reticulated water supply systems extracted either from ground water or surface source. Most have 24-hour supply with water quality meeting WHO Drinking Water Guidelines, which PNG has adopted as its Drinking Water Standard.

The Rural communities use springs, dug wells, river or rainwater catchments for their basic water requirements. These water supplies are mostly untreated but protected from contamination. Through Donor programs or assistance from resource developer from Tax Credit Schemes, some village communities have reticulated water supplies with the use of gravity. Most dug wells are equipped with hand pumps donated by aid organizations.

The Sewerage and Sanitation for both urban and rural areas remains underdeveloped. The high expectations of PNG people for a cistern type toilet with reticulated sewerage against the appropriate technology on-site human waste disposal systems is a barrier to providing alternative sanitation technology options.

The access to adequate human waste disposal in the rural communities and peri-urban areas is very low. Most people use the bush, beaches or crudely built pit latrines or direct discharge latrines built over the water (sea or river).

2. NATIONAL CONSULTATION PROCESS

There is considerable amount of on-going and recent consultations on issues relating to Water. These issues include Water Legislation, Water Rights, Water Resources Management, Drinking Water Quality Standards, Operation & Maintenance, Institutional Arrangement, Gender Issues, Willingness to pay, Affordability, Sustainability, Capital Works Financing, Donor Assistance, Unaccounted for Water, Demand Management, Human Resources Development, Poverty Alleviation, Serving Rural Communities and Technology Options.

The consultation processes are conducted through Workshops, Seminars, Board/Committee Meetings and written comments. It is recognised that further and continuous consultations are necessary to achieve the National Goals on matters relating to integrated water resources management. The following paragraphs give some details of consultation processes that are either on-going or have taken place in PNG.

2.1 The National Water Supply and Sanitation Committee (WASCOM)

This most significant consultative Committee was formed in 1991 and continues to be the main consultation forum on Water Supply and Sanitation. The Chair is currently held by the Department of Health. The

Committee consists of Department National Planning & Rural Development, Department of Health, Department of Environment & Conservation, National Disaster & Emergency Services, WHO, UNICEF, AusAID, European Union, PNG Waterboard, National Weather Service, Department of Mining, Department of Provincial Governments & Local Level Governments, NCDC, PNG University of Technology, Department of Works, EDA Ranu and various NGO's have attended (Red Cross, Lutheran Development Service, Adventist Development & Relief Agency).

The National WASCOM has proven its value and usefulness as the main consultation forum on policy and coordination. The Provincial Water Supply and Sanitation Committees established in each Province have similar membership for consultation at local level.

2.2 Water Supply and Sanitation Sector Study

The Sector Study was conducted to prepare Sector Strategies and Development Policies and to define roles of National, Provincial and Local Level Governments. The Study was funded by ADB under a Technical Assistance¹¹ and was conducted by an international consultant. Several workshops were organised and attended by, Department of National Planning and Monitoring, Department of Health, Department of Environment Conservation, Geological Survey, Adventist Development & Relief Agency.

2.3 Groundwater Study and Pilot Water Supply Project for District Towns¹²

The Government of Japan through its aid agency, Japan International Cooperation Agency undertook Groundwater Investigation under the Development Study for eight District Towns throughout the country. The Study was undertaken following PNG Government's request for assistance for the District Towns severely affected by 1997/1998 drought.

The Study looked at groundwater availability, technology options, operation and maintenance, cost recovery, women's role, role of Provincial and Local Level Governments, role of National Government, Role of PNG Waterboard, willingness to pay and affordability. The Study was followed by a Pilot Water Supply Project covering the District Towns of Bereina, Kwikila and Mutzing.

A number of Workshops were held in Port Moresby and Lae Cities attended by Department of National Planning & Monitoring, Department of Health, Provincial Governments, Local Level Governments and NGOs (National Council of Women, World Vision, Adventist Development & Relief Agency). In addition workshops were held in Three District Towns attended by Government officers, community leaders, surrounding village elders and housewives.

2.4 Environment Regulations Consultation

The Draft Environment Regulations prepared under Environment Act 2000 was widely circulated by the Department of Environment & Conservation to all stakeholders seeking comments. Those invited to provide comments included PNG Waterboard, Department of Health, Department of Mining, Department of Petroleum, mining companies, petroleum companies and PNG Chamber of Commerce and Industries.

2.5 Board of Directors of PNG Waterboard¹³

The membership of the Board of Directors as provided in the National Water Supply and Sewerage Act consists of a representative each from PNG Institution of Engineers, PNG Institute of Accountants, PNG Chamber of Commerce and Industry, PNG Institute of Management and the three Departmental Heads of Works, Health & Finance. The Board by its membership bring into the water industry a diverse range of expertise at its meetings, which in itself is an ongoing consultative process.

¹¹ADB TA No. 2196-PNG

¹²The Study on Groundwater Development For Water Supply Systems in Papua New Guinea. February 2002

¹³National Water Supply and Sewerage Act 1986

The very highly professional and ethical conduct of the Board in the discharge of its duties through consultation has earned the respect of the Government, private sector, the community at large and aid donors.

2.6 National Monitoring Authority: Department of Provincial & Local Level Governments

Several Workshops were organised and attended by all Government Departments and Agencies and State owned corporations responsible for management of Natural Resources including water. The Organic Law on Provincial Governments and Local Level Governments is an important Constitutional Law that had provisions for PG's and LLG's to play a role in the development of the nation's resources and sharing of revenues.

The Natural Resources Workshops focussed on roles of PG's & LLG's and their capabilities, policies on development and sustainable operation and management of Natural Resources.

3.0 VISION, ISSUES AND CONSTRAINTS

3.1 Visions in the Legislations

The following are national visions embodied in various legislations for the water management in the country. The principal vision is to manage water resources for the benefit all and to be conserved for the future generation.

The Preamble of the PNG Constitution is explicit in its declaration as its Fourth. National Goal and Directive Principles that *"natural resources and environment to be conserved and used for the collective benefit of us all."* The Constitution further calls for *wise use of natural resources and environment.*

The Organic Law on Provincial Governments and Local Level Governments declared in its Preamble among other things its main purpose is *"providing especially basic human needs for water..... etc."*

The Environment Act 2000 stated among other objectives *to promote the wise management of PNG natural resources for the collective benefit of the whole nation" and "to sustain the potential of natural and physical resources to meet the reasonable needs of future generations, and safeguard the life supporting capacity of air, water, land and ecosystem."*

The National Water Supply and Sewerage Act established PNG Waterboard and *"charged it with the duty of coordinating planning, design, construction, management of and charging for water supply and sewerage services throughout the country with the exception of the water supply and sewerage services of and pertaining to the National Capital District."*

3.2 Theme 1: Water Resources Management

(i) Regulation of Fresh Water

The regulation of fresh water is embodied in the Environment Act 2000 covering all the water bodies. The Department of Environment and Conservation is responsible for the regulation of fresh water through the issuance of Water Use Permit. The Water Use Permits issued imposes e specific conditions to be observed by the Permit Holder. There are penalties for breach or non-compliance.

The main obstacles are resources constraint in the Department and the PNG land tenure system where customary landowners also claim water within their land boundary.

(ii) Fresh water availability

Papua New Guinea is blessed with abundance of fresh water. The fresh water is available in the form of rivers and lakes and groundwater. The mean annual rainfall throughout the country of 2000 to 6000mm makes it one of the wettest countries on earth. There are however, pockets of low land areas with mean annual rainfall of 500mm. These areas are Morehead in Western Province, Rabaraba in Milne Bay Province, Markham Valley in Morobe Province and Sepik Plains in East Sepik Province. The upland areas have on the other hand mean annual rainfall above 4000mm and in some locations can rise to 10 000 mm per year.

The groundwater potential for many parts of the country are contained in Reports prepared by the Geological Survey on the groundwater investigation carried out prior to independence. Further groundwater investigation funded under a Technical Assistance Grant by the Government of Japan through their aid agency Japan International Agency was undertaken in 2000 for two Provincial Towns and six District Towns and a Study Report has been submitted. These Reports indicate that most parts of PNG have good ground water potential.

(iii) Aquifer Management

The groundwater is managed in the Environment Act 2000 through the general environmental protection provisions. An Environment Protection Order can be imposed where it can be shown that an activity or a process has caused or is likely to cause “environmental harm.”

(iv) Water Quality

The regulation and management of raw water, its quality and its protection is covered in the Environment Act. The Environment (Water Quality Criteria) Regulations give pre-determined water quality standards. These standards are currently undergoing consultation process prior to their adoption.

The PNG Drinking Water Quality Standards is an adoption of the *WHO Drinking Water Quality Guidelines*. The Department of Health has reviewed the Standards and proposed adoption of the *WHO 1998 Revised Guidelines* through a number of consultation processes. The revised Standards are covered in the new Drinking Water Quality Regulation. The administration of the Drinking Water Quality is vested in the Department of Health under Public Health (Drinking Water Quality) Regulation.

3.3 Theme 2: Island Vulnerability

(i) Disaster Preparedness

Many parts of PNG are vulnerable to the effects of natural disasters. The natural disasters that had severe adverse effects on the lives of people and economy in PNG include the following:

- Cyclone generally in the Mile Bay islands but Tufi in Oro Province had been hit previously,
- Volcanic Eruptions in East & West New Britain, Oro and Madang Provinces,
- Tsunami in Aitape of West Sepik Province,
- Major landslides in Morobe and Highlands Provinces,
- Flooding in parts of PNG,
- Droughts resulting from El Nino phenomenon,
- Frost in the Highlands.

The National Disaster Management Office is a Government body established under an Act of and coordinates all reports and any responses to major disasters. Each Province has set up a Provincial Disaster Office with a Provincial Disaster Coordinator responsible for reporting of disasters to the Head Office in Port Moresby. Despite many disasters hitting PNG the country is poorly prepared. The main obstacle is the resources constraint and the lack of coordinated National Response Plan.

(ii) Climate Adaptation

As discussed in the previous paragraphs, Papua New Guinea’s climate is fairly consistent with high average annual rainfall in most parts of the country. The effect of global warming may have altered the climatic pattern. There is inadequate data available locally to confirm any such changes. The El Nino phenomenon certainly has significant effect on the climatic conditions in PNG.

(iii) Dialogue on Water and Climate

Since PNG is one of the wettest countries in the world, it has been perceived, perhaps wrongly that there will always be water available. There has been little dialogue on water and climate. The El Nino phenomenon has indeed brought the Water and Climate relationship in to focus. This is an area where there is need for water and power utilities to have dialogue with the National Weather Service and the Regional and international organisations on Water and Climate.

3.4 Theme 3: Awareness

(i) Advocacy

In PNG the commonly held perception is that *water is God-given and plentiful* and therefore should be provided free of charge. The public awareness on issues relating to water management and operation is not very high. This may be attributed to the low profile of water supply and sanitation. The low level of access to safe water by majority of the citizens is well documented. Advocacy at all levels is necessary.

(ii) Political Will

In the recent National General Elections many politicians and budding politicians use water as their campaign slogan. Many even found money when none was available before the elections. Up until recently there was little political will to support water and sanitation programs. When PNG Waterboard exerted pressure for review of its tariff to generate adequate revenue for its operation and asset replacement, it was greeted with a threat of repeal of its enabling Act. The Waterboard's achievements over the past 10 years, however has made some difference.

(iii) Community Participation

There are a lot of sad examples of the lack of or inadequate involvement of beneficiaries in the provision of water supply and sanitation. Many bitter lessons have been learnt from the past experiences where ownership of community water supplies has been disowned by the beneficiaries. The operation and maintenance is perceived to be the responsibility of the donor or the Government. Needless to say, the same old story of neglect and eventual breakdown is the end result.

It is now a Government Policy embodied in the **National Health Plan 2001-2010**¹⁴ that provision of basic social services including water supply and sanitation be driven by community participation.

(iv) Environmental Understanding

People in PNG generally understand that their livelihood depends on the environment in which they live. The people coexist with their environment. There are adequate legislative provisions on environment management and protection.

The biggest threat comes from multinational corporations who by design or ignorance seem to have little understanding of and care for the environment. The impacts of their activities are serious and substantial. The displacement of local communities from their traditional lands and depriving them of land for subsistence gardening, pollution of water resources and surrounding eco-systems, degradation of natural forests are worth noting.

¹⁴ National Health Plan 2001-2010, Ministry of Health

(v) Gender Balance and Equity

In many traditional PNG societies, women are not included in the decision-making. They are however, responsible for carrying water for drinking and cooking. The decision making process on provision of water supply in many instances women's voice is not heard. The gender balance in the provision of water supply and sanitation is very unequal.

3.5 Theme 4: Technology

(i) Appropriate Technology for Water Supply and Wastewater Treatment

The use of the phrase " **Appropriate Technology**" can mean many things. For instance, in the travel industry the most appropriate technology for travel from PNG to Fiji or Sydney to Los Angeles is by jet aircraft. In the water industry however, **appropriate technology** has been taken to mean the use of basic infrastructure for extraction, treatment and distribution of water and collection, treatment and disposal of wastewater.

In PNG the design philosophy for urban water supply is to make use of conventional water technology for extraction, treatment and distribution. The use of automation and high technology control systems is to be avoided or kept to very minimum. In urban sewerage systems, the conventional collection method is used and treatment is either by large septic tank or sewage stabilization ponds. There is very extensive use of onsite septic tank treatment and disposal in PNG. The level of technology adopted is in line with the skills and knowledge of the operational staff.

In the rural areas basic technology on the use of hand pumps, gravity systems and rainwater harvesting are popular for water supply and basic pits or over-water latrines are used for sanitation. The ventilated improved pit latrine has been introduced to a number of communities but its acceptance and popularity is yet to be seen.

(ii) Demand Management and Conservation

Since water is plentiful in PNG, the concept of water conservation has yet to be understood and accepted by users in the urban centres. Despite the fact that tariffs are designed to favour small water users, it is not unusual to see low wage earners having high monthly water bills. PNG Waterboard by its own experience has proven that management of water demand can be easily achieved by metering all the consumers. The most effective demand management tool is a tariff structured to discourage excessive use of water.

(iii) Human Resources

The human resources required in PNG for various aspects of water resources management are few and far between. Various Government agencies are responsible for recruitment, training and maintaining the required knowledge and skills within their organization. The knowledge and skills required to plan, construct, manage, operate and charge for water and sanitation services is varied. Most professional training is given overseas while technician and tradesman are trained in the country.

3.6 Theme 5: Institutional Arrangements

(i) Policy

(i) The Government by a Policy Decision has allocated the management functions of various aspects of the water sector to different Government agencies. The Department of Environment and Conservation has the function of managing the environment including water resources. The Department of Health is responsible for Drinking Water Quality and promotion of water supply and sanitation in the rural areas. PNG Waterboard is given the task of planning, construction, operation and management of the urban water supply and sewerage.

The Government currently has a policy on privatization of urban water supply and sewerage operation. The structure proposed is for PNG Waterboard to be known as National Water Authority with a planning and

coordinating role while the operations are sold for 25 years. The asset ownership remains with the Government.

(ii) Planning and Legislation

Overall sector planning is a function performed by the Department of National Planning. The urban water supply and sewerage development planning is the task of PNG Waterboard. The planning of water supply and sanitation in the rural areas is the function of Provincial and Local Level Governments.

The Environment Act governs the environment and water resources. The standards for drinking water are provided in the Public Health Act under the Drinking Water Quality Regulation. The Provision of Water Supply and Sewerage is covered in the National Water Supply and Sewerage Act and is the responsibility of PNG Waterboard.

(iii) Institutional Strengthening

The institutions responsible for various aspects of the Water Resources and Water Supply have undergone institutional strengthening. The main focus of the institutional strengthening has been capacity building in the areas of human resources development, policy and structural reforms and benchmarking.

3.7 Theme 6: Finance

(i) Costs and Tariffs

The major cost of providing urban water supply and sewerage infrastructure had been borne by donors either through grant aid or concessional borrowing. The Asian Development Bank has substantially supported the Water Sector in PNG over a long period of time. The European Union provided financial support for the rural water supply construction in most Provinces.

The tariffs implemented by PNG Waterboard in its 11 Provincial Towns and Eda Ranu in Port Moresby has similar structure but the rates are different. **Table 2** gives the current tariffs of the both PNG Waterboard and Eda Ranu.

Table 2. Tariffs.

PNG WATERBOARD	EDA RANU
(I) Water – Domestic <ul style="list-style-type: none"> • 0 – 12 K1 @ K3.50 Flat Charge • 12 – 30 K1 @ K0.64/K1 • Above 30 K1 @ K1.05/K1 	(I) Water – Domestic Low Cost House <ul style="list-style-type: none"> • 0 – 25 K1 @ K7.50 Flat Charge • 25 – 100 K1 @ K0.75/K1 • Above 100 K1 @ K1.50/K1
(II) Water – Non Domestic <ul style="list-style-type: none"> • 0 – 12 K1 @ K3.50 Flat Charge • 12 – 30 K1 @ K0.64/K1 • Above 30 K1 @ K1.05/K1 	(II) Water – High Cost House <ul style="list-style-type: none"> • 0 – 10 K1 @ K10.000 Flat Charge • 10 – 100 K1 @ K1.00/K1 • Above 100 K1 @ K2.00/K1
(III) Sewerage – Domestic <ul style="list-style-type: none"> • 0 – 12 K1 @ K0.64/K1 • 12 – 30 K1 @ K0.143/K1 • Above 30 K1 @ K0.143/K1 	(III) Non – Domestic <ul style="list-style-type: none"> *Public: 0-50 K1 @ K15 Flat Charge Above 50 K1 @ K0.30/K1 *Schools: 0-25 K1 @ K25.00 Flat Charge Above 25 K1 @ K2.00/K1 *Government: 0-25 K1 @ K50.00 Flat Charge Above 25 K1 @ K2.00/K1 *Commercial: 0-10 @ K20.00 Flat Charge Above 10K1 @ K2.00/K1
(IV) Sewerage – Non Domestic <ul style="list-style-type: none"> • 0 – 12 K1 @ K4.86/K1 • 12 – 30 K1 @ K0.442/K1 • Above 30 K1 @ K0.442/K1 	(IV) Sewerage <ul style="list-style-type: none"> *Domestic: 0-50 K1 @ K0.60/K1 Above 50 K1 @ K0.15/K1 *Commercial: All consumption @ K0.40/K1

(iii) Alternative Models

The structure of a tariff model proposed for a water utility ideally should include the following basic principles: (a) Adequacy to generate cash requirements for sustainability, (b) Affordable by all consumers and (c) a tool for Water Conservation. In PNG the current model has been designed to satisfy the above basic principles. The major challenge, however is to ensure price adjustment to accommodate price increases as determined in the Consumer Price Index to ensure revenue adequacy.

(iv) Role of Donor Organisations and Financing Institutions

The multilateral and bilateral donors have made significant contribution to the development of water industry in PNG. The ADB has played a very big role in the urban water supply development. The European Union provided financial and technical assistance for the rural water supply programme. The Australian Aid for International Development, Japan International Cooperation Agency, various UN organisations, New Zealand Government and many other friends of PNG have assisted in many aspects of water management.

PNG value highly the donor assistance provided in the past or now, without which the country will have great difficulty providing water for its citizens. The country greatly values the continuing roles of the donors in human resources development, capacity building and financing of infrastructure.

4.0 PLAN OF ACTION

4.1 Objectives

The broad objectives of the Plan of Action to be undertaken by the key Government agencies responsible for provision of water supply and sanitation are to achieve the stated National Visions enshrined in the Constitution, the Visions embodied in various Acts of Parliament and Medium Term Development Strategy. The specific objective is to provide safe water to 50% of PNG population by 2010 as stated in the National Health Plan.

4.2 Actions Already Undertaken

The Government through its agencies has undertaken a number of initiatives to achieve the objectives. The various actions undertaken place include the following:

- (i) The successful passage of ***Environment Act in 2000*** is a policy reform on the laws governing the environment. Prior to the 2000 Act, there had been a number Acts of Parliament for various aspects of the environment including the Water Resources Act. The Ministry of Environment is the agency responsible for the regulation of water resources. The following Environment Regulations are in circulation for comments prior to adoption:
 - Environment (Permit and Transition) Regulation
 - Environment (Water Quality Criteria) Regulation
 - Environment (Prescribed Activities) Regulation
 - Environment (Fees and Charges) Regulation
 - Environment (Council Procedures) Regulation
- (ii) The ***National Health Plan 2001-2010*** was approved by the Government and launched by the Minister for Health. The Plan gives safe drinking water coverage of 50% of the entire population by 2010. In the Policy Directions and Priorities on Health Protection the following general provisions have been made for Water Supply and Sanitation:
 - There shall be a multi-sectoral coordinating body for rural water supply and sanitation at all levels.
 - The Health sector shall be responsible for monitoring water quality.
 - Establishment and maintenance of water supply and sanitation shall be community driven.
 - All high schools, hospitals, and health centres shall have drought-proof water supply.
 - Safe disposal of human and animal wastes shall be an integral part of water supply.
 - All towns shall have safe water supply and sewerage systems.

(iii) The Department of National Planning and Rural Development is responsible for the formulation of National Development Strategies. It has prepared and implemented the *Medium Term Development Strategy 1997-2002*, which formed the framework for all Government Capital Expenditure Programmes.

- Medium Term Development Strategy 2003-2007

The Department is in the process of formulating the new MTDS for the planning term, 2003-2007 in close consultation with other Government agencies and stake holders. Sectoral consultation for the purpose of enhancing understanding of government development priorities, confirming sector development programmes including costing required for preparation of the Medium Term Resource Framework has been completed recently.

Under the new MTDS the issues concerning the water sector are to be addressed under health, which is one of the five priority areas of the Government. Given the status of the MTDS preparation, further details are not available at this stage. However the Government has seen the need to intervene in the water sector after PNG's Human Development Index (HDI) in terms of 'access to safe drinking water' ranked poorly among the developing countries. Through various water supply and sanitation projects the Government has been intervening in this area with the assistance of our invaluable development partners (multilateral & bilateral).

Under the new MTDS the Health Department will continue to oversee the intervention process in the area concerning water and sanitation. The budgetary process and prioritisation of the use of resources to this area is to be left to the discretion of the implementing agency concerned.

While the MTDS highlights the importance of the sector, it is left to the Water Board and entities concerned to ensure that the water sector is developed and conserved for the collective benefit of all.

PNG's urban water sector is relatively small by world standards. Less than 15% of the population is served by the two major urban utilities, Eda Ranu and the Waterboard, which reflects the early stage of development of the industry and the demographic features of the country. Outside the major urban centres there are a variety of other ways communities obtain water, and many draw their own supplies. The size of the public wastewater sector is smaller than the water supply.

The Government believes that the water sector can be managed efficiently through privatisation. In February 2000 NEC policy decision (17/2000) directed the Privatisation Commission to immediately start preparing the water assets (Eda Ranu and the Waterboard) for privatisation. The Privatisation Commission has engaged project managers and strategic advisers to undertake detailed studies and to identify and evaluate the options for privatisation of the entities. The Privatisation Act 1999 requires the privatisation policy for each enterprise to be approved by the Minister and submitted to the National Executive Council (NEC) for consideration and approval. The process is on-going.

- The National Poverty Reduction Strategy

As part of an effort to establish PNG's own National Poverty Reduction Strategy (PRS) to address the issue of poverty in the country, the Government has conducted a series of nation-wide Participatory Poverty Assessment (PPA) consultations capturing three categories of communities in six targeted provinces. These categories of communities were (i) *the communities most accessible to basic services*; (ii) *communities which do have access to basic services but not as adequate as expected*; and (iii) *the communities with least or not accessible to basic services*. In the main urban area (Port Moresby), the PPA consultations were conducted in a number of settlements and urban villages. The PPA results and findings established that lack of constant supply of safe drinking water as one of the critical problems faced by both rural and urban villages, contributing to poverty.

The water problem has been incorporated into the Poverty Reduction Strategy logical frame for addressing and redressing the immediate goal of supply of safe water and sanitation systems nation-wide. The PRS is expected to be implemented through the new Medium Term Development Strategy (MTDS) 2003-2007. The Special Committee of the Poverty Taskforce has ranked Immediate Goal of Pillar three, on provision of safe water supply and adequate sanitation as the *2nd development priority*¹⁵ and has recommended it to the MTDS Technical and Management Committee for consideration and incorporation into the new MTDS.

¹⁵ 2nd Development Priority is defined as a priority area that can be implemented within the period of 3-5 years; whilst 1st development priority is defined as a priority that can be implemented within 1-2 years(immediate).

- (iv) The ***PNG Waterboard Corporate Plan*** was produced in 2000 giving strategic directions for its business activities in the provision of urban water supply and sewerage services. The Divisions annually produce ***Business Plans*** based on the Corporate Objectives. The following are key Corporate Objectives on which Divisional Business Plans are prepared:
- *Meeting Corporate Responsibility* by increasing coverage in the urban towns, licensing private water operators and minimising audit discrepancies.
 - *Financial Viability* by achieving a 5% return on investment, to reduce debts outstanding and to invest in short term money markets such Treasury Bills.
 - *Marketing and Public Relations* to increase sales, increase the profile of PNG Waterboard and the services it provides.
 - *Focus on Customers* by achieving above 80% satisfaction on services it provide, good relation with all the stakeholders at District and Operational level.
 - *Systems Optimisation* by improving operational efficiency, reducing water losses and ensuring proper asset management.
 - *Human Resources Management* by recruiting and maintaining well trained and motivated workforce.

4.3 Future Actions Needed (National, Regional, International Cooperation)

At the National level, incorporate the Plan of Action into Medium Term Development Strategy 2002-2007 to ensure priority is given for the annual budgetary appropriation for provision of safe water during the Term. Improved coordination and networking among all stakeholders. At the regional level improve the networking among the Pacific utilities and increased flow of information on water issues. For international cooperation, there is need for advocacy to get the attention of international big players to understand the special needs of the Small Island States.

4.4 Means of Implementation and responsibilities

The Department of National Planning and Rural Development is responsible for the formulation of development framework and priority through the Medium Term Development Strategy. It also has the function of allocation of development funds in the National Budget accordance with the Development Strategy.

The Department of Environment and Conservation has the responsibility of managing the environment and allocation and regulating water resources. The Environment Act 2000 with its Regulations will be one stop shop that will enhance environment management.

The Department of Health is responsible for the public health of the nation. Through its Policy and Strategic Framework embodied in the National Health Plan 2001-2010, it hopes to achieve 50% of the entire population with access safe to water supply.

The PNG Waterboard is a Government trading enterprise established under the National Water Supply and Sewerage Act. It is financially autonomous. Its Corporate Plan and the annual Business Plans dictate the business activities. The Waterboard has sought and gratefully received substantial financial assistance from the Asian Development Bank, Government of Australia through Australian Agency for International Development and Government of Japan through Japan International Agency for the urban water supply development. The ADB provides soft loan while both the Government of Australia and the Government of Japan provides grant aid.

5.0 CONCLUSION

Papua New Guinea has a population of 5.2 million of which less than 15% live in urban areas. The majority of the population live in the rural areas and most depend on subsistence economy. Fourteen out of twenty Provincial Towns and three out of eighty-six District Towns are supplied with a reliable treated water supply system. The safe water accessibility in the rural areas is very low.

There is adequate legislative provision on matters relating to water resources and water management. The vision in the National Constitution is that water resources are to be developed for the benefit of all and to be conserved for the future generation. The allocation and regulation of water resources are embodied in the

Environment Act 2000. The planning, construction, operation and management of water supply and sewerage are covered in the National Water Supply and Sewerage Act. The regulation of Drinking Water Quality is covered under the Public Health Act.

There has been substantial number of on-going and past consultations on various aspects of water supply and sanitation. The new Environment Act has provision for establishment of Environment Council and the Environment Consultative Group with wide membership.

Theme 1: Water Resources Management. PNG has abundance of water throughout the country. Freshwater is available in the form of surface water and the groundwater. The groundwater protection is provided under the Environment Act.

Theme 2: Island Vulnerability. PNG is vulnerable to many disasters. The immediate effects of the recent and the past ones were quite severe. PNG is poorly prepared to respond to major disasters.

Theme 3: Awareness. Up till now, water supply and sanitation has quite a low profile. Political will to drive the sector is very much lacking. Advocacy at all levels is necessary.

Theme 4: Technology. PNG has adopted water supply and sewerage technology that is appropriate to its current development status. It is able to sustainably manage the technology options adopted for the urban water supply and sewerage systems.

Theme 5: Institutional Arrangement. The passage of the National Water Supply and Sewerage Act establishing PNG Waterboard resolved the institutional issue. Privatisation is perceived by the Government to achieve better operational efficiencies. The process is on-going.

Theme 6: Finance. It is PNG's experience that water utilities can be self sustaining if appropriate tariff structure is supported by the Government. All consumption should be metered. The benefits are water demand is managed and revenue is assured.

PNG Waterboard
19 July 2002