Government of Niue

Niue National Infrastructure Investment Plan

2023–2033

Pacific Region Infrastructure Facility

The document was prepared by PRIF consultants, James Reeves, David Hamiliton and Shane Tohovaka and supported by the Pacific Region Infrastructure Facility (PRIF). The PRIF development partners are the Asian Development Bank, Australian Department of Foreign Affairs and Trade, European Union, European Investment Bank, Japan International Cooperation Agency, New Zealand Ministry of Foreign Affairs and Trade, United States Department of State, and the World Bank Group.

PRIF Coordination Office
c/- Asian Development Bank
Level 20, 45 Clarence Street
Sydney, New South Wales, Australia, 2000

Phone: +61 2 8270 9444
Email: enquiries@theprif.org
Website: www.theprif.org

Published September 2023
Photos courtesy of the Asian Development Bank.
Note: In this publication, "$" refers to New Zealand dollars unless otherwise stated.


TABLE OF CONTENTS

List of Tables

List of Figures

Appendices

In this report, "$" refers to New Zealand dollars, unless otherwise stated.

Foreword

Since the cyclone of 2004, which obliterated much of Niue's public infrastructure, the Government has shown itself capable of planning and delivering a range of major infrastructure projects. Since 2004, Niue has successfully constructed a new hospital, primary school, parliament building and museum, international standard hotel, supermarket and commercial complex, national disaster management centre and government administration building. At the same time, much of the public water and energy infrastructure has been modernised.

This National Infrastructure Investment Plan is the opportunity for the Government of Niue to put infrastructure planning, delivery and operation in an integrated context, identifying priorities in a strategic way. This Plan includes a full list of known infrastructure requirements for Niue and then identifies priorities within that list.

This Plan is in support of our national initiatives toward Niue ke Monuina – A Prosperous Niue under the Niue National Strategic Plan 2016–2026, as well as Niue ko Kaina.

The national development goal for infrastructure is "Sustainable use and management of key infrastructure that is climate proof and resilient". Key infrastructure will support other sectors and the safety and protection of people, property and environment and is for residents to access to and enjoy use of good quality affordable infrastructure services including energy, water, transport, information and communication technology, broadcasting, air and seaport facilities and road networks.

The resilience of critical infrastructure will be increased by strengthened risk and climate proofing, consequence and emergency management planning to ensure continuity of services and this Plan priorities Niue's infrastructure development.

We are grateful to the Pacific Region Infrastructure Facility for technical support to develop this Plan and to all development partners for their support for the people of Niue and their needs.

Premier, Niue

Executive Summary

Background

This is the first National Infrastructure Investment Plan (NIIP) for Niue, covering the period to 2030. This NIIP sets out the priorities for infrastructure investment, based upon a strategic review of priorities, aimed at supporting economic and social development objectives.

Niue has delivered a significant program of infrastructure since Cyclone Heta in 2004, but there is still a lot to do. Infrastructure needs have been identified across all sectors in developing this NIIP. Where resources and finance are limited, not everything can be a priority, and this NIIP assesses all projects against a common set of criteria to identify the projects which are likely to most contribute to economic and social development. This NIIP covers the full range of infrastructure that is government-funded, including economic infrastructure and utilities, social services, environmental infrastructure, and government buildings and other facilities.

At the same time, Niue is working to improve its asset management systems (AMSs), project management structure and project planning processes. Each of these is considered in this NIIP.

Key Findings and Recommendations

As part of the development process for the NIIP, all government project development processes and tools have been reviewed. This includes fundamental structures such as project approval, tools such as asset registries and management systems, and project monitoring systems. Several key findings and recommendations have been reached:

- The Project Oversight Steering Team (POST) has a fundamental role to play in strengthening the project development and approval process. POST needs to be the gatekeeper for the cabinet, ensuring that projects are prepared for robustly, so that it is only required to consider well-developed, value-for-money projects. However, the membership of POST needs to be revisited to ensure that it is able to act independently and efficiently.

- To support POST, new business case development processes and tools need to be put in place. Utilising best practice from elsewhere, the government will instigate new simplified formats for business cases for investment projects, ensuring that all projects are developed and appraised to the same level.

- Responsibility for implementing, maintaining, and updating the NIIP, on behalf of POST, will be allocated to a central team within the Secretary to the Government's office. Initially, this team will be supported by an Asset and Infrastructure Management Advisor, funded by New Zealand, who will be tasked with the strengthening of project preparation and AMSs and processes, as a key component of the establishment of the Niue Infrastructure Investment Fund.

- Niue needs a fully functioning AMS. The current asset registry fulfills a financial need, but misses the crucial functionality of condition assessment, needs assessment, and economic valuation. Niue does not need a complex, data-hungry system that it will struggle to maintain, but a system that includes all public infrastructure, gives a central repository for crucial information, and allows periodic interrogation.

- Issues such as climate change and disaster resilience, affordability, integration with other infrastructure, and criticality need to be fully taken into account when determining priorities for investment.

- There needs to be more coordination between government departments to ensure that equipment is used and maintained efficiently, that the planning of infrastructure is integrated, and that best use is made of all investments. Economies of scale should be

sought in procurement, and common maintenance facilities need to be established, removing the need for each department to be maintaining vehicles and equipment.

Establishing the Priority List of Projects

A key output of this NIIP is a priority list of projects for implementation. This list incorporates all the needs identified across government, through a series of detailed consultations with department directors and others. The list below includes all proposed projects, by sector, that are above the identified minimum size criteria, and major projects where funding or part-funding has been secured but implementation is yet to be completed.

Longlisted Projects

Agriculture, Forestry and Fisheries	
Vaipapahi Research Farm	Development of Livestock Farms
Import/Export Processing Hub	Fish Aggregation Devices
Better Pig Sties	Avatele Landing Improvements
Surveillance and Monitoring Facility and Equipment	Biosecurity Facilities at Wharf
Aviation	
Airport Terminal Improvements	Refurbishment of Rescue 3 Fire Truck
Upgrading Airport Fuelling System	Replacement of Control Tower Equipment
Construction of Fire Station	Reorganising Airport Parking
Airport Runway Resurfacing	Airport Incinerator
Refurbishment of Rescue 2 Fire Truck	UPS for Airport
Bulk Fuel	
Replacement of Fuel Storage Tanks	Construction of LPG Storage Site
Education	
Upgrading School Water System	Provision of a School Swimming Pool
New Classroom for Special Needs	Digitalisation of Education for all Schools to Support Learning, Future Proofing
Additional Building for the Creche	
Health	
Hospital Waste Management System	Installation of UPS at the Hospital
Replacing Hospital Roof	Upgrading Oxygen Plant
Major Plant	
New Maintenance Building for Heavy Machinery	Major Plant Replacement
Police and NDMO	
Prison Upgrades	Improved Comms for Search & Rescue
NDMO Vehicle Replacement	Police Vehicle Replacement
Evacuation Centres	New Police Equipment
NDMO Equipment Replacements	Tsunami Warning System Repairs
Evacuation Bus	Wireless Alarm Systems for Fire Systems
Paving of Evacuation Routes	Evacuation Provision for Tourists
Power	
Connecting New Power Station	Network/Transformer Upgrades
Renewable Energy	Preparing for Electric Vehicles
Quarry	
Replace Quarry Equipment	
Roads	
Resurfacing of Main Roads	Resurfacing of Bush Roads (incl. Machinery)
Surfacing of Hospital Roads	Street Lighting Upgrade
Solid Waste	
Rubbish Collections Vehicle	Machinery for Moulding Facility
Recycling Machinery	Land Fill Rehabilitation
Waste Incinerator	
Telecom and Broadcasting	
Complete Mobile Coverage for the Island	Replacement of Destroyed Broadcasting Equipment
Backup Undersea Cable Connection	
Water	
Strengthening Water System	New Vehicle for Collection of Wastewater from Septic Tanks
Village Water Storage	

Sewage Treatment System	Metering of Water Supply
Maritime	
Namakulu Wharf Repairs New Motorised Barge and Repair of Work Boat Replacement of Port Machinery Basin Harbour Wharf Expansion	Replacement of Wharf Fenders and Repair its Side Wall Building a Container Storage Area Provision of New Mooring Systems Incinerator Within Wharf
Cross Government	
Relocation of Families/Villages from Seaside to Inland New Court Building Sports Stadium Permitting Indoor Sports	Repairs and Upgrading of Sea Tracks Technology Hub New Public Library and Archives Centre

Source: Authors.

The longlist of projects was prioritized using 12 objectives that fall under four main criteria; the economic impact; the social impact; the environmental impact; and alignment and/or performance which considers linkages with other infrastructure, whether the project makes optimal use of existing infrastructure, and the urgency of the project.

Based upon the scoring of projects against the prioritization criteria, a shortlist of 18 essential projects has been identified. These projects affect many aspects of life in Niue, will improve quality of life, and have synergies with other projects. These are considered the projects on which Niue's finances and implementation capacity should be focused in the medium term. The shortlisted projects are shown in the table below, together with the remaining projects considered to be less urgent. The total cost of the shortlisted program is approximately $173 million. Projects further down the priority list can be considered for the shortlist as the NIIP is rolled over in future years.

Project Prioritization

Rank	Score	Name of Project	Sector	Est. Cost ($ m)	Category
1	89%	Strengthening water system*	Water	12.0	Essential
2	86%	Connecting new power station*	Power	0.8	Essential
3	81%	Renewable energy*	Power	5.0	Essential
4	75%	Sewage treatment system	Environment	7.5	Essential
5	72%	Resurfacing of main roads*	Roads	39.9	Essential
6	69%	Replace quarry machinery	Quarry	3.0	Essential
7	67%	Airport runway resurfacing and security fencing*	Transport	32.3	Essential
7	67%	Surfacing of hospital roads*	Roads	1.1	Essential
9	64%	Replacement of fuel storage tanks*	Bulk Fuel	0.6	Essential
9	64%	Hospital Waste Management System	Health	0.2	Essential
9	64%	New maintenance building for heavy machinery	Utilities	1.0	Essential
9	64%	Village water storage	Water	1.5	Essential
13	61%	Upgrading school water system	Education	1.5	Essential
13	61%	Major plant replacement*	Utilities	5.0	Essential
13	61%	Replacement of port machinery*	Maritime	5.0	Essential
13	61%	Basin harbour wharf expansion	Maritime	57.0	Essential
13	61%	Recycling machinery	Environment	0.8	Essential
13	61%	Waste Incinerator	Environment	1.0	Essential
		Niue High Commission residence upgrade	OSOG	1.5	High Priority
19	58%	Construction of LPG storage site	Bulk Fuel	0.3	High Priority
19	58%	New motorised barge and repair of work boat*	Maritime	2.0	High Priority
19	58%	Resurfacing of bush roads (incl. machinery)	Roads	3.0	High Priority
19	58%	Island mobile coverage	Telecom	10.0	High Priority

23	56%	Paving of evacuation routes	Roads	2.3	High Priority
23	56%	Metering of water supply	Water	0.5	High Priority
25	53%	Airport terminal	Aviation	5.0	High Priority
25	53%	Construction of fire station	Aviation	3.0	High Priority
25	53%	Replacement of control tower equipment*	Aviation	0.2	High Priority
25	53%	Replacing hospital roof	Health	0.5	High Priority
25	53%	Broadcasting equipment	Broadcasting	1.0	High Priority
30	50%	Refurbishment of rescue 2 fire truck*	Aviation	1.1	High Priority
30	50%	Police vehicle replacement*	Police	0.1	High Priority
30	50%	Land fill rehabilitation	Environment	3.0	High Priority
30	50%	Sea tracks repairs	Tourism	0.5	High Priority
30	50%	Technology hub	Government	1.5	High Priority
35	47%	Refurbishment of rescue 3 fire truck	Aviation	1.1	High Priority
35	47%	Installation of UPS at the hospital	Health	0.1	High Priority
35	47%	Evacuation centres	NDMO	2.0	High Priority
35	47%	Network/transformer upgrades	Power	30.0	High Priority
35	47%	Namakulu wharf repairs	Maritime	0.2	High Priority
35	47%	Replacement of wharf fenders and repair its side wall	Maritime	1.1	High Priority
35	47%	Provision of new mooring systems	Maritime	0.2	High Priority
35	47%	New police equipment	Police	0.0	High Priority
35	47%	Rubbish collections vehicle	Environment	0.1	High Priority
44	44%	Upgrading oxygen plant	Health	0.1	Medium Priority
44	44%	NDMO vehicle replacement	NDMO	0.5	Medium Priority
44	44%	NDMO equipment replacements	NDMO	0.0	Medium Priority
44	44%	Improved comms for search & rescue*	NDMO	0.3	Medium Priority
44	44%	Research farm	Agriculture	1.0	Medium Priority
44	44%	New vehicle for collection of wastewater from septic tanks	Environment	0.1	Medium Priority
44	44%	Avatele landing improvements	Maritime	0.0	Medium Priority
44	44%	UPS for airport	Aviation	0.1	Medium Priority
52	42%	Prison upgrades	Police	0.5	Medium Priority
52	42%	Building a container storage area	Maritime	0.2	Medium Priority
52	42%	Tsunami warning system repairs	NDMO	1.5	Medium Priority
52	42%	Import/export processing hub	Agriculture	0.5	Medium Priority
56	39%	Digitalisation of education for all schools to support learning, future proofing	Education	1.0	Medium Priority
56	39%	New court building	Government	1.0	Medium Priority
58	36%	Development of livestock farms	Agriculture	2.0	Low Priority
58	36%	Fish aggregation devices	Tourism	0.5	Low Priority
58	36%	Surveillance and monitoring facility and equipment	Agriculture	1.0	Low Priority
58	36%	Biosecurity facilities at wharf	Environment	0.2	Low Priority
58	36%	Street lighting upgrade	Tourism	0.8	Low Priority
63	33%	New public library and archives centre	Government	0.3	Low Priority
63	33%	Electric vehicles	Power/Transport	10.0	Low Priority
63	33%	Incinerator within wharf	Maritime	0.0	Low Priority
63	33%	Better pig sties	Agriculture	0.3	Low Priority
63	33%	Second undersea cable	Telecoms	20.0	Low Priority
68	31%	Evacuation bus	NDMO	0.2	Low Priority
68	31%	Relocation of families/villages from seaside to inner land	Government	200.0	Low Priority
70	28%	Upgrading airport fuelling system	Aviation	1.5	Low Priority
70	28%	Airport incinerator	Aviation	0.2	Low Priority

72	25%	New classroom for special needs	Education	0.3	Low Priority
72	25%	Machinery for moulding facility	Environment	0.5	Low Priority
74	22%	Additional building for the creche	Education	0.1	Low Priority
74	22%	Evacuation provision for tourists	NDMO	2.0	Low Priority
76	19%	Wireless alarm systems for fire systems	Government	0.2	Low Priority
77	14%	Sports stadium permitting indoor sports	Government	7.0	Low Priority
78	8%	Reorganising airport parking*	Aviation	1.1	Low Priority
78	8%	Provision of a school swimming pool	Education	1.5	Low Priority

OSOG = Office of the Secretary of Government, LPG = liquefied petroleum gas, NDMO = National Disaster Management Office, UPS = uninterruptible power supply

Note: * = project funding either secured or part-secured.

Source: Authors.

The prioritisation approach set out above represents a robust technical assessment of the priorities for infrastructure investment. This reflects the identified policy objectives for Niue as set out in the Niue National Strategic Plan and other sources. There may remain cases where the government concludes that this technical approach misses key considerations and wishes to amend priorities. Any changes to priorities, if required, should be made transparently and with adequate justification. This gives the opportunity to positively present any justifications that may focus on other objectives.

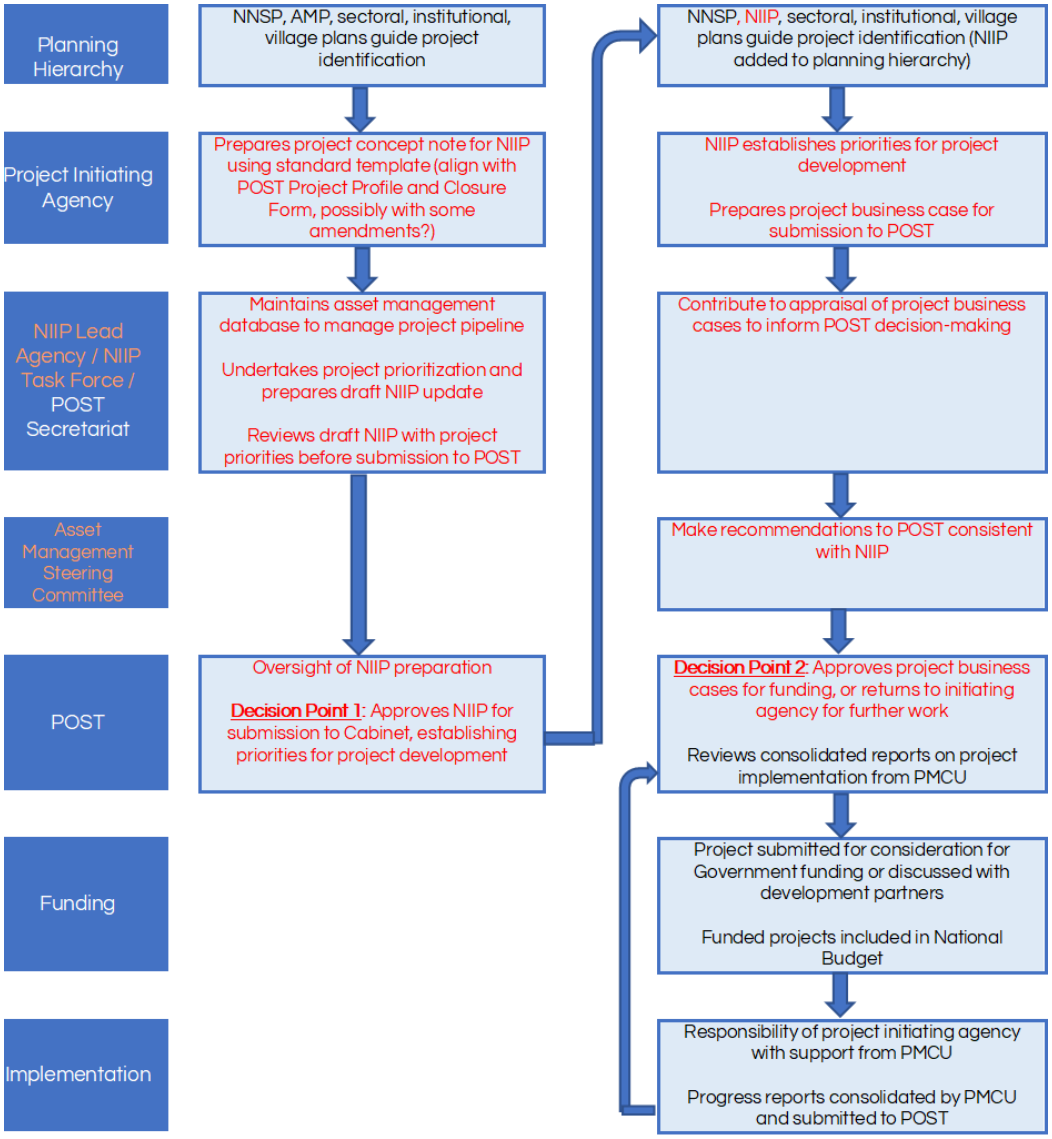
Financing Options for Infrastructure

While some of the smaller projects in the project longlist may be suitable for private sector investors, it is likely that infrastructure investment in Niue will require development partner funding. Key development partners will remain New Zealand, Australia, and Japan, while others such as the Asian Development Bank, the People's Republic of China, and the Green Climate Fund may become more prominent. It is envisaged that the Niue Infrastructure Investment Facility will become an increasingly important vehicle for financing infrastructure.

Project Preparation and Management

The NIIP proposes measures to strengthen infrastructure project processing in Niue (shown in red), building on the current system, as set out in the flowchart below:

Project planning flowchart



AMP = asset management plan, NNSP = Niue National Strategic Plan, NIIP = National Infrastructure Investment Plan, PMCU = Project Management and Coordination Unit, POST = Project Oversight Steering Team.
Source: Authors.

Key features of the strengthened system for project planning and processing include:

- a focus on improved AMSs and developing a robust project pipeline;
- systematic prioritisation of proposed projects to focus effort on projects with the best prospects to advance national development objectives;
- a requirement to prepare and appraise more thorough business cases for priority projects (including basic economic analysis where possible), before they are approved for funding; and

- coordinating the NIIP with the establishment of the Niue Infrastructure Investment Facility, building in the roles of the Asset and Infrastructure Management Advisor (working within the Office of the Secretary to Government as the NIIP lead agency) and the Asset Management Steering Committee.

Sustaining and Maintaining the NIIP

It is important that this NIIP is maintained and updated to ensure its conclusions and recommendations remain relevant. This will require the collection of progress and monitoring data to assess the status of the implementation of the shortlisted projects. Based upon this information and regular re-assessments of infrastructure needs, the government will need to carry out regular reviews of the NIIP. In addition to more formal 5 yearly updates of the NIIP, it is expected that informal reviews will be carried out at least every 2 years.

It is understood that investment program development continues in several sectors, which is resulting in the identification of additional investment requirements. However, these potential projects were submitted after the cut off for this initial NIIP. These and other projects identified in the future will be incorporated into future iterations of the NIIP.

Acronyms

AMP	Asset Management Plan
AMS	Asset Management System
COVID-19	novel coronavirus disease
DAFF	Department of Agriculture, Forestry & Fisheries
EIA	Environmental Impact Assessment
FPR	Functional Performance Rating
GDP	Gross Domestic Product
GVA	gross value added
ICT	Information and Communications Technology
LPG	liquefied petroleum gas
MCA	multi-criteria analysis
M&E	monitoring and evaluation
NBC	Niue Broadcasting Company
NDMO	National Disaster Management Office
NIIP	National Infrastructure Investment Plan
NiSERM	National Sustainable Energy Road Map
NITF	Niue International Trust Fund
NNSP	Niue National Strategic Plan
NTS	National Transport Strategy and Short-Term Action Plan
O&M	Operating and Maintenance
PCR	Physical Condition Ratings
PMCU	Project Management and Coordination Unit
POST	Project Oversight Steering Team
PRIF	Pacific Regional Infrastructure Facility
SOE	state-owned enterprise
UPS	Uninterruptible Power Supply

SECTION 1

INTRODUCTION

1.1 This Report

Public infrastructure assets exist to provide a service to users and the community. For example, ports allow goods to be imported and exported, roads allow those goods to get to market, and power transmission lines allow those markets to operate. When infrastructure fails, these services are interrupted. Resilient infrastructure is one of the foundation stones of sustainable development in Niue. All the important government services and private sector ventures that create jobs and build wealth are built on the foundations provided by infrastructure.

This National Infrastructure Investment Plan (NIIP) examines the infrastructure needs of all sectors of the nation, be they economic, social, or administrative, drawing on the existing hierarchy of the Niue National Strategic Plan (NNSP), and sectoral and institutional level plans. This brings together a list of candidate infrastructure investment projects, which are then screened and prioritized across sectors in a process that is both systematic and transparent. At the same time, an assessment is made of the capacity of government to fund and deliver the infrastructure investment program so it can be scaled appropriately.

The NIIP is a living document, and it should be monitored, reviewed, and updated, as necessary. This is the first NIIP publication for Niue, and it outlines the priorities for major infrastructure investments up to 2030. The NIIP was assembled through a consultative process involving a wide range of stakeholders, including central government ministries, state own enterprises, and development partners.

The NIIP should be seen as a framework for priority investments rather than a fixed blueprint, as situations and priorities will change over time and should be reviewed annually. The Plan has reviewed the full pipeline of candidate projects across the core infrastructure sectors and through a multi-criteria prioritization analysis, identifies “priority projects for further development”. The subsequent development, funding, and budget approval for these priority projects is embedded within project management processes already established and being strengthened.

1.2 NIIP Process

The process of developing this NIIP has involved a series of steps:

- Review of current national policy and strategy related to economic and social development and infrastructure provision
- Review of existing sector-based strategies and corporate plans
- Virtual and face-to-face meetings with government and other stakeholders

- Development of a longlist of projects for prioritisation
- Development of a multi-criteria analysis framework for prioritisation
- Review of current cost recovery policies

This NIIP has been developed on behalf of the Government of Niue by a team of consultants provided by PRIF, and supported by an NIIP Task Force drawn from within senior officials within the Government of Niue. This NIIP has been developed following the opportunity for all stakeholders to review the findings. It has been developed and submitted following review by the cabinet and is now submitted for approval by the Parliament.

1.3 Country context

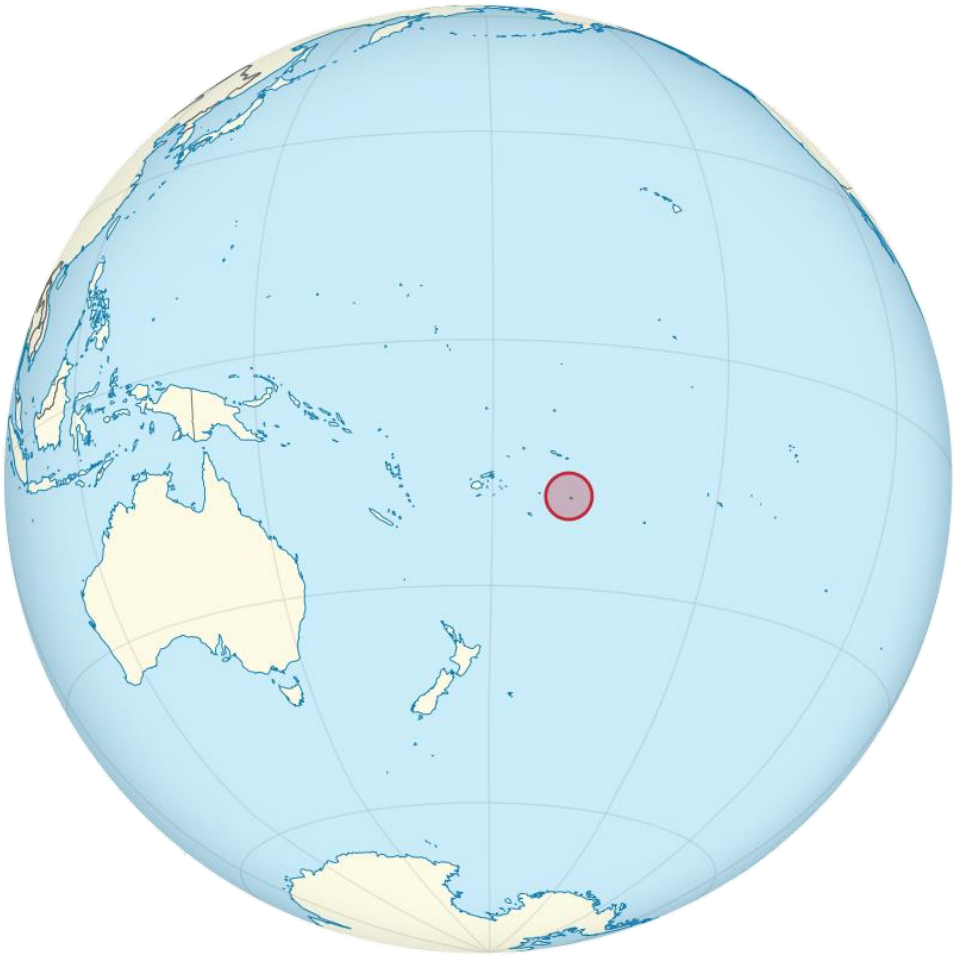
1.3.1 Geography and environment

Niue is a small island country in the South Pacific, located within the triangle formed by Tonga, Samoa and Cook Islands, as shown in Figure 1-1 below. The island is one of the largest uplifted coral atolls on earth, with a land area of 261 km^2. According to the 2022 Census, the population of Niue is 1,681, meaning it has a population density of 6 per km^2; in 2020, Niue had a net migration of −109.[1] In 2019, the year before the novel coronavirus disease (COVID-19) pandemic began and Niue entered lockdown, the island received 11,061 visitors.

The terrain of the island has two distinct levels. The higher level is made up of a limestone cliff running along the coast, with a plateau in the center of the island reaching approximately 60 m above sea level. The lower level is a coastal terrace approximately 500 m wide and about 25–27 m high, which slopes down and meets the sea in small cliffs. A coral reef surrounds the island, with the only major break in the reef being in the central western coast, close to the capital, Alofi. The island has a tropical climate, with most rainfall occurring between November and April. There is no surface water on Niue, but artesian bores tap a subterranean reservoir of fresh water for domestic, commercial, and agricultural purposes.

[1] Social | Niue Statistics Office (spc.int). Accessed 27th April 2023

Figure 1-1: Location of Niue



Source: Wikipedia. https://en.m.wikipedia.org/wiki/Niue

Niue is a self-governing state in free association with New Zealand. Niueans are citizens of New Zealand and King Charles III is Niue's head of state in his capacity as King of the Realm of New Zealand. Niue is subdivided into 14 villages (municipalities). Each village has a council that elects its chairperson. The villages are at the same time electoral districts; each village sends an assembly person to the Parliament of Niue.

The capital of Alofi is on the western side of the island, with the main public facilities inland to the south. The Hanan International Airport sits on the plateau south of Alofi, close to the main government building and emergency operations center. Niue's hospital is also in this area. The Niue Primary School and Niue High School both lie on the central plateau to the east of Alofi. Niue's international wharf is in the center of Alofi. Alofi also includes the island's Parliament building, shopping, and restaurant facilities.

Figure 1-2: Map of Niue

Source: mappery.com https://www.worldmap1.com/niue-map.asp

1.3.2 Demography

Niue's population gradually declined over several decades (it peaked in 1966 at 5,194), with substantial emigration to New Zealand. After Cyclone Heta in 2004, 15% of the population were left homeless. Many chose not to rebuild and instead moved to New Zealand, which is

now where approximately 90% of all ethnic Niueans live.[2] Niueans have also emigrated to Australia and other Pacific Island countries.

Key statistics on Niue's demography are shown in Table 1-1. The data have been provided mostly by the Statistics Office in Niue, sourced from national censuses. Therefore, data from the previous four censuses are provided to highlight key trends. The next census was due to take place in 2022.

According to the 2011 census, around 46% of the population spoke Niuean, with 32% fluent in both Niuean and English, and 11% speaking only English. Religious organizations are of great importance in Niue, with 82.9% being members of the one of the several Christian denominations present, according to the 2017 census. Around 8.2% are listed as being members of another religion, with 8.9% listed as having no religion.

Table 1-1: Niue Demographic Statistics

Demographic Indicators	2001	2006	2011	2017
Total Population	**1,788**	**1,625**	**1,611**	**1,719**
Males (as %)	50.2%	49.4%	49.8%	48.3%
Females (as %)	49.8%	50.6%	50.2%	51.7%
Absent population			147	193
Visiting population				128
<15 years old (%)	30%	26.7%	24.8%	28.1%
Youths (15–24 years, %)		16.4%	13.4%	10.1%
15–59 years old (%)	56%	58.5%	58.5%	53.2%
60+ years old (%)	14%	14.8%	16.7%	18.7%
Median Age	29	30.7	32.8	33.0
Net migration rate	-48.7	-50	-2.1	0.56
Crude Birth Rate (%)	18.5%	15.8%	18.41%	17.2%
Crude Death Rate (%)	7.8%	9.3%	8.9%	7.2%
Rate of natural increase	25*	9	9.5	10
Dependency ratio (%)	79%	71%	63%	88.1%
Ethnicity[3]				
Niuean				65.4%
Part-Niuean				14%
Non-Niuean				20.6%

*Figure is as reported but seems high.

Source: Demography | Niue Statistics Office, https://niuestatistics.nu/ - accessed 27th April 2023

Niue's population has stayed fairly static over the past 20 years or so, in comparison to the gradual decline that had been experienced since the late 1960s. Other positive signs are that the birth rate and death rate have stayed roughly the same, and the net migration rate has gradually increased. However, there is an ever-increasing dependency ratio, and aging population, which suggests that the positive net migration in 2017 is due to increasing numbers of retirees from surrounding countries coming to Niue, while younger Niueans

[2] Niue - The World Factbook (cia.gov) Accessed 27th April 2023

emigrate for further education and employment opportunities once they finish school. The NIIP therefore provides an opportunity to develop the country's infrastructure and produce more economic opportunities for the younger population.

1.3.3 Tāoga Niue

The culture of Niue is unique due to its population size. With around 1,500 people, it is still expected to operate a viable fully functioning economy and country with all the normal services and functions, and yet with very stretched capacity, and even more limited resources.

This has been recognised by the Government of Niue, with the Tāoga Niue initiative. Protecting and enhancing this culture is one of the pillars of the NNSP and has its own government department. Other key responsibilities of the Taoga Niue Department include the National Archives, Cultural Affairs and Research, the Vagahau Niue Commission and Taoga Niue Council. A key aspect of this department is the new National Museum and Archives, located alongside the new Parliament building.

1.3.4 Economy

Niue's economy is small. Its gross domestic product (GDP) was $43.5 million in 2018,[4] rising to $46.85 million in 2019 (approximately US$30.8 million).[5]

Niue faces economic challenges common to small island nations in the region, including geographical isolation, limited natural resources, a small population, and periodic cyclone damage. In addition, in common with almost all other countries, Niue's economy has suffered in 2020 and 2021 as a result of the global COVID-19 pandemic, with resultant follow-on impacts for government finances.

The dominant sector in the economy is services, which accounted for more than 75% of GDP, followed by agriculture, forestry, and fisheries, which contributed around 20%, and manufacturing, which accounted for less than 4%.[6]

The government achieved close to a balanced recurrent budget outcome in 2019–20, with revenues of $27.49 million and expenditure of $27.60 million. The deficit of $114,000 represented 0.24% of 2019 GDP. The deficit in 2020–21 blew out to $5.73 million due to COVID-19 impacts, and Niue budgeted for a deficit in 2021–22 of $4.69 million. In understanding the recurrent budget outcomes, it is important to note that in the 3 financial years prior to 2020–21, recurrent grants from the New Zealand government accounted for 29.4%, 27.2%, and 27.3% of government revenues, respectively, and have climbed significantly since in response to COVID-19 impacts on the economy.

1.4 National policy objectives and drivers of infrastructure

1.4.1 NNSP

The NNSP 2016–26 sets the overall direction, goals, and strategies for economic and social development in Niue. The overarching vision is for "A Prosperous Niue", and its mission is to build a prosperous Niue responsibly and sustainably to meet social and economic needs and

[4] Niue Statistics Office, https://niuestatistics.nu/ - Accessed 27th April 2023
[5] Government of Niue. 2021. *Review of Non-Tax Revenues, October 2021*. Pacific Financial Technical Assistance Centre.
[6] ADB Key Indicators for Asia and the Pacific 2020.

development aspirations, while preserving Tāoga Niue culture and heritage values and protecting the environment.

Under the NNSP, the government's main fiscal priority is to "ensure that there are sufficient resources available for the necessary basic rights of all residents. These include health, education and infrastructure and the provision of other essential government services". The Plan is not just for the government, however, but for all sectors of Niue society.

The NNSP has seven national development pillars. Each government department and agency has priorities and corporate plans aligned to the NNSP and progress is measured annually through the national budget process. Each national development pillar has its own aims and strategies, the details of which are to be contained in sector and subsidiary policies and delivery plans. Each pillar, strategy, and aim of the NNSP, and its relevance to the NIIP, is described in Table 1-2.

Table 1-2: NNSP Strategies, Aims and Relevance to NIIP

NNSP National Development Pillar	Strategy	Aim	Relevance to NIIP
Finance and Economic Development	Macro-Economic Policy and Investment	Investment in sovereign assets, and strengthened trading activities	This strategy explicitly focuses on investing in national assets, particularly in the priority sectors of tourism, fisheries and agriculture. These are the sectors where the NNSP believes Niue holds a comparative and competitive advantage.
Governance	Human Resource Development	Well-skilled workforce and ongoing training opportunities for lifelong learners	To ensure the sustainability of Niue's infrastructure, it is vital that there is a skilled workforce that can operate and maintain it. Ensuring there are suitable succession plans for the current workforce, and training the newer members of the workforce, are of equal importance to ensure future generations can also maximize the benefits of Niue's infrastructure.
	National Emergency Response and Resilience	A strengthened emergency management sector with a well-informed public who are prepared for adverse effects of disasters from natural hazards and emergencies	For infrastructure to be sustainable, it must be resilient to natural emergencies and climate change.
Infrastructure	Information Communication and Technology (ICT)	Quality affordable postal, ICT, and broadcasting services	ICT development is important in the changing technological environment and connection to the world. This will enable Niueans to remain connected to the world, as well as make Niue more attractive as a place for business.
	Energy	Continuous and reliable power supply transitioning to efficient renewable energy sources	Energy generation, distribution, and consumption should be more efficient, affordable, and climate-proof, based on a low-carbon approach.
	Water	Access to 24-hour water supply and safe potable drinking water	Improving safe extraction and increasing capacities in rainwater catchment and household water tanks increases the supply of freshwater in Niue and builds resilience to climate change.
	Transport	Quality, safe, secure and reliable ports and roading	Ensuring the continued provision of safe and secure access to services and facilities to all Niueans, as well as giving access to the wider world, supporting the trading of goods and tourism to and from Niue.

NNSP National Development Pillar	Strategy	Aim	Relevance to NIIP
	Construction	Well-constructed buildings and structures	Ensuring construction works meet health and safety standards, with minimum adverse impacts on the environment and resilient to impacts of natural hazards.
	Asset Management	Manageable maintenance programs for consistent and reliable services for the public	Well-planned and -funded maintenance programs ensure ongoing infrastructure development to required levels of service.
Social Services	National, Sector and Village development	Working together for national, sectoral and village development	Ensuring equitable access to Niue's infrastructure so that the benefits are well distributed to all members of the community, including children, youth, women, senior residents, people living with disabilities, churches, and sports groups.
	Land	Land availability for all	Access to land for domestic, residential and economic development while ensuring sustainable land practices is important for everyone. The development of Niue's infrastructure should not impede this access.
Environment and Climate Change	Waste Management	Residents and visitors manage waste to protect the environment with minimum impact to public health.	Suitable waste management infrastructure is required to support residents in reducing the impact of waste on public health and the environment.
	Natural Resources	Protection and conservation of Niue's natural resources through responsible, sustainable use and management for food and nutrition security that is sufficient, safe, affordable and accessible.	Development of Niue's infrastructure should be done responsibly to help support the continued protection and conservation of natural resources.
	Biodiversity	Protecting biodiversity, maintaining sufficient remaining habitats and ecosystems to support the population of all species and their genetic diversity.	Development of Niue's infrastructure should be done responsibly to help support the continued protection of its biodiversity.
	Pollution	Reducing risks and protecting natural resources on land, marine and coastal resources from the impacts of pollution.	Development of Niue's infrastructure should be done responsibly to help support the continued protection of Niue's natural resources, as well as providing solutions to mitigating the risks of pollution.
	Climate Change and Natural Hazards	A safe and resilient Niue to impacts and challenges of climate change.	All infrastructure in Niue should be resilient to natural hazards and suitably climate-proof to ensure that they can benefit future generations and to maximize the return on the investment.
Private Sector	Enhance Investment in People to Improve Skills and Create a Local Workforce	Produce a skilled and responsive labour force through enhancing access to capacity building and technical assistance, and building an entrepreneurial culture	To ensure the sustainability of Niue's infrastructure, it is vital that there is a skilled workforce that can operate and maintain that infrastructure. Ensuring there are suitable succession plans for the current workforce and training the newer members of the workforce is of equal importance to ensure future generations can also maximize the benefits of Niue's infrastructure.

NNSP = Niue National Strategic Plan, NIIP = National Infrastructure Investment Plan.

Source: Authors from NNSP.

1.4.2 Role identified for infrastructure

Properly functioning infrastructure has been identified as a key element in the NNSP and other strategy documents to provide necessary social services, enable economic growth, and protect the environment. Responsible infrastructure management is a key objective in the NNSP. A key element of this has been the relocation and development of core infrastructure and services away from the disaster-prone coastal area of Niue.

Efforts continue to manage infrastructure and services in ways that protect the environment, particularly the sensitive water lens, natural protected forests, and vulnerable coastal assets. At the same time, ensuring that Niue's infrastructure can play its role during times of disaster is an important focus.

The NNSP emphasizes the need to modernize and strengthen Niue's basic infrastructure, particularly water supply and power, but also roads, the wharf, and ICT services.

SECTION 2

GOVERNANCE ARRANGEMENTS FOR THE NIIP

2.1 Governance Arrangements

2.1.1 Role of POST

Having developed this first NIIP for Niue, it is important that the processes and databases referred to in this document are maintained, updated and enhanced, at regular intervals. As discussed in Section 0, under the current process, POST will play a key role in project development. As the NIIP is the main controlling document, laying out the government's priorities for infrastructure development, it is appropriate that the NIIP should be an integral part of this process.

POST should take an overarching role in monitoring the implementation of the NIIP, including:

- launching periodic reviews of the prioritization criteria and results;
- reviewing the project longlist, removing completed or redundant projects, and adding new projects; and
- updating the project costings used for budgeting purposes.

To fulfill this role, POST membership is under consideration due to organization changes. Providing this independent challenge and guidance function will be an important part of the governance of infrastructure and service development. POST membership considerations include key government officials being members on an *ex officio* basis, and other members appointed as independent members, recruited from within and out of government.

2.1.2 NIIP Coordinator

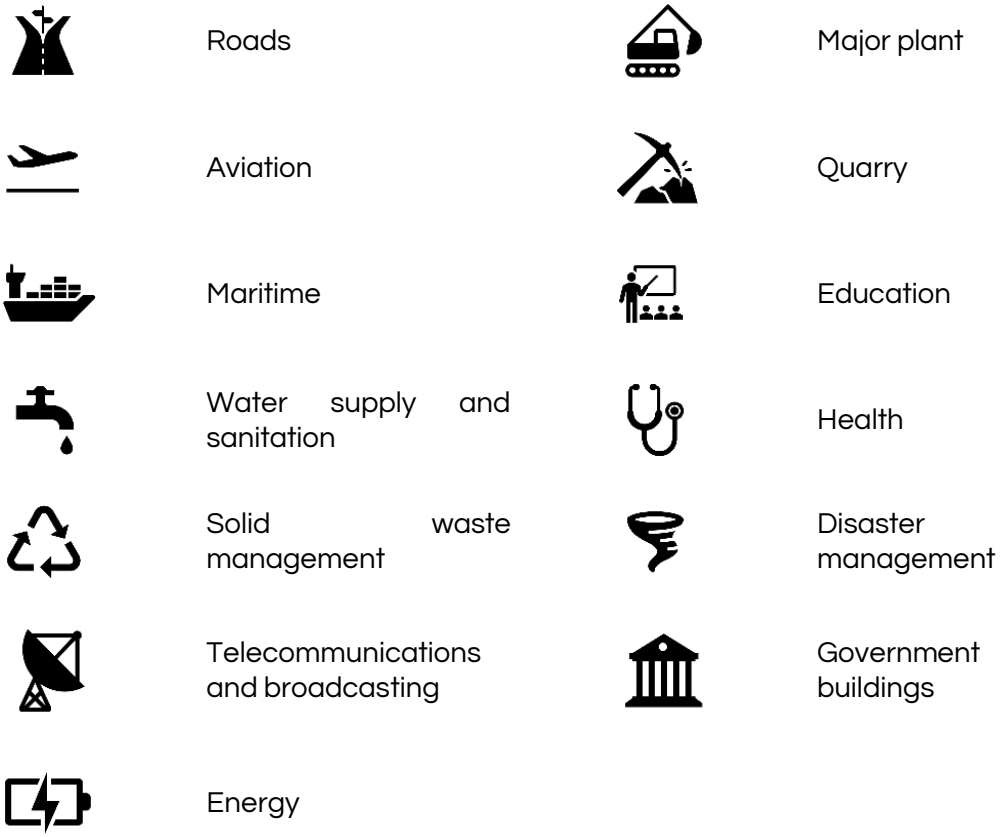
In addition to the formal processes above, it will be important to ensure that there is a team within the government that has responsibility for data collection, development of monitoring and evaluation data, being a liaison with line ministries and providing regular updates to POST. Given the wide coverage of this NIIP, it is recommended that this role should be part of the responsibilities of a central team, ideally within the office of the Secretary of Government.

This role should be combined with the team responsible for monitoring the NNSP and other national policies and strategies. Together, these two plans could share many elements of a monitoring and evaluation framework, bringing efficiencies in data collection. Running the two together will also provide opportunities for greater integration, ensuring that the country makes best use of the value offered by the infrastructure.

Work has already commenced with the engagement of an Infrastructure Coordinator as part of Niue's partnership with New Zealand.

2.2 NIIP coverage – sectors and projects

In the context of Niue, it is considered that the NIIP should incorporate all infrastructure sectors, including social as well as economic infrastructure. It has been agreed that the Niue NIIP will include the following infrastructure sectors:



The projects included within this NIIP generally represent the larger capital investments required in Niue. These projects include:

- linear infrastructure (e.g., roads, water supply networks);
- network improvements (e.g., electricity generators, telecoms masts);
- integrated investments for specific central organisations (e.g., National Disaster Management Office [NDMO] equipment and vehicles);
- improvements to government-owned buildings (e.g., prison, school buildings); and
- equipment and vehicles (e.g., quarry equipment, incinerators).

Alongside these investments, a series of institutional changes, strategy updates, and statutory developments are required. These are not part of the core investment strategy, but are identified in Section 4 of this NIIP.

Within this NIIP, no lower limit on the cost of an individual investment project has been applied, although smaller projects have wherever possible been grouped to create larger, integrated

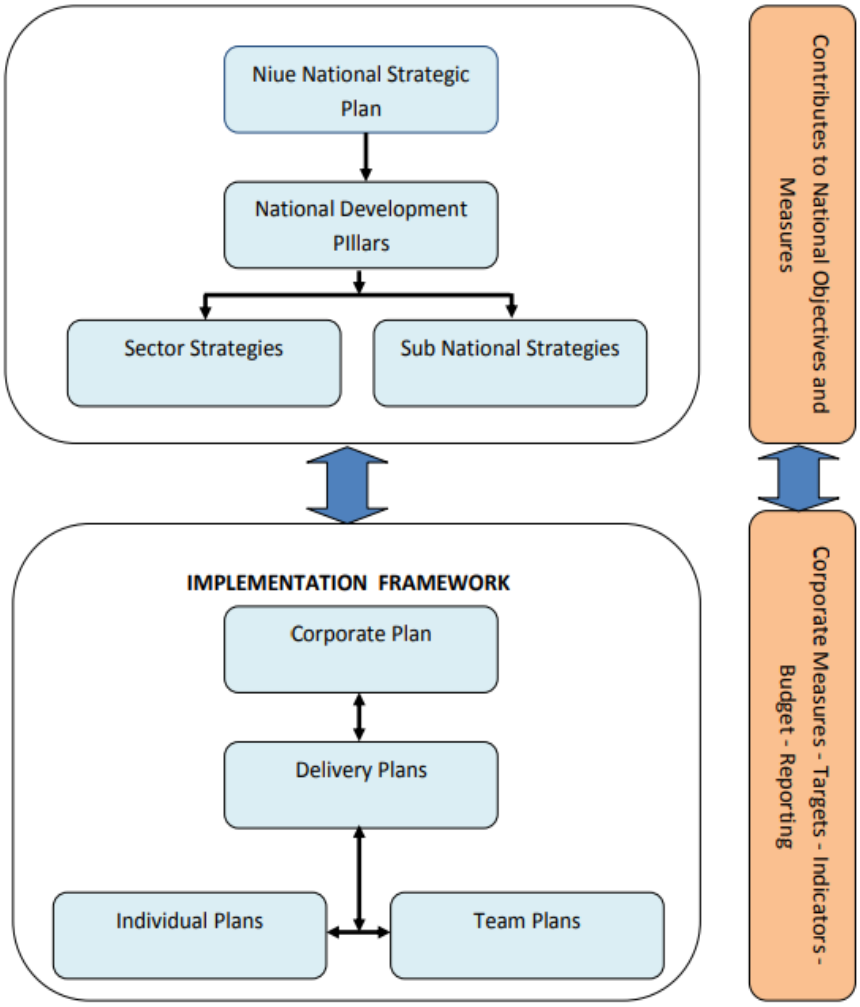
projects. Where several important investments for an organization are needed, the investments have been packaged and the revised package scored accordingly.

2.3 Planning hierarchy

2.3.1 NNSP

The NNSP (2016–26) sets out the strategic framework for how Niue development should be planned, as shown in Figure 2-1. This hierarchy helps to ensure that all development activities (including infrastructure implementation and maintenance) are aligned with national priorities and strategies.

Figure 2-1: Hierarchy of Strategies and Plans



Source: Niue National Strategic Plan.

2.3.2 Sector Level

The list below includes the key policies and strategies of each key sector in Niue. All policies have been aligned with the NNSP 2016–26, which is the central high-level roadmap for Niue's development.

- National Transport Strategy and Short-Term Action Plan - 2017 - Department of Transport (Ministry of Infrastructure)
- Niue Road Strategy 2020–26 - 2020 - Ministry of Infrastructure
- Niue Island Strategic Energy Roadmap (NiSERM) 2015–25 - 2015 - Department of Utilities (Ministry of Infrastructure)
- Information and Communication Technology (ICT) Roadmap - 2015 - Niue Telecom
- Niue Drinking Water Safety Plan - 2009 - Department of Utilities (Ministry of Infrastructure)
- Niue Integrated Water Resource Management Plan - 2007 - Department of Utilities (Ministry of Infrastructure)
- National Coastal Fisheries Management and Development Plan 2017–22 - 2017 - Department of Agriculture, Forestry and Fisheries (Ministry of Natural Resources)
- Niue Quarry Strategy 2020–23 - 2020 - Department of Utilities (Ministry of Infrastructure)
- Niue Responsible Tourism Policy - 2017 - Niue Tourism

At the time of writing, the water safety plan was in the process of being updated to assess the sustainability of the water supply and whether operational costs should be recovered from users.

These national policies and strategies set sector-specific targets and outcomes, through which it is easier to plan what inputs and outputs are required to achieve those outcomes. This not only includes infrastructure requirements, but also legislative, regulatory, management and financial requirements.

As well as the NNSP and sector-specific policies, planning activities in Niue should also be aligned with national cross-sector strategies, including:

- National Policy on Gender Equality & Strategic Plan of Action (2013–17)
- Sustainable Coastal Development Policy (2008)
- Niue Trade Policy Framework (2016)
- National Climate Change Policy (2009)
- National Capacity Development Strategy and Action Plan (2008)
- Niue's Joint National Action Plan for Disaster Risk Management and Climate Change (2012)

2.3.3 Village Level

Development at the village level is led and managed by the Village Councils, who are also responsible for:

- maintaining bush roads and sea tracks (those not under the Maintenance Program of Tourism), public parks and recreational areas, and public bathing places;
- maintaining village cleanliness and prevention of pollution of water sources; and
- establishment, operation, and regulation of markets and commercial enterprises.

The establishment and organization of Village Councils is governed by the Village Councils Act 2016. There are no formal planning policies and procedures in place at the village level.

Village councilors are elected and then take part in national consultations with the government for policy and strategy developments.

2.3.4 Institutional Corporate Plans

The NNSP (2016–26) requires that all government departments develop and publish Corporate Plans that are aligned to the national pillars and strategies. Each Plan will have a budget, where sources of funds are identified, whether recurrent budget or external funds, and it should also contain outcomes-based measures through targets and indicators. Annual reports from each agency measure progress against each pillar.

The corporate plans that have been developed and published so far are listed below.

- Niue Meteorological Service (Min. of Natural Resources) 2020–25
- Department of Agriculture, Forestry & Fisheries (Min. of Natural Resources) 2020–25
- Department of Education (Min. of Social Services) 2020–25
- Department of Transport (Min. of Infrastructure) 2015–19
- Department of Utilities (Min. of Infrastructure) 2021–25
- Niue Power Corporation (NPC) 2015–19

SECTION 3

NIIP AND THE INFRASTRUCTURE INVESTMENT PLANNING PROCESS

3.1 Mainstreaming NIIP into the investment planning process

Preparation of the NIIP represents an important contribution to Niue's hierarchy of infrastructure planning instruments, which currently includes the NNSP, asset management plan (AMP), sectoral, institutional, and village-level plans.

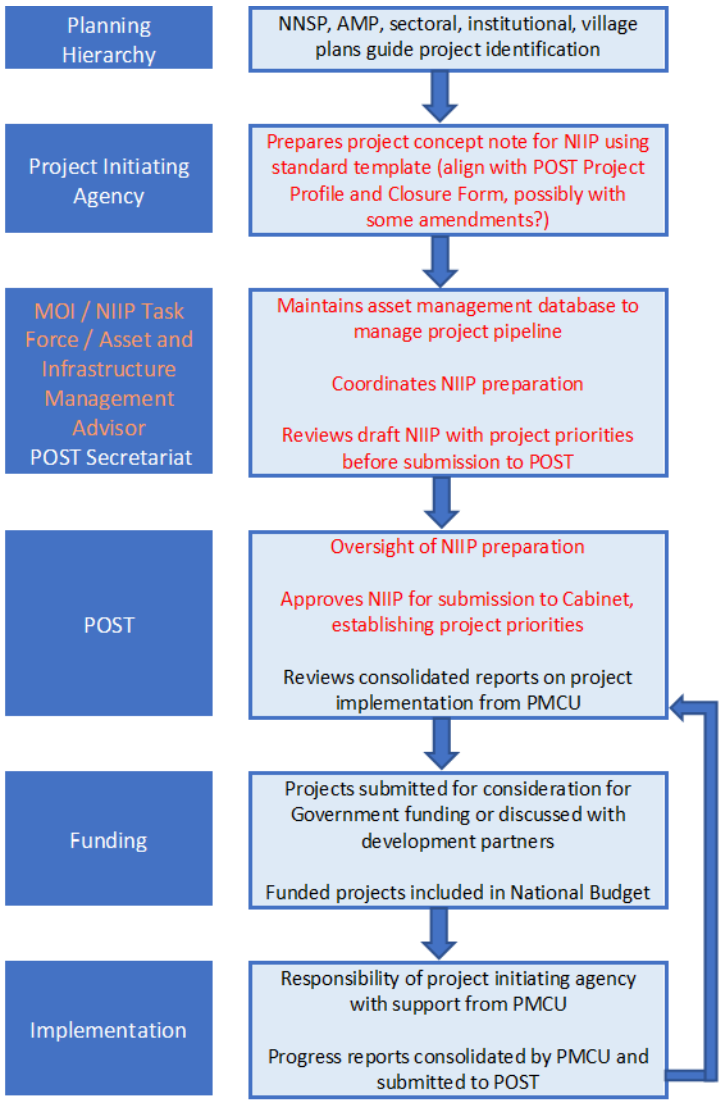
Figure 3-1 shows how it is proposed that the NIIP will engage with the current planning hierarchy, in this first round of NIIP preparation. The key features of the first round of NIIP preparation are a consolidated list of proposals for infrastructure investment across all sectors, and a systematic and objective process to recommend investment project priorities across sectors.

It is clear that POST is a valuable addition to the project development process, as long as it is operating effectively. There is a strong need for a technical gatekeeper for the cabinet, a role that a reinvigorated POST could perform. It will be important to harmonize POST and the cabinet submission requirements and to ensure that POST meets regularly. In this stage, the NIIP is considered by POST on the way to the cabinet in the normal way, while additional responsibilities emerge within the government in relation to preparing and appraising projects and establishing an asset management database.

While the interim process shown in Figure 3-1 does make gains by prioritizing candidate projects, it is important to recognize that this interim process may result in projects being approved before they are fully appraised and their feasibility established. In these cases, it is assumed that development partners or other funding sources picking up the projects will undertake these forms of due diligence. Due diligence is needed to ensure that Niue is not burdened with unsustainable infrastructure, the operation and maintenance of which act as a drag on the economy.

The interim process also recognizes the ongoing work between the Niue and New Zealand governments to establish the Niue Infrastructure Investment Facility as a vehicle to strengthen asset management and infrastructure planning, and to act as a conduit for infrastructure financing. Technical assistance provided by New Zealand in the form of an Asset and Infrastructure Management Advisor will support the implementation of this initiative while the appointment of a Deputy Secretary of Government will assist the capacity of the POST secretariat.

Figure 3-1: Niue Infrastructure Project Planning – Interim Changes for First NIIP shown in red



AMP = asset management plan, MOI = Ministry of Infrastructure, NNSP = Niue National Strategic Plan, NIIP = National Infrastructure Investment Plan, PMCU = Project Management and Coordination Unit, POST = Project Oversight Steering Team.

Source: Authors.

In the medium term, it is considered that further strengthening of project preparation and appraisal capacity will be needed to ensure that the infrastructure investment planning process is more robust and government-led.

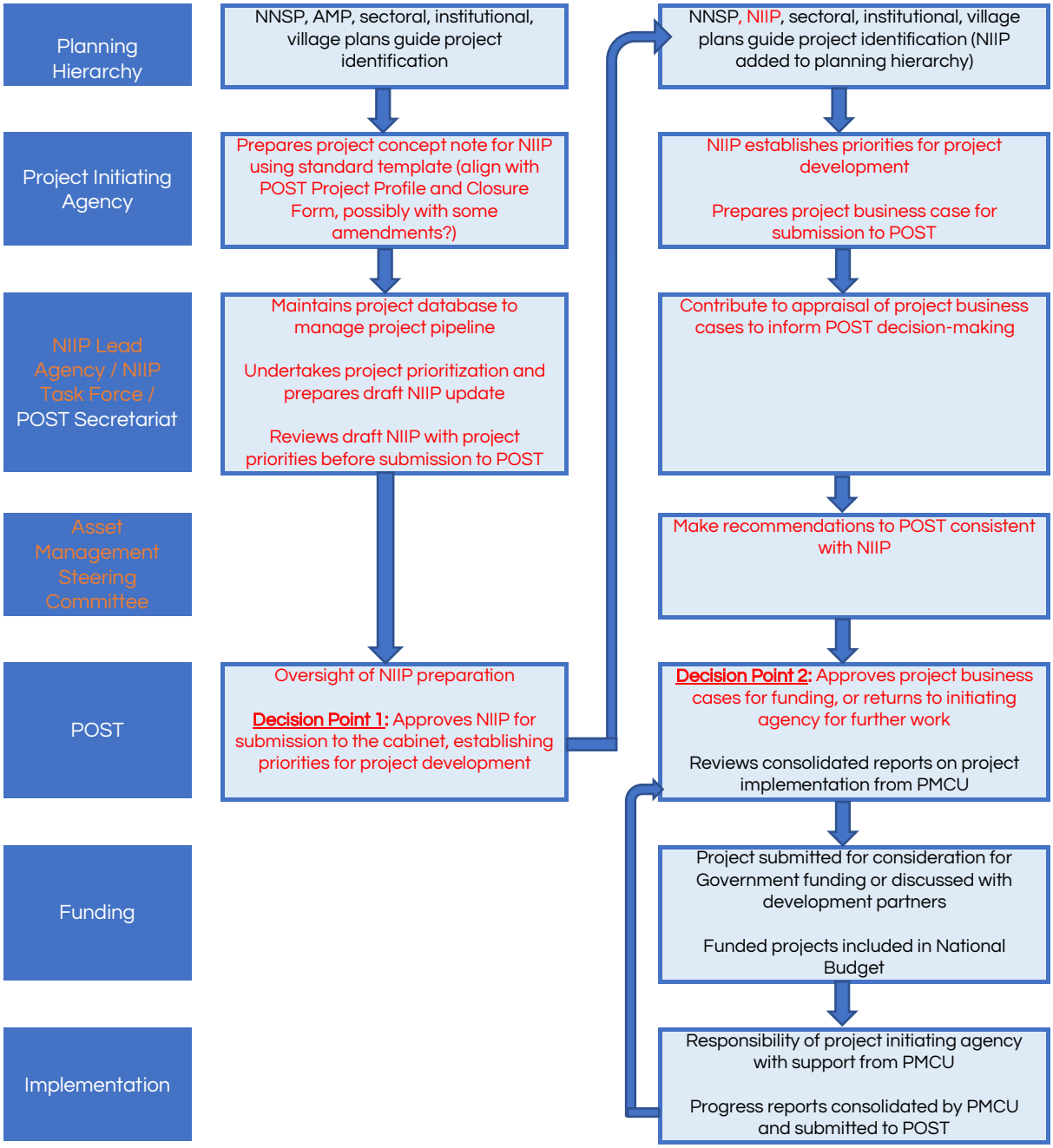
Figure 3-2 sets out a process designed to achieve these aims. The process includes two key decision points. At decision point 1, POST considers the NIIP as it is rolled over periodically and approves a list of priority projects for further development. This list focuses attention on projects that are assessed as having the best potential to meet national development objectives, at an early stage of project development. The onus is then on the agencies initiating projects to develop outline business cases for the projects identified as high priority in the NIIP (including, where possible, some basic economic analysis). Central agencies contribute to the appraisal of projects, which are then submitted back to POST seeking approval for funding. This is decision point 2. Projects approved at this stage can then be considered for funding, either through domestic sources or via development partners (recognizing that informal engagement with development partners may have already commenced).

Under this strengthened approach, greater attention is given to project prioritization and project appraisal before projects are considered for funding, making the process more robust and government-led. Capacity building will be needed to support additional responsibilities within the government in relation to preparing and appraising projects and managing an asset management database. The strengthened process involves a longer gestation period for infrastructure project identification, preparation, and approval, but this is necessary to ensure that projects make an effective contribution to national development objectives. Poorly prepared infrastructure projects tend to end up as a burden rather than a blessing for the nation.

The strengthened approach to infrastructure planning also involves appointing a central agency as the lead agency and "home" for the NIIP, given its coverage across sectors. It is envisaged that this role will be assumed by the Office of the Secretary to Government, supported by the Asset and Infrastructure Management Advisor. Working with all government agencies responsible for infrastructure, the lead agency would be responsible for maintaining the asset management database and for supporting periodic rolling over and updating of the NIIP. The database would become the major source of the project pipeline for the NIIP. Technical input provided by the lead agency will facilitate more informed and effective decision-making by POST and the cabinet.

The strengthened approach to infrastructure planning is coordinated with the establishment of the Niue Infrastructure Investment Facility, building in the roles of the Asset and Infrastructure Management Advisor (working within the Office of the Secretary to Government as the NIIP lead agency) and the Asset Management Steering Committee (which makes recommendations to POST consistent with the NIIP prior to approval of projects for funding).

Figure 3-2: Niue Infrastructure Project Planning - Strengthened Process as NIIP Matures



AMP = asset management plan, NNSP = Niue National Strategic Plan, NIIP = National Infrastructure Investment Plan, PMCU = Project Management and Coordination Unit, POST = Project Oversight Steering Team.

Source: Authors.

It is desirable for the NIIP prioritized project list to be rolled over annually[7] (timed to work in harmony with the annual budget cycle, though recognizing that projects identified in the NIIP as high priority may take some time to feed into the budget). An initial target could be to publish the current NIIP prioritized project list with the budget papers. Pending development

[7] Refer to Guideline to Preparing National Infrastructure Investment Plans (PRIF, 2022), page 77.

of capacity within the government to manage an annual rollover of the NIIP, technical support may be needed for periodic updates.

The stock of project proposals on hand for prioritization as the NIIP is rolled over would include:

- new project proposal submissions; and
- project proposals from the previous NIIP which had not been identified as high priority projects and approved for further development, subject to confirmation from the initiating agency that the project is still needed in its current form.

The space for new projects as the NIIP is rolled over each year could be tailored to the value of projects emerging from the pipeline having been funded or no longer being pursued.

In relation to the following categories of project from the previous NIIP, there may be a need for a sunset clause attached to the relevant approvals, at the expiry of which they would need to be reviewed and re-submitted if still required:

- projects which had been identified as priority projects and approved for further development, but which had not yet received approval for funding; and
- projects which had received approval for funding after the preparation and appraisal of more detailed business cases, but which had not yet been funded.

Supplementing the rolling annual process for updating the NIIP prioritized project list, could be a periodic (say 5-yearly) review of the state of infrastructure. This would include a stock-take by sector and a review of the policy and regulatory environment for infrastructure provision, perhaps with a theme addressing an infrastructure issue of current interest.

SECTION 4

POLICY CONTEXT FOR INFRASTRUCTURE INVESTMENT

4.1 Asset management systems

The Niue Asset Management Plan 2016–2025 (also sometimes referred to as the Infrastructure Management Plan) outlines Niue's long-term asset management approach for the provision and management of government and community assets. It enshrines good planning and maintenance as the core of Niue's infrastructure strategy. It is based on information collected during site visits to Niue during October 2015 and January 2016 and should be read in conjunction with the NNSP and AMP, which set the level of asset management planning required. According to the AMP, the value of Niue's assets amounted to nearly $100 million in 2016, with the replacement cost of the transport system estimated to be $45 million at that time.[8] The wharf and airport, as well as the road links to the airport, wharf, hospital, power station, and other key government buildings are identified as especially vital.

Of particular relevance to the development of the NIIP, the AMP describes a set of target levels of service for each of the asset groups. The NIIP identifies suitable investments that bring Niue's infrastructure up to these levels of service, prioritizing the sectors that are currently not meeting these levels. It is noted that these target levels of service were defined for the short term, according to the AMP, so the NIIP also considers possible future required levels of service to maximize the benefits of infrastructure investments.

The AMP identified the following set of actions to improve Niue's overall asset management approach:

- socialize the infrastructure plan and implications with relevant government staff;
- simplify the asset register;
- improve data capture;
- update asset register data;
- provide training in ongoing analysis of asset management data;
- develop a renewal plan;
- establish and confirm the annual maintenance program based on items identified in the asset register;
- develop maintenance costs and strategies;
- establish and confirm a 3-year asset renewal program and initiate projects from it;
- prioritize AMP improvement items and implement first-year items;

[8] These figures appear low based on current estimates of rehabilitation costs for key infrastructure.

- develop government resources for the AMP implementation (this may include recruitment of staff, development of job descriptions, mentoring and training of staff);
- develop standard operating procedures for plant and equipment;
- update AMP with current data; and
- develop audits and quality assurance processes.

A key aspect of the process of identifying future infrastructure investment needs should be a functioning AMS. An AMS should include:

- a full inventory of government assets;
- an up-to-date condition assessment;
- an estimate of asset value;
- clear levels of service targets;
- mechanisms to identify and quantify current and future maintenance and upgrading needs; and
- a process for identifying priority infrastructure investments.

As part of the Greentree accounting system, Niue has implemented an asset registry system. This records all assets that are purchased or constructed by the government, including those funded by development partners. The records within the Greentree system include the following information. A screenshot of a report from Greentree showing the information included is shown in Figure 4-1 below.

- Asset ID number
- Asset name
- Date of purchase or construction (where available)
- Original cost
- Annual depreciation percentage
- Current book value

Figure 4-1: Greentree Asset Registry Screenshot

Processed : 07 May 2022, 18:29:07 **Government of Niue** Page:

Period End: 30/06/2 **A Cost & Depreciation Movements (Accounting)**

By Analysis Code

Asset	LastAddn	LastDisp	Opening Asset Rate		Opening Depn	AdditionsDepn	salsAccDep Disp	ionsAccDep Reval	ValAccDep Adjust	ansfersAccDep Tfr	OffsAccDep WOff	AssetClosing Depn	ook Value
100058/					4,194,635.00	0.00	0.00	0.00	0.00	0.00	0.00	4,194,635.00	
Niue Public Service Building			2.00	S	922,820.00	83,892.70	0.00	0.00	0.00	0.00	0.00	1,006,712.70	#########
100160/					26,600.00	0.00	0.00	0.00	0.00	0.00	0.00	26,600.00	
DAFF Building			20.00	S	26,600.00	0.00	0.00	0.00	0.00	0.00	0.00	26,600.00	0.00
100161/					24,300.00	0.00	0.00	0.00	0.00	0.00	0.00	24,300.00	
Abbattoir			7.70	S	24,300.00	0.00	0.00	0.00	0.00	0.00	0.00	24,300.00	0.00
100162/					4,454.00	0.00	0.00	0.00	0.00	0.00	0.00	4,454.00	
Fisheries Building Reroof			7.70	S	4,454.00	0.00	0.00	0.00	0.00	0.00	0.00	4,454.00	0.00

The current version of the registry contains details of all assets procured since 1 July 2011. Prior to this, no complete record of assets is kept. This has led to a situation where details of assets procured before 1 July 2011 are not included within the registry. For the purposes of the Greentree system, which aims only to provide a book value for the asset, this is adequate. However, for a full AMS, all assets should be included.

Niue has recognized the need to develop a more effective AMS, moving beyond the financial information captured by the current asset register to include the information needed to more effectively manage the maintenance, rehabilitation, and eventual replacement of infrastructure assets. Efforts to improve asset management form part of the work being undertaken by the Niue and New Zealand governments to establish the Niue Infrastructure Investment Facility. An Asset and Infrastructure Management Advisor funded by New Zealand will be based in the Office of the Secretary to the Government to coordinate this work.

Asset condition assessments are an important feature of a strengthened AMS. The publication *Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries* (PRIF, 2020) sets out a methodology for asset condition assessments, including an approach using physical condition ratings only and an extension that also rates the functional performance of the asset.[9]

The steps set out in the methodology using component physical condition ratings (PCRs) only are:

- Step 1: Perform condition assessment to determine PCR of asset components.
- Step 2: Calculate asset condition index.
- Step 3: Assess the risk of failure and estimate the remaining useful life of the asset.
- Step 4: Select the optimal investment option.

The steps factoring in the functional performance rating (FPR) of the asset are:

- Step 1: Perform condition assessment to determine PCR of asset components.
- Step 2: Establish FPR of the asset by assessing recent asset performance.
- Step 3: Calculate asset condition index.
- Step 4: Assess the risk of failure and estimate the remaining useful life of the asset.
- Step 5: Select the optimal investment option.

The methodology provides guidance and details of the ratings used at each of these steps. Specific guidance is also provided by sector for asset condition assessments.

4.2 Cost recovery

Niue has limited financial resources to support the operation and maintenance, and eventual replacement, of the infrastructure needed to achieve national development objectives. With this in mind, cost recovery vis-à-vis infrastructure services is an important consideration. While full cost recovery may not always be achievable, or an appropriate objective, a reasonable level of cost recovery needs to be maintained in order to build and operate infrastructure sustainably.

A recent technical assistance report on government fees and charges undertaken with the assistance of the Pacific Financial Technical Assistance Centre recommended a medium-term target to increase non-tax revenues by $1.5 million, spread over perhaps 3 years[10]. Other recommendations with implications for cost recovery in relation to the provision of infrastructure services included:

Improve compliance and governance.

- The first priority for additional revenue is to improve compliance with the existing revenue laws and with governance requirements. This recommendation is made in light of concerns raised by the Auditor General of New Zealand in the course of auditing the accounts of government agencies in Niue. In raising this issue, it is acknowledged that the current government is implementing a range of measures to resolve prior year

[9] Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries (PRIF, 2020)
[10] Niue: Review of Non-Tax Revenues (Pacific Financial Technical Assistance Centre, 2021)

issues, and to ensure that robust compliance and governance procedures are put in place for the future.

Increase government trading revenues

- The majority of the government's non-tax revenues, excluding donor grants, are received in the form of departmental trading revenues. The main activities are the wholesale supply of fuel, electricity, port services, civil services and quarry products. In aggregate, these services showed a loss in 2019–20, and a profit in 2020–21. Budgeted turnover in the current 2021–22 financial year for these activities is $7.92 million, with a broadly break-even outcome anticipated. If it were prudent to move prices over 2 to 3 years to a point where these activities produced a 10% profit margin, this would provide around $800,000 additional revenue, an increase of 2.8% relative to total 2021–22 budgeted revenues, or 1.7% of 2019 GDP. The final budget gain may be tempered by the need to appropriate additional monies to some departments to compensate for the additional expenditure the price increases would impose.

Other fees and charges

- The government levies a large number of other fees and user-pays charges, which in the COVID-19-suppressed 2021–22 budget are expected to generate just over $850,000. Many of these fees and prices have not been adjusted for several years, and, as a minimum, it is recommended that they be increased in line with Consumer Price Index increases since current fee rates were fixed. In future, all fee rates should be reviewed either annually or on a 2-year cycle, and adjusted in line with the Consumer Price Index, or where appropriate in terms of social and equity impacts, adjusted to recover the efficient cost of supply. Frequent adjustments ensure that the real value of fees and charges is maintained, and that individual price increases are modest adjustments.

These recommendations are supported.

A summary of the financial position of departmental trading activities, sourced from the above report, is provided in Table 4-1. Preliminary results for 2021–22, obtained from Niue Treasury, are also included in the table.

Table 4-1: Financial Position of Departmental Trading Activities

Activity	2019–20 actual ($)	2020–21 actual ($)	2021–22 budget ($)	2021–22 preliminary ($)
Bulk Fuel				
Revenue	5,862,147	4,105,401	3,943,000	5,037,616
Expenditure	6,419,258	3,153,205	3,914,000	5,767,000
Surplus/(Loss)	(557,111)	952,196	29,000	(729,384)
Niue Power				
Revenue	232,510	1,958,149	2,275,000	2,035,800
Expenditure	281,070	1,893,540	1,861,300	2,028,526
Surplus/(Loss)	(48,560)	64,609	413,700	7,274
Outside Services				
Revenue	715,894	456,853	1,000,000	474,417
Expenditure	498,485	434,739	659,000	562,747
Surplus/(Loss)	217,409	22,114	341,000	(88,330)
Civil				
Revenue	0	257,981	300,000	53,856

Activity	2019–20 actual ($)	2020–21 actual ($)	2021–22 budget ($)	2021–22 preliminary ($)
Expenditure	33,066	399,540	1,066,518	876,963
Surplus/(Loss)	(33,066)	(141,559)	(766,518)	(823,107)
Quarry				
Revenue	11,699	45,303	400,000	153,385
Expenditure	21,173	227,760	355,080	322,464
Surplus/(Loss)	(9,474)	(182,456)	44,920	(169,079)

Source: Niue: Review of Non-Tax Revenues (PFTAC, 2021), preliminary results from Treasury.

Preliminary results for 2021–22 sourced from the Niue Treasury reveal a significant deterioration in performance. Combining the results for Bulk Fuel, Niue Power, Outside Services, Civil, and Quarry, the financial result swung from roughly break-even in the budget to a loss of approximately $1.8 million in the preliminary results for the year. In this year, Niue Power was operating at roughly break-even, while Bulk Fuel, Outside Services, Civil, and Quarry were incurring significant losses. While 2021–22 may have been a particularly difficult year due to the impact of the pandemic, these recent results reinforce the need to act on the recommendations of the Pacific Financial Technical Assistance Centre review of non-tax revenues.

The review of non-tax revenues did not consider water supply as a trading activity, given that there is currently no charge for this service, other than connection fees for some users. Costs associated with the provision of water amounted to $552,232 in 2020–21, with the preliminary cost for 2021–22 being $483,992.

Niue recently commissioned a study of water use efficiency and cost recovery.[11] The study made recommendations, which in relation to cost recovery include:

- metering all boreholes and major water main division points;
- metering all end users;
- implementing a formal data collection system to read meters on a monthly basis;
- introduction of a one-time fixed fee for connecting new users to the water supply system;
- introduction of a low fixed monthly fee for users connected to the water supply system; and
- adoption of a per unit tariff structure for the provision and use of water.

The fee and tariff structures recommended in the study were set at a level to recover the cost of metering the system, and the ongoing electricity costs associated with water supply. A higher tariff would be required to achieve full cost recovery. These recommendations have not been adopted by the government.

Among the Pacific Island countries surveyed in the *Pacific Infrastructure Performance Indicators* only Cook Islands (and Niue, which was not covered in that aspect of the survey) did not charge for water supply[12]. The lowest residential tariff was in Fiji (US$0.10 per m^3) and the highest tariff was in Nauru (US$6.00 per m^3), where the water supply comes from a

[11] Niue National Framework for Improving Water Use Efficiency and Cost Recovery Strategy (Deve Talagi, March 2022).
[12] Pacific Infrastructure Performance Indicators (PRIF, 2021)

desalination plant. The average tariff for the 12 countries surveyed was US$1.32 per m^3, and the median tariff USD 0.85 per m^3.

In relation to the telecommunications sector, summary results for the state-owned enterprise Telecom Niue are provided in Table 4-2. It can be seen that, while Telecom Niue moved from a position of loss in 2018–19 to a profit in 2019–20, net assets remain negative.

Table 4-2: Telecom Niue Financial Indicators

Indicator	2018/19 ($)	2019/20 ($)
Revenue	2,164,357	2,520,004
Net profit (loss) before tax	(383,796)	351,356
Net assets	(700,023)	(348,665)

Source: Telecom Niue Annual Report for the year ended 30 June 2021.

Note: the 2020–21 annual report includes financial results to 30 June 2020.

4.2.1 Insights into affordability from Household Income and Expenditure Survey data

The Niue 2015/16 Household Income and Expenditure Survey Full Report reported average annual household net income of $ 45,800 from a sample of 156 households (out of an estimated 513 households in Niue).[13] Average annual household expenditure was $ 37,600. Expenditure categories linked to infrastructure services, with some international comparisons, included:

Table 4-3: Proportion of Household Expenditure by Expenditure Item (2015–16)

Expenditure item	Proportion of average household expenditure		
	Niue	New Zealand	Tonga
Fuel	7%	4%	6%
Electricity charges	4%	3%	4%
Telephone services	4%	3%	3%
Gas	1%	<1%	1%
Water	nil	<1%	1%

Source: Niue Household Income and Expenditure Survey 2015–16, New Zealand Household Economic Survey (HES) 2015/16, Tonga Household Income and Expenditure Survey 2015–16.

The proportion of average household expenditure accounted for by fuel, electricity, telephone, gas, and water follows a similar pattern in Niue, New Zealand, and Tonga. With the exception of water (for which there is no charge in Niue), households in Niue spend a slightly higher proportion of their annual expenditure on these items than in the other two countries.

4.3 Infrastructure and building resilience

Climate change and natural disasters pose a threat to the efficiency and serviceable life of infrastructure assets across all sectors. In response, building resilience in these assets is a key consideration in infrastructure planning. As well as resilience to extreme weather events and other natural disasters, this extends more broadly to land use planning and building infrastructure to be more energy efficient.

[13] Niue 2015/16 Household Income and Expenditure Survey Full Report, (Niue Statistics Office, 2018)

Niue's National Climate Change Policy[14] and Joint National Action Plan for Disaster Risk Management and Climate Change[15] have been considered earlier in this report and reflect the government's position on these issues.

The Environment Act 2015 preserves and protects the environment by authorizing environmental standards and ensuring that all government departments and public authorities consider environmental matters when making decisions that impact Niue. The Act specifies the activities which require development consent, including those with a significant impact on the environment and those with implications for environmental standards.

The Environment (Development Consent and Environmental Impact Assessment) Regulations 2017 are made pursuant to the Environment Act. The Department of Environment (DoE) is responsible for making an initial environmental impact assessment of activities for which an application for development consent has been submitted, at the cost of the proponent. A decision can then be made, which may involve a requirement for a full environmental impact assessment. Matters which must be considered are set out in Section 8 of the regulations. Should a full environmental impact assessment be required, this can again be undertaken by the DoE or by authorized persons, again at the cost of the proponent. Schedule 1 to the regulations lists the information needed for development consent. Schedule 2 lists activities for which development consent is always required, including a wide range of industries, public works, and village development projects.

A response to the widespread destruction caused in Niue by Cyclone Heta in 2004 has been a shift in the focus of development away from the coast to areas further inland on the second terrace. Spatial planning in Niue occurs within the constraints of the land tenure system. Land tenure is governed by the Land Ordinance 1969, which provides for land registration, land title, alienation of Niuean land (leases, occupation orders, security charges, partitions, exchanges, sale to the Crown, and reservation of land), and land surveys.

Niue's National Action Plan Addressing Land Degradation and Drought[16] provides this summary of the land tenure system:

> In essence there are two types of land tenure in Niue. Crown land, which is land, vested to the Crown through acquisition by the government. Niuean land owned by Niueans and is legally vested in the Crown but held by the traditional owners.
>
> Land tenure in Niue is held under traditional customary ownership on the basis of the usehold system. Traditionally every member of the society had ties with certain land, which he or she had acquired at birth via blood or familial connections. Land is the fundamental basis of Niuean culture and society.
>
> With extensive inheritance systems of land, over time, more and more individuals and families will have a genealogical connection to the land. Therefore, over time conflicts over the use and ownership of land will arise. Where land is disputed and goes before the court there is a tendency to base decisions on genealogy. The resolution is sometimes the distribution of a share of the land amongst many parties. The land therefore becomes fragmented and cannot support sustainable development or economic investment. The

[14] Niue's National Climate Change Policy (GoN, 2009)
[15] Joint National Action Plan for Disaster Risk Management and Climate Change (GoN, 2012
[16] Niue National Action Plan Addressing Land Degradation and Drought (Felicia Nemaia, 2004).

alienation restrictions do protect the Niuean culture from the dominance of externals. However, it also results in a system where there are no land consolidation or redistribution mechanisms – a necessary tool for economic and sustainable development. Land cannot be alienated in Niue under present land laws other than by transferring the land to the Crown, leasing the land or by security charge.

4.4 Implementation of infrastructure

Niue has established a Project Management and Coordination Unit (PMCU) to implement major projects. PMCU works with the agency responsible for the project, and any development partners involved in the project, to plan and manage implementation. PMCU has a staff complement of 12, and has been involved with over 80 projects in Niue, including the new Fale Fono (Parliament building), the Niue Waste Recycling Centre, a new Isolation Ward at Niue Foou Hospital, and the Accelerating Renewable Energy and Energy Efficiency Applications in Niue project.

The Director of PMCU is one of three officials forming a Secretariat to POST. There is some uncertainty as to PMCU's mandate in relation to the identification and development of new proposals for infrastructure investment (and where PMCU should be located within the Government's organizational structure).

The *Niue Public Expenditure and Financial Accountability Performance Assessment Report* (Government of Niue, 2021) notes that Niue has no separate procurement legislation, with reliance being placed on the provisions of broader legislation including the Public Revenues Act (1959) and the Treasury Regulations (2002).[17] Current regulations only require that capital expenditure is to be approved by the cabinet. Procurement methods are not specified. A procurement policy is in draft form, and addresses concerns identified in relation to transparency, competition and complaints mechanisms in procurement. An update of Niue's PFM Reform Plan, prepared in conjunction with 2021 Performance Assessment, includes the finalization and adoption of the draft procurement policy as one of 10 priority reforms needed in response to the assessment.

Niue's draft procurement policy identifies the following objectives:

- To ensure that procurement policies comply with statutory and legal requirements.
- To ensure that ethical, robust, transparent and fair procurement processes are carried out through the public sector.
- To ensure that procurement policies meet the overall intent and expectations of government in line with its priorities and delivery of programs and services.
- To ensure the best results are obtained from spending, including sustainable value-for-money over the lifetime of the goods and services procured.
- To wherever possible encourage the use of local and domestic suppliers.
- To wherever possible utilize a list of preferred providers developed by the government.

The draft policy defines capital expenditure as an expense that an organization makes toward the purchase of new equipment or the improvement of its long-term assets, namely property,

[17] By way of comparison, Tonga has Public Procurement Regulations linked to the Public Financial Management Act 2002, while Cook Islands has a Procurement Policy linked to the Ministry of Finance and Economic Management Act 1995/96.

plant, and equipment. It specifies that any proposals for capital expenditure must provide the following:

- description of the item;
- expected landed cost, i.e., cost, insurance if any, freight, duties and port charges;
- whether the item is additional or replacement;
- full explanations detailing the reasons why the item is necessary;
- if the item is additional equipment, has the Minister been appraised of the proposal; and
- a priority listing of all the department's capital requests.

The policy specifies that:

- All departments must maintain a fixed asset register which is updated at a minimum at least once a year.
- These records will then be maintained centrally by the Treasury department in the financial management information system.

A fixed asset register is defined in this context as a list of property, plant or equipment that belong to the government, and are controlled by individual departments. The policy notes that the main purpose of a fixed asset register is to keep track of the book value of the assets and determine depreciation to be calculated and recorded for management and taxation purposes. A secondary purpose is to allow for the easy identification of an asset by assigning each asset a unique ID.[18]

Requirements in relation to procurement are specified in the policy for varying asset values:

- Purchases under $5,000: three quotes or selective purchase.
- Purchases over $5,000 and under $10,000: at least three quotes or selective purchase.
- Purchases over $10,000 and under $50,000: should go to open tender or call for written quotes or selective purchases.
- Purchases $50,000 and over: mandatory rules apply in terms of an open tender unless an exemption to tendering is granted by the cabinet.

Procurement must be justified, and must demonstrate:

- that the benefits of the purchase justify the expenditure;
- that the purchase is in line with the government's strategic priorities, and the department's goals and objectives, and legal authority;
- that the risks associated with the purchase have been assessed;
- that alternatives have been considered;
- that the whole of life costs of the purchases have been considered;
- that the purchase is consistent with budget or planned expenditure;
- any other relevant considerations have been identified such as related legislation, regulation, policy or practice; and,
- that any health and safety issues have been addressed.

[18] As noted in section 4.1 above, significantly more is required to establish an effective asset management system.

The draft procurement policy appears to be mainly oriented toward purchases of goods, but also covers service contracts including those involved with the construction, rehabilitation or maintenance of infrastructure.

Terms of reference for a Niue Tender Board are included as Appendix C to the draft policy.

4.5 Infrastructure and pandemic response

Niue's response to the COVID-19 pandemic has included investments in critical infrastructure such as an isolation ward and a testing laboratory at Niue Foou Hospital. As Niue re-opens following an extended period of border restrictions, economic recovery has become a major focus in planning future investments in infrastructure.

The *Guideline to Preparing National Infrastructure Investment Plans* (PRIF, 2022) directs users to the International Monetary Fund's recent publication *How to Manage Public Investment during a Postcrisis Recovery* (IMF, 2021).[19] This considers how countries should manage public investments to aid recovery from the COVID-19 pandemic and similar crises. It provides guidance on making efficient use of public investment to support economic recovery, within existing legal and regulatory frameworks.

"The main advice of the note is as follows:

- *Countries should consolidate and accelerate existing project planning and decision-making procedures.*
- *The public investment plan (PIP) should be revisited, and possible changes made to the prioritization and phasing of projects, accelerating some and deferring or canceling others.*
- *Project appraisals may need to be updated and supplemented with revised criteria.*
- *The government should define clear selection criteria based on the targets for the overall recovery program.*
- *The post-crisis investment program should be reflected in transparent medium-term budget decisions. Maintenance and capital repairs can be very productive and should play important roles in post-crisis recovery.*
- *Procurement processes may need accelerating but should be undertaken with necessary safeguards to support compliance and effective oversight.*
- *Strong project management is necessary to ensure that projects are implemented according to the planned timetable and within the budget, as well as to produce the expected benefits.*
- *Portfolio monitoring is essential for assessing progress and assuring the successful implementation of the overall project portfolio in the post-crisis recovery program."*

The prioritization methodology applied in this NIIP is mindful of this advice, and caters for responses to emerging issues through the capacity to adjust weights applied in the multi-criteria analysis to criteria groups and individual criteria, where appropriate.

[19] How to Manage Public Investment during a Postcrisis Recovery (IMF, 2021)

4.6 Complementary statutory, regulatory and institutional changes

In addition to the physical investments needed in Niue set out in this NIIP, several other interventions have been identified. These include updates to laws and regulations, development of sector specific strategies, and strengthening of government processes in several areas. These are discussed below. Implementation of these updates and changes will enable Niue to deliver the projects included in the NIIP.

4.6.1 Core Functions

National data agency

The creation of a one-stop shop for all data, including all necessary infrastructure that is focused on collecting key national data and statistics is under consideration and looking at the best fit within the government structure. This would work alongside Statistics Niue and the Ministry of Finance, to provide a centralized data source ensuring standardized, accessible data are available for all institutions.

Strategy for the management of heritage buildings

Niue is responsible for the preservation and upkeep of several heritage buildings. However, there is currently no strategy nor budget for this function. There is a need to develop a government-wide strategy for the management of heritage buildings, including setting new preservation standards. Responsibility needs to be allocated to a specific government department, together with an appropriate budget such as the Taoga Niue department working with the regulator. Niue will work with the United Nations Educational, Scientific and Cultural Organization and other partners to develop this strategy.

4.6.2 Transport Sector

Aviation Act

The aviation sector is governed mainly by the Civil Aviation Act 1999, which sets the regulatory framework for civil aviation management, aircraft operation and licensing, airport operations and safety regulations. In addition, the Aviation Crimes Act 1973 (amended in 2006), Carriage by Air Act 1992, and Departure Tax Regulations 2007 pertain to specific aspects of civil aviation. These acts, as per the National Transport Strategy (NTS), were due to be reviewed, updated and presented to Parliament in 2019. These are still pending and are required to ensure that Niue's aviation sector still meets all up-to-date international regulatory requirements and standards.

Highways Act

The Highways Act, which governs road design and operation, driving standards, and vehicle roadworthiness, dates from 1966. It therefore needs to be updated to reflect modern vehicle technology and to enact improvements in driving rules. An updated Highways Act will enable the police to better enforce good driving standards and to reduce incidences of drink driving and driving under the influence of drugs. A new Act should also enshrine more modern vehicle standards and roadworthiness checks.

Maritime Legislation

The maritime sector in Niue is governed by a range of laws related to environmental protection, operation of maritime services and the registration of vessels. The most recent legislation was the Niue Merchant Shipping (Registration of Foreign Vessels) Act 2012. As part of the process of attaining International Maritime Organisation membership, there is a need to update maritime legislation to enable Niue to meet its international obligations, protect its environment and make the maritime sector more effective. A new Marine Act would give the opportunity to bring into force a process of modernization.

Road Safety Plan

It is anticipated that the resurfacing of Niue's main roads and importation of "younger" cars to the island will lead to higher speeds and therefore increase safety risks. Niue therefore must establish an effective road safety plan to prevent the number of crash and casualty/fatality incidences from rising. This was included in the NTS but has yet to be completed.

Study of Public Transport

Niue does not currently offer public transport, despite various previous attempts to do so and with the exception of an occasional tourist shuttle service along the west coast of the island. While data show that every household in Niue owns a car, not everybody is able to drive, leaving the potential for social exclusion and lack of access to economic opportunities for the young, elderly, and people with disabilities. A study was proposed by the NTS to identify which segments of the community were unable to access a car and what impact this has. A public transport network can then be designed that is tailored to the specific aims of this segment.

Review Road Design Standards

Road standards in Niue are governed by laws dating from the 1960s. A review of existing road construction standards would allow the assessment of the applicability of new methods. Modernizing road construction standards to adopt more modern, efficient methods would improve the overall efficiency and effectiveness of operations. It would also be possible to ensure that construction standards better match traffic intensity. Among other things, the review should consider different type of road seal applications in different areas.

Improved Charts and Navigational Aids

The Niue Hydrographic Risk Assessment completed in 2016 highlighted a range of inadequacies in Niue's maritime charts and navigational aids. Inshore charts are out of date and incomplete and navigational aids to assist sailors entering the Port of Alofi are lacking - as are charts for various dangerous areas in Niue's outer waters. This work is currently ongoing. A full update of inshore charts and navigational aids is required, as well as charts for Niue's outer waters (such as Beveridge Reef). Bathymetry surveys of key outer reefs also will be required to define marine-protected areas and inform Niuean and international shipping to divert from these areas. These charts must comply with International Marine Organisation requirements.

4.6.3 Health

Aged Care Policy

Niue operates a residential care facility, as part of the Niue hospital. This provides respite and residential care for those who are no longer able to live independently. While the occupancy

rate of the facility is around 30%, there is no pressure on existing facility. However, it is expected that as the population of Niue ages, demand for the facility will grow. There is a need to develop a policy on the provision of aged care, to ensure fairness, monitor and increase capacity as/when required, and ensure that adequate funding is available.

4.6.4 Energy

Update NiSERM

Niue's National Strategic Energy Roadmap (NiSERM) was developed in 2015. Since then, several changes have occurred that now required the roadmap to be reviewed and updated. In addition to successful installation of significant renewable energy generation, costs have increased dramatically due to COVID-19, fuel costs and international inflation. The update of NiSERM is important to ensure that the strategy remains deliverable and appropriate. Niue needs to prepare for new developments, such as electric vehicles and the installation of power storage infrastructure. The update should also include an assessment of cost recovery levels and potential tariff structures.

4.6.5 Environment

Strengthen EIA Processes

The Environmental Impact Assessment (EIA) process was set out in regulations in 2017. While the process is in place and training has been received, there is a need to strengthen implementation of these processes within the DoE. This includes further training, but also a review of the EIA process to ensure that all activities that should be subject to an EIA are.

SECTION 5

OPPORTUNITIES FOR FUNDING INFRASTRUCTURE

5.1 Macroeconomic indicators

Niue's economy is very small, in line with its small population, with total GDP of around $46.85 million. Per capita GDP in 2019 was relatively high compared to many Pacific countries, at around $27,000. However, the economy of Niue has been hit hard by the effects of COVID-19, with an almost complete closure of the border for almost 2 years. At the time of writing this plan, the tourist industry, which is ordinarily the largest part of Niue's economy, was just re-starting after COVID-19 restrictions. This makes any analysis of the government's financial position difficult.

In 2019–20, government revenues were $27.49 million, which represented roughly 58% of the economy. This showed a balanced budget. For the 2020–21 year, the total government budget was $31.1 million, which incorporated a financial deficit of $4.3 million. This budget was to be financed from the sources shown in Table 5-1 below.

Table 5-1: Budgeted Government Revenues 2020–21

Source	Amount $
Taxes, Duties and Fines	7,020,000
Trading Revenue	9,179,000
Donors (recurrent)[20]	7,500,000
Other Revenue	1,771,000
Interest Revenue[21]	1,100,000
Dividends Received[22]	200,000
Total	26,770,000

Source: Government of Niue: Financial Snapshot: 1 July 2020–31 January 2021.

Table 5-2 shows the high proportion of budgeted government expenditure that relates to personnel, around 46%. Subsidy payments were budgeted to take up a further 16%.

[20] Funding from New Zealand Ministry of Foreign Affairs and Trade.
[21] From Niue Trust Fund.
[22] From SOEs.

Table 5-2: Budgeted Government Expenditure 2020–21

Item	Amount $
Cost of Sales	5,754,000
Personnel	14,207,000
Subsidies & Welfare Payments	5,084,510
Depreciation and Amortisation	0
Maintenance and Materials	2,133,700
Travel and Transport	1,488,500
Other Expenses	2,414,600
Total	**31,082,310**

Source: Government of Niue: Financial Snapshot: 1 July 2020–31 January 2021.

For 2020–21, funding from development partners toward projects was expected to be around $13.6 million, of which $8.5 million (63%) was toward personnel costs.

5.2 Potential sources of funding

5.2.1 Government

The first port of call for capital funding for infrastructure projects in Niue should be the government itself. This is recognized by the setting aside of an annual capital investment budget within the overall budget. This budget is typically around $1 million per annum. While this is a substantial sum in the context of Niue, in overall terms it is largely insufficient to provide funding for major infrastructure projects.

5.2.2 Niue International Trust Fund

In 2006, the Governments of Niue, Australia, and New Zealand established the Niue International Trust Fund (NITF). The NITF was set up to provide a long-term, dependable revenue stream for Niue, encourage self-reliance, and decrease dependency on official development assistance. The NITF plays an important role in helping to manage risks associated with external shocks, but should be leveraged with prudence.

5.2.3 State-owned enterprises

There are several infrastructure state-owned enterprises (SOEs) in Niue. The most important of these are:

- Niue Telecom
- Philatelic and Numismatic Corporation
- Broadcasting Corporation of Niue
- Niue Commercial Entities
- Tourism

The ability of these organizations to invest in infrastructure depends upon several aspects, including their own profitability, the need to feed profits back to the government, and internal governance processes.

The main relevant SOE, Niue Telecom, in its latest annual report,[23] shows the financial results for the 2018–19 and 2019–20 financial years. In 2018–19 Niue Telecom made a loss before tax of $384,000. This was transformed into a profit of $351,000 in 2019–20. This would suggest only very limited scope for investment through their own funds. This performance includes a small element of investment, including some donor funded investment.

5.2.4 Development partners

Several development partners are active in Niue. The most prominent of these is New Zealand Ministry of Foreign Affairs and Trade, which provides both budget support ($7.5 million per annum) and capital investment. Australia's Department of Foreign Affairs and Trade has also been involved in several investment projects in Niue in recent years ($1.57 million per annum). Significant amounts of equipment-based support have been provided by Japan International Cooperation Agency. The People's Republic of China is also committed to providing funding for the main roads rehabilitation project (circa $31 million).

The size of these budgets varies depending upon project needs and other priorities. With the exception of New Zealand, which provides recurrent and capital funding, funding is generally given on a project basis, making it difficult to assess a typical annual budget.

New partners such as Asian Development Bank (ADB) and the Green Climate Fund are entering discussions with Niue regarding investment projects.

5.2.5 Private sector and community

Niue's private sector operates in several sectors, particularly food retail, hospitality and tourism, and agriculture. Major investments in these sectors have been relatively small in recent years, except for the new Swansons supermarket.

The ability of the private sector to invest in infrastructure is limited by factors such as a lack of investment capital, lack of an ability to borrow over an extended period, lack of capacity to manage investment projects and limited business planning expertise. While there are several opportunities identified in this NIIP, which could be suitable for private sector involvement, it is considered unlikely that these could be pursued in the short term.

5.2.6 Other potential partners

Australian Infrastructure Financing Facility for the Pacific (AIFFP)

This Australia Department of Foreign Affairs and Trade-led facility has been established to provide targeted funding to Pacific island countries toward "significant" projects. The facility includes $3 billion of loan financing together with $1 billion of grant finance. Both governments and private sector promoters can access finance from the fund. To date the facility has focused on large infrastructure projects in the power, transport and telecoms sectors.

Niue National Infrastructure Investment Facility

This proposed, multi-agency, international facility could provide additional funding toward a range of investment projects. Niue has been working with New Zealand Ministry of Foreign Affairs and Trade and others to define the funding and use of this facility.

[23] Telecom Niue. 2021. *Annual Report, For The Year Ending 30 June 2021.*

5.3 Investment strategy

While there are several potential sources available for funding projects, it is likely that in the medium term the only viable source will continue to be development partner funding. Up to now, this has all been on a grant basis and it is likely this will need to continue to be the case. There are a number of projects which could be attractive to private sector involvement, but in the current situation, it seems unlikely that the domestic private sector will be in a position to take these forward.

The total cost of the essential projects is estimated at $173 million. Full implementation of these projects over an eight-year period would require annual funding of approximately $21.5 million. While Niue has proven capable of disbursing this level of funding in the past, there will continue to be several constraints:

- Technical supervision capacity
- Availability of materials, particularly aggregate
- Project management capacity

To ensure successful delivery of projects, it will be necessary to supplement domestic capacity in these areas. This is likely to require additional, international technical assistance support. The cost of this support has not been included in the cost estimates in this NIIP.

SECTION 6

INFRASTRUCTURE REVIEW BY SECTOR

The sections below give a summary review of the status, key issues and infrastructure needs of each of the key government agencies responsible for the NIIP sectors. This information was gathered following a series of consultations and was used to develop the initial longlist of projects for prioritization.

6.1 Department of Transport (Ministry of Infrastructure)

6.1.1 Current status

The Department of Transport (DoT) is responsible for the overall management and operation of transport on Niue, relating to maritime and aviation sectors, fire services, stevedoring and heavy plant, as well as the management of the plant fleet. DoT also contributes toward Emergency Management with the Niue Police Department.

As outlined in its Corporate Plan (most recent one available is dated (2015-19), the DoT's activities support the Financial Stability, Good Governance, Economic Development and Private Sector Development pillars of the NNSP. These activities include Civil Aviation, Rescue Fire Services, Maritime, Heavy Plant and Outside Services. The Department is structured with teams for each of these activities.

Under the 2016 Asset Management Plan, key facilities for the DoT include: Sir Robert's wharf (including port machinery and vessels), Hanan International Airport, and Fire Station with trucks and appliances.

6.1.2 Key issues

The main constraints that are impacting the performance of the DoT and its activities are:

- Outdated Civil Aviation Act which is no longer up to date with international standards. The airport and its assets also need to be upgraded to align with international standards and operations – this work is underway.
- Lack of a regular maintenance schedule to ensure all machines are available for key projects.
- Lack of fire trucks available to meet aviation rules, while still ensuring Niue has available appliances for fighting building and bush fires on the rest of the island at any given time.
- Lack of storage and maintenance facilities for Heavy Plant and other equipment.
- Lack of communications coverage on eastern side of Niue which provides a serious inshore shipping risk.
- Transport sector is responsible for approximately 71% of total energy consumption on Niue, primarily from petrol sources, creating carbon emissions across the island.

6.1.3 Infrastructure needs

Consultations with the DoT, field visits and desk-based research highlighted the need for the infrastructure investments set out in Table 6-1.

Table 6-1: Department of Transport Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
New airport terminal building to house new security equipment	Airport	Pending implementation
New fire station to house more fire trucks	Airport	Pending implementation
Airport runway resurfacing	Airport	Under implementation
Refurbishment of rescue 2 fire truck	Airport	Under implementation
Refurbishment of rescue 3 fire truck	Airport	Pending implementation
Replacement of control tower cab	Airport	Pending implementation
Reorganized and improved airport parking	Airport	Pending implementation
Airport incinerator	Airport	Pending implementation
New maintenance building for heavy machinery	Major Plant	Pending implementation
Major Plant replacement	Major Plant	Pending implementation
Preparing for electric vehicles	Roads	Pending implementation
Namakulu Wharf repairs	Wharf	Pending implementation
New motorised barge and repair of work boat	Wharf	Pending implementation
Replacement of port machinery	Wharf	Pending implementation
Basin harbour wharf expansion	Wharf	Pending implementation
Replacement of wharf fenders and repair of side wall	Wharf	Pending implementation
Construction of container storage area	Wharf	Pending implementation
Provision of new mooring systems	Wharf	Pending implementation
Incinerator within wharf	Wharf	Pending implementation
Installation of UPS for airport	Airport	Pending implementation

UPS = uninterruptible power source.

Source: Department of Transport.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

A few non-physical investments were also identified as required and have been noted below. However, due to their not being physical infrastructure, they have not been considered in the prioritization exercise of this NIIP.

- Improved charts and navigational aids for Niue's waters. Charts have been completed but the update of navigational aids is still in progress.
- Creation of a road safety plan
- Update of the Highways Act
- Undertake a study of public transport feasibility
- Pass Civil Aviation Act
- Update maritime legislation

6.2 Department of Utilities (Ministry of Infrastructure)

6.2.1 Current status

The Department of Utilities (DoU) has six core services: Water Supply Extraction and Reticulation; Power Supply/Energy Generation and Reticulation; Civil and Quarry Extraction and Supply; Regulatory Unit; Corporate Services; and Human Resource Department. In

essence, DoU is responsible for the delivery of 24/7 reliable and safe water and power supply, and ensuring high-quality civil works, which includes building construction and road maintenance. It also supports the Department of the Environment in collecting and disposing of wastewater from septic tanks around the island.

The latest corporate plan for DoU was published in 2021 and covers 2021–25. This includes 10 key objectives which not only focus on the continued delivery of the core services, but also explicitly states aims to liaise with stakeholders on issues of commerce and cost recovery; increase capacity of employees; and increase capacity of rainwater catchment with household water tanks.

6.2.2 Key issues

The main constraints that are impacting the performance of DoU and its activities are the following:

- Lack of cost recovery – water supply is currently not metered and there is doubt that consumers would be able to take on the cost of water tariffs. The current tariff for energy supply is also low and needs to be increased until renewable energy supply is strengthened.
- Inconsistent power supply – the new power station at Tuila was constructed last year with funds from the Australian Government, but more parts are required to connect the station to the national grid before it can be operational. Uninterruptible Power Supply (UPS) is required to be installed at vital facilities such as the hospital and the airport.
- Behind renewable energy targets – the NiSERM set a target of Niue reaching 80% renewable energy generation by 2025. In 2020, Niue reached half of that target, generating 40% renewable energy. Much more is needed to be able to meet the NiSERM target, and $5 million of funding has been secured from the New Zealand Government to support this.
- Lack of resilience in water system – with high rainfall, coliform often gets into the freshwater system. Infrastructure is required to strengthen the resilience. An updated national Water Safety Plan is soon to be published that will support these efforts.
- No clear project planning and approval process – POST meetings are infrequent and thus the Department's project requests go straight to the cabinet. There is also concern that operators on the ground are not involved enough in project planning procedures.

6.2.3 Infrastructure needs

Consultations with DoU, field visits and desk-based research highlighted the need for the infrastructure investments summarized in Table 6-2.

Table 6-2: Department of Utilities Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Paving of evacuation routes	Roads	Pending implementation
Connecting new power station	Power	Pending implementation
Development of renewable energy sources	Power	Pending implementation
Network/Transformer upgrades	Power	Pending implementation
Replacement of quarry machinery	Quarry	Pending implementation
Resurfacing of main roads	Roads	Under implementation
Surfacing of hospital roads	Roads	Pending implementation
Strengthening water system to improve resilience across Niue	Water	Pending implementation
Rehabilitation of village water storage tanks	Water	Pending implementation
Metering of water supply	Water	Pending implementation

NIIP = Niue Infrastructure Investment Plan.

Source: Department of Utilities.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

Several non-physical investments were also identified as required and have been noted below. However, due to the fact they are not physical infrastructure, they have not been considered in the prioritization exercise of this NIIP.

- Update Niue Sustainable Energy Strategy
- Review road construction standards
- Develop a strategy for the management of heritage buildings
- National Data Agency – a one-stop shop for national data and statistics

6.3 Department of Agriculture, Forestry & Fisheries (Ministry of Natural Resources)

6.3.1 Current status

The Department of Agriculture, Forestry & Fisheries (DAFF) has several key responsibilities associated with natural resource use and management, primary industry development and food production (terrestrial and marine), pest and disease control internally, and at borders (plant and animal). Departmental activities also include security, monitoring, control and surveillance and compliance roles in relation to regulatory policies across the three primary sectors of Agriculture (which includes biosecurity and animal health), Forestry and Fisheries. In regard to infrastructure, DAFF is responsible for, and manages, the boat ramp winches at Alofi and Avatele.

The latest DAFF Corporate Plan covers 2020–25 and sets the following intent for the Department: "Economically viable and sustainable industry development in the Agriculture, Forestry & Fisheries sectors of Niue, while ensuring food and nutritional security, resource management, environmental sustainability, border and fishery control, and support to subsistence level activities and traditional practices". The key priorities for each service line in DAFF, as set out in the Corporate Plan, are as follows:

- Administration – revenue collection, human resources development planning, financial accountability enhanced, and revenue increased

- Biosecurity – border control, compliance and management. Assist and facilitate support on exports for agricultural commodities (i.e., taro, coconuts)
- Crop research – food security is enhanced, value adding of agricultural products, and fruit production and youth, promoting agriculture in schools
- Animal Health – general animal health matters with Rockvets. Pig production and gene pool enhancement
- Forestry – coconut plantation rehabilitation program; sandalwood production program; and forestry Act to be passed in Parliament
- Fisheries – Revenue and FAD deployment and maintenance program. MCS, compliance and safety-at-sea program. Offshore fisheries licensing revenue secure, fishery limits utilised, and coastal fisheries managed at community level (Niue Ocean Wide and Ridge-to-Reef projects).

6.3.2 Key issues

The DAFF Corporate Plan (2020-25) sets out the following key areas for enhancement and improvement:

- Restructuring of department into new Ministry context – greater focus within three key sectors, reduced pressure on key performers, and greater opportunity for mentoring ("Working Smarter").
- Strengthening of inter departmental linkages and collaboration with other Ministry of Natural Resources departments.
- Enhanced effectiveness across cross-cutting issues (natural resource conservation and management, food security, climate change, biodiversity, etc.)
- Revenue collection strategy and tracking system (new collection strategy and active monitoring)
- Stricter monitoring & evaluation (indicators, key performance indicators, works in progress, etc.)
- Performance agreements and appraisals (greater attention to these, refinement of templates)
- Human resource development (enhanced attention to this, succession planning, talent management, etc.)
- Enhanced effectiveness in the planning and use of crop agencies.
- Increased focus on improvement to M&E.
- Exploration of new donor partners and collaborative partnerships.

There are also no livestock farms in Niue. In order to promote primary industries and increase food security, DAFF would like to investigate the feasibility of upgrading existing farms to take on livestock.

6.3.3 Infrastructure needs

Consultations with the DAFF, field visits and desk-based research highlighted the need for the infrastructure investments set out in Table 6-3.

Table 6-3: Department of Agriculture, Forestry & Fisheries Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Import/Export processing hub (incl. biosecurity facilities)	Agriculture, Forestry & Fisheries	Pending implementation
Surveillance and monitoring facility and equipment to monitor shipping and fishing activities across Niue's Exclusive Economic Zone	Agriculture, Forestry & Fisheries	Pending implementation
Development of livestock farms	Agriculture, Forestry & Fisheries	Pending implementation
Fish aggregation devices	Agriculture, Forestry & Fisheries	Pending implementation
Avatele landing improvements, incl. repair of existing winch	Agriculture, Forestry & Fisheries	Pending implementation

NIIP = Niue Infrastructure Investment Plan.

Source: Department of Agriculture, Forestry and Fisheries.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

6.4 Department of Environment (Ministry of Natural Resources)

6.4.1 Current status

The DoE manages four key service areas – Governance, Biodiversity (terrestrial and marine); Climate Change; and Waste Management. As such, it is responsible for the management and operations of all environmental and conservation aspects of Niue. This includes undertaking all environmental impact assessments (EIAs) for projects in any sector, collection of household and private sector waste, and management of landfill sites and recycling collections.

The department is currently working with the PMCU on completing and opening the new waste management facility in the coming weeks.

6.4.2 Key issues

The main constraints that are impacting the performance of the DoE are:

- Lack of sustainable waste disposal infrastructure (solid and wastewater) – the new waste management facility is expected to be operational by September 2022, which will go a long way to addressing this issue. However, it will lack machinery to enhance recycling activities, and there is a lack of working incinerators across Niue (most notably at the hospital). Consequently, illegal burning of waste is causing issues at three landfill sites. The current process of disposing of wastewater at a land site near the airport is also unsustainable as it risks filtering through and contaminating the freshwater lens. A proper sewage treatment system is required.
- Lack of revenue sources – currently, a fee is charged for conducting EIAs, but more cost recovery efforts should be implemented. DoE is currently assessing possible levies of items coming into Niue and reviewing waste management operations.

- Sustainable tourism – there is a need to ensure that the development and recovery of Niue's tourism sector (which comes from its wealth of natural marine resources) is done so sustainably and without degradation of the environment.
- Food security – poorly maintained pig sties mean that Niue has seen a growing number of feral pigs that have been destroying crops.
- Data collection needs to be automated.

6.4.3 Infrastructure needs

Consultations with DoE, field visits, and desk-based research highlighted the need for the infrastructure investments shown in Table 6-4.

Table 6-4: Department of Environment Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Research farm for R&D	Agriculture, Forestry & Fisheries	Pending implementation
Improved pig sties to prevent escapes and solve water supply issues	Agriculture, Forestry & Fisheries	Pending implementation
New rubbish collections vehicle	Solid Waste	Pending implementation
Recycling machinery for new waste facility	Solid Waste	Pending implementation
Waste incinerator	Solid Waste	Pending implementation
Machinery for moulding facility	Solid Waste	Pending implementation
Land fill rehabilitation	Solid Waste	Pending implementation
Installation of sewage treatment system	Water	Pending implementation
New vehicle for collecting wastewater from septic tanks	Water	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Department of Environment.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

Non-physical investments were also identified as required and have been noted below. However, due to the fact they are not physical infrastructure, they have not been considered in the prioritization exercise of this NIIP.

- Strengthen EIA processes and department

6.5 Department of Education (Ministry of Social Services)

6.5.1 Current status

The Department of Education's (DoEd) purpose is to provide quality education for all Niuean young children from Early Childhood Care Education (1–3 years), Early Childhood Education (4 years), all the way up to Year 13 students (18 years). They deliver their projects across a range of services, which include Education Advisory services, Early Care Childhood Education & Early Childhood Education, Primary School and Secondary School.

According to DoEd's latest Corporate Plan for 2020–2025, the approach it takes to implement these services is "to provide and sustain a quality, relevant, inclusive and balanced education service for Niueans, which is built on a strong foundation of spiritual values and beliefs and pride in Niuean identity, culture and heritage. We seek to embrace and nurture all learners within a secure learning environment so that as active learners they are healthy, balanced

and vibrant. Our learners should emerge from the education system as both national and global citizens, with the knowledge, attitudes and skills to survive, function and prosper in a world that is constantly changing. They should possess the skills and knowledge to become learners for life and be adaptable, flexible and resilient citizens".[24] Under the Plan, DoEd has set out five priority functions and activities for the coming years:

- To continue to provide a dynamic education system for all learners.
- To continue to raise and enhance the quality of education for the improvement of achievement of all learners.
- To secure and promote the unique identity as Niue peoples.
- To increase the effectiveness of governance and management of the education system.
- Community engagement and learning.

6.5.2 Key issues

According to the Corporate Plan, the key challenges and risks that impact DoEd's ability to deliver its work are:

- budgetary constraints;
- lack of capacity at the human resources senior management level;
- lack of bilingual teachers at primary level; and
- 4-day week continues to impact the department's administration staff.

From an infrastructure perspective, the Department is also trying to address the following issues:

- Aging school buildings – water system needs urgent upgrading
- Lack of facilities – there is currently no public library (books are held in a shipping container) and a new classroom is required for special needs students
- Need to better utilize village halls

Education is free to all in Niue, and some expatriate Niueans are returning to send their children to school. While DoEd does try to sell some publications, services are getting expensive to deliver and there is a need to consider cost recovery methods.

6.5.3 Infrastructure needs

Consultations with DoEd, field visits, and desk-based research highlighted the need for the infrastructure investments summarized in Table 6-5.

[24] Department of Education Corporate Plan (2020–25)

Table 6-5: Department of Education Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Upgrading school water system	Education	Pending implementation
New classroom for special needs education	Education	Under implementation
New public library and archives centre	Education	Pending implementation
Additional building for the creche	Education	Pending implementation
Provision of a school swimming pool	Education	Pending implementation
Digitalization of education for all schools to support learning and future-proofing	Education	Pending implementation
Stadium permitting indoor sports	Major Govt. buildings	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Department of Education.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

6.6 Department of Health (Ministry of Social Services)

6.6.1 Current status

The Department of Health (DoH) is responsible for the management and operation of health services, dentistry, nursing, aged care, pharmacy, physiotherapy and public health advisory services. Foou Hospital is the only health facility in Niue; there are no other clinics or COVID-19 facilities.

All treatment is free for residents, but there is a fee structure for non-residents. Niueans living abroad that return for treatment are also charged.

6.6.2 Key issues

The main constraints that are impacting the performance of DoH and its activities are:

- Lack of AMP for medical equipment – medical equipment is the biggest expense for the DoH, and much of it has reached its expiry date. There is a lack of funding to replace this equipment and no plan regarding what to prioritize and how to maintain it. Maintenance reports for equipment are not formally generated, i.e., an engineer comes to fix equipment only as required. POST only considers projects and equipment requests go directly to the cabinet.
- Only one health facility exists in Niue (Foou Hospital); there are no clinics or COVID facilities elsewhere on the island. Accommodation facilities are being used for isolation of COVID-19 cases. The roads leading to the hospital also need to be surfaced to improve access.
- Lack of specialist equipment – there is no equipment for early detection or radiology. It is often easier to refer patients to New Zealand and there is annually $100,000 budget for this.
- Waste Management issues – there is pressure on the current waste management system at the hospital and this needs to be upgraded urgently so that waste disposal can continue safely and without impact to public health.

6.6.3 Infrastructure needs

Consultations with DoH, field visits, and desk-based research highlighted the need for the infrastructure investments shown in Table 6-6.

Table 6-6: Department of Health Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Hospital waste management system	Health	Pending implementation
Replacing hospital roof	Health	Pending implementation
Installation of Uninterruptible Power Supply (UPS) at the hospital	Health	Pending implementation
Upgrading oxygen plant to reduce the need to import oxygen supplies	Health	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Department of Health.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

Non-physical investments were also identified as required and have been noted below. However, due to the fact they are not physical infrastructure, they have not been considered in the prioritization exercise of this NIIP.

- Aged care unit policy/protocol review and updates – this is underway

6.7 Telecom Niue and Niue Broadcasting Company

6.7.1 Current status

Telecom Niue is an SOE that is the main provider of telecommunications services, broadband and mobile services in Niue. It is also the marine radio and emergency operator. Telecom is also responsible for managing the Government's communications assets and its ICT network. In recent years, Telecom's provision of broadband and mobile services has faced competition from another local provider, i.e., Kaniu, which is a private sector firm.

There is not a full Corporate Plan for Telecom available, but a brief Five-Year Plan outlined some key issues and proposals for the sector to consider in the coming years.

Niue Broadcasting Company (NBC) is the state-owned national broadcaster. As part of this remit, NBC provides radio and TV coverage including provision of international TV stations. In addition, NBC has responsibility for the provision and operation of communications towers that are shared with Telecom Niue and Niue Police and NDMO systems. NBC's studios and building were badly damaged by fire in 2020, severely restricting its ability to produce and broadcast radio and TV programs.

6.7.2 Key issues

The main constraints that are impacting the performance of Telecom Niue and Niue Broadcasting are:

- Incomplete mobile coverage – only around 65% of Niue is served by the 4G mobile network. It is important to plug this gap and ensure the whole of Niue has reliable telecoms.
- Cybersecurity risks – driven by the COVID-19 pandemic, more people are heading online which increases risks of cyber-attacks. The Five-Year Plan proposed establishing a cybersecurity task force that can address the issues faced the public and private sectors. Funding has been secured for this.
- Lack of backup to undersea cable connection – providing strong internet connections is important for the social and economic development of Niue. In addition to opening up new economic opportunities, this may encourage more families to remain in Niue or return from overseas. Providing a backup undersea cable connection would provide resilience in Niue's international telecoms communications, though recurrent costs associated with cables would need to be considered.
- The continuing difficulties created by the fire at NBC, which destroyed most equipment. This equipment needs to be replaced and buildings refurbished. At the same time, other broadcasting infrastructure such as towers and satellite communications need to be upgraded.

6.7.3 Infrastructure needs

Consultations with Telecom and Kaniu, field visits and desk-based research highlighted the need for the infrastructure investments set out in Table 6-7.

Table 6-7: Telecom Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Complete mobile coverage for the island	Telecom and IT	Pending implementation
Backup undersea cable connection	Telecom and IT	Pending implementation
Replacement of destroyed broadcasting equipment	Telecom and IT	Pending implementation
Technology Hub to serve companies wishing to test IT and other equipment	Telecom and IT	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Niue Telecom/Niue Broadcasting Corporation.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

6.8 Bulk Fuel

6.8.1 Current status

Bulk Fuel is an SOE that is responsible for the delivery, storage and sale of fuels in Niue, including liquefied petroleum gas (LPG). As such, it is also responsible for managing and maintaining fuel supply assets and facilities. The agency has three facilities at the wharf, the airport and at another site which is not currently used.

Approximately 20,000 L of fuel are needed per month for airport activities, which will increase to pre-pandemic levels of 100,000 L when a full schedule of flights returns. 71,000 L of fuel is needed monthly for power generators, and approximately 2,500 kg of LPG is imported per month.

6.8.2 Key issues

The main constraints that are impacting the performance of Bulk Fuel are:

- Aging and/or damaged infrastructure – most of Bulk Fuels' infrastructure is now quite old. There are two fuel tanks at Sir Robert's Wharf that were damaged by Cyclone Heta in 2004 and are still not operational. An LPG site was under construction, but funding was stopped before it was complete.
- High unit costs of fuel importation – as a result of the damaged fuel tanks at the wharf, Bulk Fuel has had to import fuel using tanktainers, which are moved to a storage site once imported. However, the tanks can only be three-quarters full when they are shipped due to weight restrictions at the wharf. The unit costs of fuel imports are therefore higher.
- Outdated systems – while most of Bulk Fuel's airport activities are undertaken to Shell and Air New Zealand standards, the fixed manual refuelling system is outdated and in need of an upgrade.

6.8.3 Infrastructure needs

Consultations with Bulk Fuel, field visits, and desk-based research highlighted the need for the infrastructure investments shown in Table 6-8.

Table 6-8: Bulk Fuel Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Upgrading Airport fuelling system	Airport	Pending implementation
Replacement of fuel storage tanks	Bulk Fuel	Pending implementation
Construction of LPG storage site	Bulk Fuel	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Department of Utilities.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

6.9 Niue Police (incl. NDMO)

6.9.1 Current status

The Niue police department is not a traditional police department. Besides policing responsibilities, it is also responsible for national security, aviation security, port security, quasi-military, coastguard, licensing (except businesses), and prosecution services. It also manages the National Disaster Management Office (NDMO) which is responsible for responding to natural disasters and ensuring the safety of residents in the event of a disaster.

6.9.2 Key issues

The main constraints that are impacting the performance of the Niue police are:

- Lack of formal asset management – many of the police assets are aging and in need of replacement (especially vehicles, where there is a long backlog). A formal plan is needed that sets out the priority of investments required and potential funding sources. There is often not enough funding for maintenance of equipment once received.
- Lack of capacity for emergency response – there is a need for better communications systems for Search & Rescue activities (Very High Frequency is critical for this). There is also a lack of buses and centres for evacuations inland that need to be accessible 24/7 all year round in case of disaster.
- Sub-standard prison facility – the prison needs to be upgraded to meet international standards for care of inmates. It is an open-air facility and there is no gender segregation, which often means female inmates need to be housed elsewhere for their safety and well-being.
- Training – the capacity of officers to respond to and deal with certain situations needs to be improved

6.9.3 Infrastructure needs

Consultations with the police, field visits and desk-based research highlighted the need for the infrastructure investments summarized in Table 6-9.

Table 6-9: Niue Police Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Prison facility upgrades to meet international standards	Police and NDMO	Pending implementation
NDMO vehicle replacement	Police and NDMO	Pending implementation
Construction of new evacuation centres	Police and NDMO	Pending implementation
NDMO equipment replacements	Police and NDMO	Pending implementation
Evacuation bus	Police and NDMO	Pending implementation
Improved Comms for Search & Rescue	Police and NDMO	Pending implementation
Police Vehicle Replacement	Police and NDMO	Pending implementation
New Police Equipment	Police and NDMO	Pending implementation
Tsunami warning system repairs	Police and NDMO	Pending implementation
Wireless alarm systems for Fire Systems	Police and NDMO	Pending implementation
Evacuation provision for tourists	Police and NDMO	Pending implementation
Relocation of families/villages from seaside to inland to reduce vulnerability to cyclones	Police and NDMO	Pending implementation
New Court building	Police and NDMO	Pending implementation

NIIP = National Infrastructure Investment Plan, NDMO = National Disaster Management Office.

Source: Niue Police.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

6.10 Niue Tourism

6.10.1 Current status

The Niue Tourism Office is an SOE that is responsible for the promotion and management of tourism activities in Niue, including the implementation and M&E of the Responsible Tourism Policy. The Policy sets out a series of actions (and who is responsible for each) in relation to the environment, the community, and economic sustainability that will help to ensure that Niue promotes sustainable tourism. The Tourism Office itself is mostly responsible for the activities relating to policy and planning, and marketing of the tourism sector, such as developing visitor codes of conduct, maintaining the website and liaising with tourist operators.

Separately to its tourism responsibilities, the Tourism Office is also responsible for the management and maintenance of location road signage and bush roads and sea tracks.

6.10.2 Key issues

The main constraints that are impacting the performance of Niue Tourism and its activities are:

- Lack of maintenance of sea tracks and bush roads – several sea tracks are currently closed due to outstanding repairs. They also need to be better lit to reduce the risk of road accidents. Tourists need better access to the coastal areas and farmers need improved access to their land so it is vital that bush roads are better maintained.

6.10.3 Infrastructure needs

Consultations with Niue Tourism, field visits, and desk-based research highlighted the need for the infrastructure investments shown in Table 6-10.

Table 6-10: Niue Tourism Infrastructure Requirements

Infrastructure Requirement	NIIP Sector	Status
Street lighting upgrade	Roads	Pending implementation
Repairs and upgrading of sea tracks	Sea tracks and reserves	Under implementation
Resurfacing of bush roads (incl. procurement of better maintenance machinery) so farmers have improved access to their land	Roads	Pending implementation

NIIP = National Infrastructure Investment Plan.

Source: Niue Tourism.

These proposed investments were added to the NIIP project longlist and prioritized (see Section 0).

SECTION 7

LONGLIST OF CANDIDATE PROJECTS

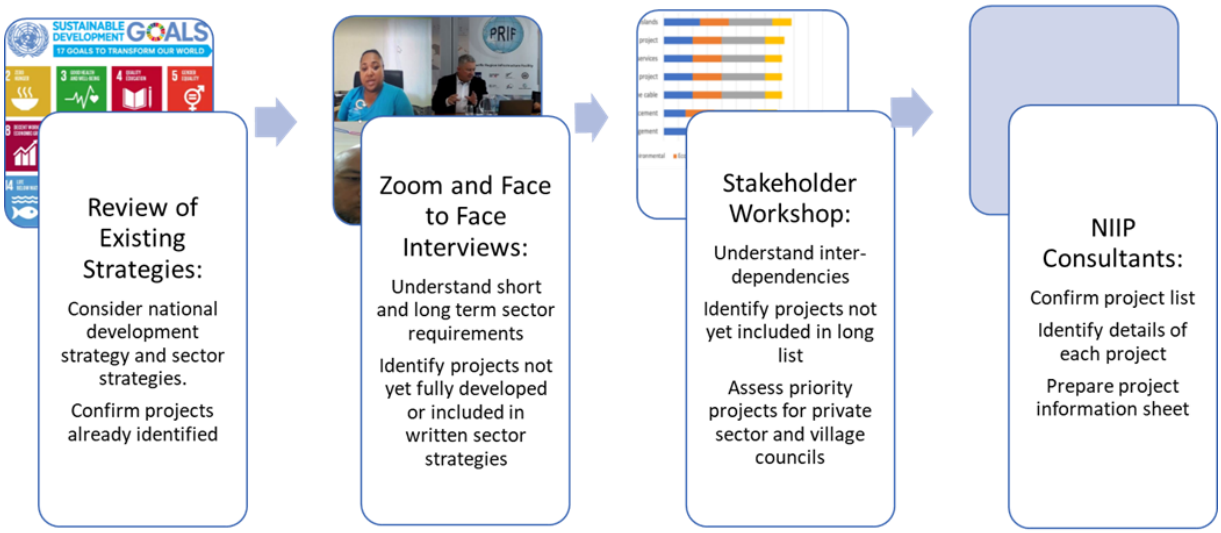
7.1 Primary sources and filling gaps

The process of developing the longlist of projects for prioritization has been guided by best practice developed through the many NIIPs that have been produced across the Pacific. In this case, the project longlist has included project ideas from several sources:

- Projects that have been the subject of specific feasibility and design studies
- Projects included in sector strategies, or national development strategies
- Projects that are yet to be studied in detail but for which the need has been identified

The process of developing the project longlist is described in Figure 7-1 below. Key stages in this process were review of existing documents, face to face discussions with stakeholders, a stakeholder workshop and collation by the consultants to develop a single list.

Figure 7-1: Development of Project Longlist



NIIP = National Infrastructure Investment Plan.

Source: Authors.

7.2 Developing a project pipeline and database

The development of a project pipeline is a crucial stage in the development of the NIIP. Following this initial list, it will be important to ensure that it remains up to date, with the status

of projects being regularly reviewed, so that completed projects are removed, and redundant or superseded projects also removed.

A key element in the process will be an improved AMS, which needs to include a description of all government-owned assets, regardless of when they were implemented. The AMS needs to track the condition of each asset in sufficient detail that it can indicate future maintenance needs and replacement schedules. The AMS also needs to provide an estimate of the economic value of each asset, based upon condition and replacement cost, in order to inform future investment decisions.

The list of proposed projects should be maintained by a central team, working alongside POST. This team should coordinate with line ministries, SOEs, and other stakeholders to ensure the list is up to date and complete. To ensure this is the case, this team should organize annual updates of the list. These should be combined with annual updates to the AMS database, with line ministries providing up to date information on the condition of all assets.

7.3 List of candidate projects

The longlist of projects is summarized in Table 7-1 below. This shows the projects, grouped by sector. In addition, an order of magnitude cost estimate is given.

Table 7-1: Summary of Project Longlist

Sector	Projects	Estimated Cost
Agriculture, Forestry and Fisheries	Vaipapahi Research Farm	$1,000,000
	Import/Export Processing Hub	$500,000
	Better Pig Sties	$300,000
	Surveillance and monitoring facility and equipment	$1,000,000
	Development of livestock farms	$2,000,000
	Fish aggregation devices	$500,000
	Avatele landing improvements	$20,000
	Biosecurity facilities at wharf	$200,000
Aviation	Airport Terminal Improvements	$5,000,000
	Upgrading Airport Fueling System	$1,500,000
	Construction of Fire Station	$3,000,000
	Airport runway resurfacing and security fencing	$32,300,000
	Refurbishment of rescue 2 fire truck	$1,100,000
	Refurbishment of rescue 3 fire truck	$1,100,000
	Replacement of control tower equipment	$200,000
	Reorganising airport parking	$1,140,000
	Airport incinerator	$200,000
	UPS for Airport	$80,000
Bulk Fuel	Replacement of Fuel Storage Tanks	$550,000[25]
	Construction of LPG Storage Site	$250,000
Education	Upgrading School Water System	$1,500,000
	New Classroom for Special Needs	$287,000
	New National Library and Archives Centre	$300,000
	Additional building for the creche	$75,000
	Provision of a school swimming pool	$1,500,000
	Digitalisation of education for all schools to support learning, future proofing	$1,000,000
Health	Hospital Waste Management System	$200,000
	Replacing hospital roof	$500,000
	Installation of UPS at the hospital	$80,000
	Upgrading Oxygen Plant	$100,000

[25] Cost for removal of damaged tanks.

Sector	Projects	Estimated Cost
Major Plant	New maintenance building for heavy machinery	$1,000,000
	Major plant replacement	$5,000,000
Police and NDMO	Prison Upgrades	$500,000
	NDMO Vehicle Replacement	$500,000
	Evacuation Centres	$2,000,000
	NDMO Equipment Replacements	$25,000
	Evacuation Bus	$200,000
	Paving of Evacuation Routes	$2,280,000
	Improved Comms for Search & Rescue	$300,000
	Police Vehicle Replacement	$100,000
	New Police Equipment	$25,000
	Tsunami warning system repairs	$1,500,000
	Wireless alarm systems for Fire Systems	$200,000
	Evacuation provision for tourists	$2,000,000
Power	Connecting New Power Station	$800,000
	Renewable Energy	$5,000,000
	Network/Transformer upgrades	$30,000,000
Quarry	Replace Quarry Equipment	$3,000,000
Roads	Electric Vehicles	$10,000,000
	Resurfacing of main roads	$39,900,000
	Surfacing of hospital roads	$1,140,000
	Resurfacing of bush roads (incl. machinery)	$3,000,000
	Street Lighting Upgrade	$750,000
Solid Waste	Rubbish collections vehicle	$100,000
	Recycling machinery	$750,000
	Waste Incinerator	$1,000,000
	Machinery for Moulding Facility	$500,000
	Land fill rehabilitation	$3,000,000
Telecom and Broadcasting	Complete Mobile Coverage for the island	$10,000,000
	Backup undersea cable connection	$20,000,000
	Replacement of destroyed broadcasting equipment	$1,000,000
	Technology Hub	$2,000,000
Water	Strengthening Water System	$12,000,000
	Village Water Storage	$1,500,000
	Sewage Treatment System	$7,500,000
	New vehicle for collection of wastewater from septic tanks	$100,000
	Metering of water supply	$500,000
Wharf	Namakulu Wharf Repairs	$200,000
	New motorised barge and repair of work boat	$2,000,000
	Replacement of Port machinery	$3,000,000
	Basin harbour wharf expansion	$57,000,000
	Replacement of wharf fenders and repair its side wall	$1,140,000
	Building a container storage area	$171,000
	Provision of new mooring systems	$228,000
	Incinerator within wharf	$34,200
Cross Government	Relocation of families/villages from seaside to inland	$200,000,000
	New Department of Justice, Lands and Survey building	$1,000,000
	Sports stadium permitting indoor sports	$7,000,000
	Repairs and upgrading of sea tracks	$500,000
	Technology Hub	$1,500,000

NDMO = National Disaster Management Office.

Source: Authors.

7.4 Approach to project costing

7.4.1 Overview

Infrastructure is built to deliver services to the community. It provides the backbone for the important government services provided, but also for the private sector ventures that employ people and create wealth for a nation. Infrastructure provides positive returns if the value to the community of the services provided over the life of the asset exceeds the lifecycle costs.

The lifecycle of an infrastructure asset commences with project identification and continues until the asset is retired or decommissioned. Stages in the lifecycle of an infrastructure asset are listed below, recognizing that there are costs associated with each of these stages:

- Project identification, planning and appraisal – this includes a prefeasibility study;
- Design and construction – this includes the capital cost of the project as well as costs associated with a feasibility study, safeguard considerations, regulatory requirements such as environmental impact assessments, and procurement, contract management and supervision costs;
- Operation and maintenance – operating costs may be offset to a greater or lesser extent by cost recovery measures, while maintenance costs include both routine and periodic costs; and
- Retirement or decommissioning of assets – can be a significant cost, while in some cases there may be a residual asset value.

The capital cost of a project (an element of the design and construction stage above) is often given prominence, though it needs to be recognized that this is but one element of the full lifecycle cost of the project.

7.4.2 Capital costs

Projects included in the longlist for the Niue NIIP are in the main at an early stage of development; they are primarily project concepts. It is appropriate to prioritize projects at this stage in order to make best use of the limited resources available for project development. Capital cost estimates associated with projects at this point in the project cycle are initial estimates only, and correspond with Class 5 in Table 7-2 below (order of magnitude estimates for purposes of concept screening, with limited project definition, and an expected range of accuracy of –50% to +100%).

Table 7-2: Summary of AACE International Cost Classifications and Expected Ranges of Accuracy

AACE Class	ANSI Classification	Typical Use	Project Definition	Expected Range of Accuracy: Low Expected Actual Cost	Expected Range of Accuracy: High Expected Actual Cost	Other Terms
Class 5	Order-of-Magnitude	Strategic Planning; Concept Screening	0% to 2%	-50% to -20%	+30% to +100%	ROM; Ballpark; Blue Sky; Ratio
Class 4		Feasibility Study	1% to 15%	-30% to -15%	+20% to +50%	Feasibility; Top-down; Screening; Pre-design
Class 3	Budgetary	Budgeting	10% to 40%	-20% to -10%	+10% to +30%	Budget; Basic Engineering Phase; Semi-detailed
Class 2	Definitive	Bidding; Project Controls; Change Management	30% to 75%	-15% to -5%	+5% to +20%	Engineering; Bid; Detailed Control; Forced Detail
Class 1		Bidding; Project Controls; Change Management	65% to 100%	-10% to -3%	+3% to +15%	Bottoms Up; Full Detail; Firm Price

NOTE: This table is based on AACE International Recommended Practice No. 18R-97: Cost Estimate Classification System (rev. 6 March 2019). AACE: Association for the Advancement of Cost Engineering. ANSI: American National Standards Institute.

Source: https://www.processengineer.com/capital-cost-estimate-classes/.

Capital cost estimates have been sourced where possible from the relevant agencies initiating the candidate projects, supplemented by input from the consulting team in cases where initiating agencies are yet to develop cost estimates.

A useful guide to the application of asset management principles to infrastructure investment planning is the *Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries* .[26] This sets out a methodology for asset condition assessments, including an approach using physical condition ratings only and an extension which also rates the functional performance of the asset. Specific guidance is provided by sector for asset condition assessments. In relation to asset replacement costs, estimates of unit prices are provided by sector. These are presented in 2019 US dollars and are based on costs in Fiji, with escalation factors provided for other countries (allowance for inflation since 2019 is also needed to apply these unit prices to the current day). Unit prices calculated in this way provide an important resource in estimating project costs.

Table 7-3 provides an example of how the unit prices derived from this source could be applied to project costing in Niue. The example is for purposes of illustration only and selects costs related to public buildings and energy sector assets from the broader range of assets

[26] Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries (PRIF, 2020)

considered in the above publication, noting that projects in Niue may require different specifications. This approach could be trialed as projects are further developed.

Table 7-3: Example of Application of Unit Prices to Costing Projects

Niue NIIP	Niue escalation factor		1.3			
Approach to costing	NZD/USD			1.59		
Estimates of unit costs for Niue	Inflation factor				1.2	
PRIF (2020) Methodology for Condition Assessment of Public Infrastructure Assets in Pacific Island Countries						
Sector / type of infrastructure	**Units**	**Fiji costs 2019 USD**	**Niue escalation factor**	**Conversion to NZD**	**Inflation since 2019 (approx.)***	**Current prices in Niue (NZD)**
Buildings - Standard design						
substructure	m^2	250	1.3	1.59	1.2	620
structure	m^2	500	1.3	1.59	1.2	1,240
roofing	m^2	120	1.3	1.59	1.2	298
exterior wall cladding	m^2	80	1.3	1.59	1.2	198
fitouts	m^2	300	1.3	1.59	1.2	744
floor covering	m^2	50	1.3	1.59	1.2	124
service mechanical	m^2	25	1.3	1.59	1.2	62
services electircal	m^2	100	1.3	1.59	1.2	248
services sanitation	m^2	25	1.3	1.59	1.2	62
services water	m^2	25	1.3	1.59	1.2	62
Total replacement cost	m^2	1,475	1.3	1.59	1.2	3,659
Electricity						
11kV, 3ph, 1 circuit overhead line (120 mm2 AAC)	km	60,000	1.3	1.59	1.2	148,824
11kV, 3ph, 1 circuit overhead line (120 mm2 AAC with ABC LV underbuilt)	km	85,000	1.3	1.59	1.2	210,834
11kV, XLPE, 3ph, (120 mm2 Copper) direct buried	km	150,000	1.3	1.59	1.2	372,060
100 kVA pole mounted transformer (3 phase)	each	2,000	1.3	1.59	1.2	4,961
300 kVA pad mounted transformer (3 phase)	each	4,000	1.3	1.59	1.2	9,922
1 MW high speed diesel generator	each	160,000	1.3	1.59	1.2	396,864
100 kW PV solar power	each	200,000	1.3	1.59	1.2	496,080
* including allowance for pandemic related disruptions to supply chain and product availability, not necessarily picked up in current inflation data.						

Source: Methodology for Condition Assessment of Public Sector Infrastructure Assets in Pacific Island Countries (PRIF, 2020), and consultant's estimates.

7.4.3 Maintenance costs

The *Palau National Infrastructure Investment Plan 2021–2030* includes a useful infrastructure asset maintenance guide as Appendix 6. The guide identifies specific maintenance requirements by sector, and notes that all infrastructure assets will require the following maintenance activities:

- Scheduled inspections and minor maintenance – Scheduled inspections and minor maintenance at regularly scheduled intervals are required to perform minor repairs and/or replacement of degraded parts identified through inspections, to avoid more serious damage and asset impairment. The scope and frequency of minor maintenance vary depending on the asset. The minor maintenance activities are covered through O&M budgets.
- Reactive maintenance – involves repairing or replacing asset components, when they have failed in service, in order to maintain asset functionality, meet the required service levels and also to prevent further asset impairment. The reactive maintenance is generally covered through O&M budgets but may occasionally involve capital expenditure, depending on the scope of required repairs.

- Planned condition assessment – Planned condition assessment is carried out by subject matter experts and is performed less frequently than the scheduled inspections. It involves comprehensive assessment of all assets and their components to determine physical condition and to reveal the need for major repairs or refurbishment or replacement of components and their timing (e.g., determining the need for roof replacement of a building).
- Planned Major Repairs and Refurbishment – These maintenance activities are performed in response to the repair/refurbishment needs identified through planned condition assessment and these are generally covered through capital budgets. When repair or refurbishment of an asset is not considered economically efficient, the asset is retired from service and replaced.

The guide also provides indicative estimates of the annual maintenance costs for various types of assets, expressed as a percentage of asset replacement cost. The indicated costs in Table 7-4 are for routine maintenance, inspections and minor emergency repairs and do not cover the cost of major component renewal.

Table 7-4: Indicative Maintenance Cost by Asset Class

Asset class	Average annual maintenance cost as a percentage of replacement cost
Residential building	1.0%
Office / institutional building	1.0%
Sealed roads – surface maintenance	1.5%
Runway – surface maintenance	1.5%
Motor vehicle light duty	3.0%
Motor vehicle heavy duty and machinery	3.0%
Motor boats	5.0%
Diesel generator	4.0%
Solar	2.0%
Electricity distribution assets	2.0%
Telecom assets	2.0%
Coastal protection assets	2.0%
Miscellaneous assets	2.0%

Source: Palau National Infrastructure Investment Plan 2021–2030 (PRIF, 2021), Appendix 6

The guide notes that the scope of maintenance activities varies significantly for different asset types, to achieve the desired objectives of:

- preventing premature asset impairment;
- reducing the risk of in-service asset failures; and
- providing economically efficient asset operations, throughout the life cycle of the asset.

The optimal level of maintenance required by an asset depends on several factors. Those assets that employ many moving parts for their operation experience a higher degree of wear and tear, and therefore require more frequent and more extensive maintenance. Similarly, those assets that are routinely exposed to a corrosive environment experience accelerated degradation of metal surfaces due to oxidation, and therefore require more extensive maintenance. The maintenance effort required for an asset also increases with the service age of the asset.

7.5 Project Information Sheets

Project Information Sheets have been developed for the priority projects listed in Figure and Table 8-5 in the following section of this document. All Information Sheets are provided in Appendix A to this NIIP.

SECTION 8

PRIORITIZATION OF CANDIDATE PROJECTS

8.1 Methodology

An important aspect of the NIIP is the adoption of a robust project prioritization framework. To ensure that the prioritization framework reflects national priorities, this has been developed by utilizing the high-level objectives of the NNSP to identify the key drivers for infrastructure provision. The framework has been designed to allow prioritization of all projects, regardless of sector, using a single set of criteria.

The prioritization utilizes a multi-criteria analysis framework to provide this function. An MCA provides a systematic approach for supporting complex decisions according to pre-determined criteria and objectives. MCA is particularly suitable for complex decision problems that involve multiple and conflicting objectives and criteria. It allows for identifying a single preferred alternative, or to rank or short-list possible alternatives. MCA provides a framework to explore trade-offs between different options.

It is clear from previous NIIPs developed for other Pacific Island countries that linking the criteria used for project prioritization to agreed-upon national development objectives is essential in achieving general agreement on the criteria to be used in the NIIP. The key national policy and strategy document for Niue is the NNSP 2017–26. As described in Section 0, the NNSP sets out a series of strategic objectives (pillars) for Niue as a whole. These are summarized in Figure 8-1. The correlation between the NNSP pillars and the criteria adopted for this NIIP is shown in NNSP = Niue National Strategic Plan.

Source: NNSP.

Table 8-1 below.

Figure 8-1: Niue National Strategic Plan Development Pillars

NNSP = Niue National Strategic Plan.

Source: NNSP.

Table 8-1: NNSP Pillars and NIIP Criteria

NNSP Pillar	NIIP Criteria
Finance and Economic Development	1a. Impact on economic growth and development 1b. Overall financial position of the sector 4b. Optimal use of existing infrastructure
Good Governance	2c. Impact on good governance
Sustainable, resilient and climate proof infrastructure	3a. Contribution to climate change adaptation 3b. Resilience and recovery of Niue from disasters 4a. Linkages to other infrastructure 4c. Urgency of the project
Healthy lifestyles in an educated and safe community	2a. Impact on coverage of social services
Sustainable use and management of natural resources	3a. Contribution to climate change adaptation 3c. Impact on the environment
Promote and strengthen cultural heritage, values and identity	2b. Impact on village development
Prosperous and skilled nation with an entrepreneurial private sector	1c. Efficiency gains or reductions in costs for users

NIIP = National Infrastructure Investment Plan, NNSP = Niue National Strategic Plan.

Source: Authors.

It is important when defining the criteria for prioritization to ensure they can properly reflect the different types of project to be assessed. This is particularly important where a wide range of projects, with different objectives, are to be compared. The challenge here is to ensure that there is sufficient differentiation between the projects of different types.

At the same time, it is important that the framework can be implemented, including a limited number of criteria. Typically, this requires between 10 and 12 criteria. Given the wide-ranging nature of the projects, for this NIIP, 12 criteria have been selected. This number is considered sufficient to avoid issues of not being able to differentiate between projects, while not being overly cumbersome. This also reduces issues related to the subjectivity of the assessment. As the criteria are mainly qualitative, it is likely that individuals from different sectors or different disciplines will have different perspectives and therefore give different scores. The criteria selected here should minimize the effect of this.

Using an MCA framework allows applying different weights to individual criteria, or a group of criteria. However, determining appropriate weights to be applied can be a long and involved process, involving considerable work with stakeholders to explore different trade-offs. It has not been possible to undertake this process during the development of this NIIP. The decision was therefore taken to apply equal weighting to all criteria. To test the possible impact of applying alternative weights, a series of sensitivity tests were completed, as discussed in Section 0.

8.2 Prioritization criteria

Table 8-2 below sets out the core criteria that have been used to prioritize the longlist of projects to identify the NIIP investment strategy. These criteria have been guided by the policy objectives laid out in other government documents, particularly the NNSP and AMP. Each project on the longlist has been assessed against these criteria. By applying a score to each criterion, a total score for each project has been developed. These total scores have then been used to rank projects.

Table 8-2: Prioritization Criteria

Objective and Criteria	Scores		Description / Threshold
1. ECONOMIC IMPACT			
a. Impact on economic growth and employment *Will the project facilitate the expansion of industries (e.g., fisheries, agriculture and tourism)?*	0	None	No impact on economic growth (GVA) and employment.
	1	Low	Project makes an indirect contribution to economic growth (GVA) and employment.
	2	Moderate	Project facilitates economic growth (GVA) and employment as an explicit objective.
	3	High	Project has a strong focus on economic growth (GVA) and employment, as its main objective.

Objective and Criteria	Scores			Description / Threshold
b. Overall financial position of the sector *Will the project improve the financial position of the sector either by reducing overall operating costs or creating new income streams for GoN?*		0	Poor	Significant worsening of the financial position in comparison to project size, through an increase in O&M costs.
		1	Fair	Small worsening of the financial position in comparison to project size, through an increase in O&M costs.
		2	Good	Slight improvement of the financial position in comparison to project size, through a reduction in O&M costs in increased income streams.
		3	Excellent	Significant improvement of the financial position in comparison to project size, through reductions in O&M costs or increased income streams.
c. Efficiency gains or reduction in costs for infrastructure users *Will the project improve service delivery efficiency and/or reduce the service costs to infrastructure users?*		0	Negative	Project reduces service delivery performance in one or more sectors and/or increases costs to infrastructure users
		1	Low	Little to no impact on service delivery performance and/or costs to infrastructure users.
		2	Moderate	Moderate increase in service delivery performance and/or reduction in costs to infrastructure users.
		3	High	Major increase in service delivery performance in more than one sector and/or significant reduction in costs to infrastructure users
2. SOCIAL IMPACT				
a. Impact on quality or coverage of social services *Will the project facilitate improvements in the reliable delivery of education, health, or community services?*		0	None	No impact on education, health or community services.
		1	Low	Project makes an indirect contribution to the reliable delivery of education, health, or community services.
		2	Moderate	Project facilitates the reliable delivery of education, health or community services as an explicit objective.
		3	High	Project delivers major improvements to the quality or coverage of education, health, or community services, as its main objective.
b. Impact on village development *Will the project provide a stimulus to village development through improvements in infrastructure services in these areas?*		0	None	No impact on village development.
		1	Low	Project makes an indirect contribution to village development.
		2	Moderate	Project facilitates village development as an explicit objective.

Objective and Criteria	Scores		Description / Threshold
	3	High	Project delivers major improvements in village development through improvements in infrastructure services in these areas, as its main objective.
c. Impact on good governance *Will the project contribute to better governance through improvements in public administration or law and order? Will the project help Niue to meet its obligations under international conventions?*	0	None	No impact on good governance, either in public administration or law and order.
	1	Low	Project makes an indirect contribution to good governance.
	2	Moderate	Project facilitates good governance as an explicit objective.
	3	High	Project delivers major improvements in good governance through improvements in public administration or law and order, as its main objective.
3. ENVIRONMENTAL IMPACT			
a. Contribution to climate change adaptation *Does the project have specific objectives or components related to climate change adaptation for the benefit of the broader community? Will the project make economic and social activities in Niue more sustainable?*	0	None	Does not include any contribution to climate change adaptation for the broader community.
	1	Low	Some contribution to climate change adaptation for the broader community, but not a key focus of the project and not included in project objectives.
	2	Moderate	Climate change adaptation for the broader community included among a range of project objectives.
	3	High	Climate change adaptation for the broader community are specific and major objectives of the project.
b. Resilience and recovery of Niue to natural disasters *Does the project improve the resilience of Niue as a whole? Will the project help to protect Niueans in event of natural disaster and/or support the recovery of the island in the aftermath of disaster?*	0	Little	No impact on the overall resilience of the country or specific infrastructure.
	1	Some	Small improvement in the resilience of specific infrastructure or services. No improvement in the resilience of the country as a whole.
	2	Moderate	Significant improvement in the resilience of specific infrastructure, or a small improvement in the resilience of the country as a whole. Infrastructure will be helpful in both protecting Niue in the event of disaster or rebuilding in the aftermath
	3	High	Significant improvement in the resilience of the country as a whole. Infrastructure will be vital in both protecting Niue in the event of disaster and/or rebuilding in the aftermath

Objective and Criteria	Scores			Description / Threshold
c. Impact on the environment *Will the project have positive, neutral, or negative impacts on the environment, e.g., land, coastal and marine environments, water resources? Does the project contribute to other environmental projects such as Niue Ocean Wide or Ridge-to-Reef?*		0	Highly Negative	Major negative impact on the environment. Examples of major risks to land, coastal, marine environments or water resources.
		1	Some Negative	Some negative impact on the environment, with some examples provided.
		2	Some Positive	Some positive impact on the environment, with some examples provided.
		3	Highly Positive	Major positive impact on the environment. Examples of major benefits for land, coastal and marine environments, or water resources.
4. EFFICIENCY				
a. Linkages with other infrastructure *How connected is the proposed project with existing infrastructure? Will the project enable other projects? Will non-delivery of the project prevent delivery of other services?*		0	None	The project is stand-alone and has no significant linkages with other infrastructure.
		1	Low	The project has some linkages with other infrastructure, but these are not relied upon in day-to-day operations.
		2	Medium	The project has linkages with other infrastructure which are significant in day-to-day operations of a particular service.
		3	High	The project forms a vital part of a network and/or has synergies with other infrastructure that are of major importance to the whole island.
b. Optimal use of existing infrastructure *Does the project focus mainly on the rehabilitation, replacement (at same capacity), or upgrading capacity of existing infrastructure, or on entirely new infrastructure to address unmet demand? Does the project take advantage of spare infrastructure or service capacity elsewhere?*		0	Negative	The project involves entirely new infrastructure.
		1	Neutral	The project involves replacing existing infrastructure with upgraded capacity.
		2	Positive	The project involves replacing existing infrastructure like for like.
		3	Highly positive	The project involves rehabilitating existing infrastructure to maintain the same capacity. A project that makes use of spare capacity elsewhere.

Objective and Criteria	Scores		Description / Threshold
c. Urgency of the project *What will be the consequences in terms of capacity or coverage of infrastructure services if the project doesn't proceed?*	0	Negligible	Minimal adverse consequences for the delivery of essential infrastructure services if the project is delayed. Project is not urgent.
	1	Minor	Minor adverse consequences if the project is delayed.
	2	Moderate	Moderate level of adverse consequences if the project is delayed.
	3	Serious	Serious adverse consequences for the delivery of essential infrastructure services if the project is delayed. Project is urgent.

Source: Draws on the Guideline to Preparing NIIPs (PRIF, 2022), adapted for Niue NNSP.

Note: In assessing impacts of candidate infrastructure projects, avoiding a deterioration in the services provided by infrastructure is valued in a similar way to expanding services

8.3 Results

The team of consultants provided by PRIF completed the prioritization of longlist projects, based upon the framework set out above. This resulted in the ranking shown in Table 8-3 below. The scores allocated to each project, against each criterion are shown in Appendix B of this report. The criteria used and the resulting scores have been reviewed and approved by the NIIP Task Force, made up of senior government officials, as part of the development of this NIIP.

The project ranking developed for this NIIP is a clear indication of infrastructure investment priorities for Niue. However, it should be noted that the precise ranking of each project should be treated with some care. The subjective nature of the prioritization process means that the detailed results could always be challenged. Therefore, projects should be grouped, reflecting their priority, but not necessarily attaching importance to the specific score attained.

In determining the sequence for projects to be implemented, it will be important to assess the interlinkages and dependencies between projects, to ensure that where projects rely upon each other, utilize similar resources, or where one is needed to enable another, projects are implemented in the correct order.

To assist the programming and budgeting process, four categories are considered appropriate for this NIIP:

- Essential projects – projects that have implications for many aspects of life in Niue
- High-priority projects – projects which would affect core activities across Niue
- Medium-priority projects – projects that are important for at least one sector in Niue
- Low-priority projects – projects with benefits for only one area of operations in Niue

Table 8-3: Project Ranking

Rank	Percent	Name of Project	Sector	Category
1	89%	Strengthening Water System	Water	Essential
2	86%	Connecting New Power Station	Power	Essential
3	81%	Renewable Energy	Power	Essential
4	75%	Sewage Treatment System	Environment	Essential
5	72%	Resurfacing of main roads	Roads	Essential
6	69%	Replace quarry machinery	Quarry	Essential
7	67%	Airport runway resurfacing and security fencing	Transport	Essential
7	67%	Surfacing of hospital roads	Roads	Essential
9	64%	Replacement of Fuel Storage Tanks	Bulk Fuel	Essential
9	64%	Hospital Waste Management System	Health	Essential
9	64%	New maintenance building for heavy machinery	Utilities	Essential
9	64%	Village Water Storage	Water	Essential
13	61%	Upgrading School Water System	Education	Essential
13	61%	Major plant replacement	Utilities	Essential
13	61%	Replacement of Port machinery	Maritime	Essential
13	61%	Basin harbour wharf expansion	Maritime	Essential
13	61%	Recycling machinery	Environment	Essential
13	61%	Waste Incinerator	Environment	Essential
		Niue High Commission residence upgrade	OSG	High Priority
19	58%	Construction of LPG Storage Site	Bulk Fuel	High Priority
19	58%	New motorised barge and repair of work boat	Maritime	High Priority
19	58%	Resurfacing of bush roads (incl. machinery)	Roads	High Priority
19	58%	Island Mobile Coverage	Telecom	High Priority
23	56%	Paving of Evacuation Routes	Roads	High Priority
23	56%	Metering of water supply	Water	High Priority
25	53%	Airport Terminal	Aviation	High Priority
25	53%	Construction of Fire Station	Aviation	High Priority
25	53%	Replacement of control tower equipment	Aviation	High Priority
25	53%	Replacing hospital roof	Health	High Priority
25	53%	Broadcasting Equipment	Broadcasting	High Priority
30	50%	Refurbishment of rescue 2 fire truck	Aviation	High Priority
30	50%	Police Vehicle Replacement	Police	High Priority
30	50%	Land fill rehabilitation	Environment	High Priority
30	50%	Sea tracks repairs	Tourism	High Priority
30	50%	Technology Hub	Government	High Priority
35	47%	Refurbishment of rescue 3 fire truck	Aviation	High Priority
35	47%	Installation of UPS at the hospital	Health	High Priority
35	47%	Evacuation Centres	NDMO	High Priority
35	47%	Network/Transformer upgrades	Power	High Priority
35	47%	Namakulu Wharf Repairs	Maritime	High Priority
35	47%	Replacement of wharf fenders and repair its side wall	Maritime	High Priority
35	47%	Provision of new mooring systems	Maritime	High Priority
35	47%	New Police Equipment	Police	High Priority
35	47%	Rubbish collections vehicle	Environment	High Priority
44	44%	Upgrading Oxygen Plant	Health	Medium Priority
44	44%	NDMO Vehicle Replacement	NDMO	Medium Priority
44	44%	NDMO Equipment Replacements	NDMO	Medium Priority
44	44%	Improved Comms for Search & Rescue	NDMO	Medium Priority

44	44%	Research Farm	Agriculture	Medium Priority
44	44%	New vehicle for collection of waste water from septic tanks	Environment	Medium Priority
44	44%	Avatele landing improvements	Maritime	Medium Priority
44	44%	UPS for airport	Aviation	Medium Priority
52	42%	Prison Upgrades	Police	Medium Priority
52	42%	Building a container storage area	Maritime	Medium Priority
52	42%	Tsunami warning system repairs	NDMO	Medium Priority
52	42%	Import/Export Processing Hub	Agriculture	Medium Priority
56	39%	Digitalisation of education for all schools to support learning, future proofing	Education	Medium Priority
56	39%	New Department of Justice, Lands and Survey building	Government	Medium Priority
58	36%	Development of livestock farms	Agriculture	Low Priority
58	36%	Fish aggregation devices	Tourism	Low Priority
58	36%	Surveillance and monitoring facility and equipment	Agriculture	Low Priority
58	36%	Biosecurity facilities at wharf	Environment	Low Priority
58	36%	Street Lighting Upgrade	Tourism	Low Priority
63	33%	New National Library and Archives Centre	Government	Low Priority
63	33%	Electric Vehicles	Power/Transport	Low Priority
63	33%	Incinerator within wharf	Maritime	Low Priority
63	33%	Better Pig Sties	Agriculture	Low Priority
63	33%	Second undersea cable	Telecoms	Low Priority
68	31%	Evacuation Bus	NDMO	Low Priority
68	31%	Relocation of families/villages from seaside to inner land	Government	Low Priority
70	28%	Upgrading Airport Fueling System	Aviation	Low Priority
70	28%	Airport incinerator	Aviation	Low Priority
72	25%	New Classroom for Special Needs	Education	Low Priority
72	25%	Machinery for Moulding Facility	Environment	Low Priority
74	22%	Additional building for the creche	Education	Low Priority
74	22%	Evacuation provision for tourists	NDMO	Low Priority
76	19%	Wireless alarm systems for Fire Systems	Government	Low Priority
77	14%	Sports stadium permitting indoor sports	Government	Low Priority
78	8%	Reorganising airport parking	Aviation	Low Priority
78	8%	Provision of a school swimming pool	Education	Low Priority

OSOG = Office of the Secretary of Government, LPG = liquefied petroleum gas, NDMO = National Disaster Management Office, UPS = uninterruptible power supply

Note: * = project funding either secured or part-secured.

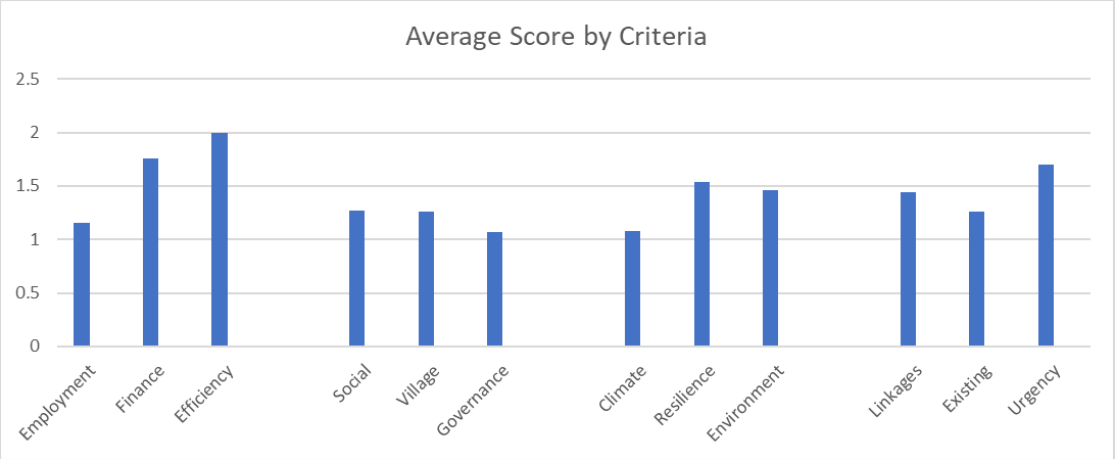
Source: Authors.

8.4 Analysis of results

A key aspect of the multi-criteria analysis framework is its ability to reflect the different types of project. This can be seen in two ways: the average score for each criterion, and the overall scores achieved. Figure 8-2 below shows the average score for each criterion. This shows two things:

- the criteria provide a good range of scores; and
- the projects included on the longlist represent a good range of projects, which target all aspects of life in Niue.

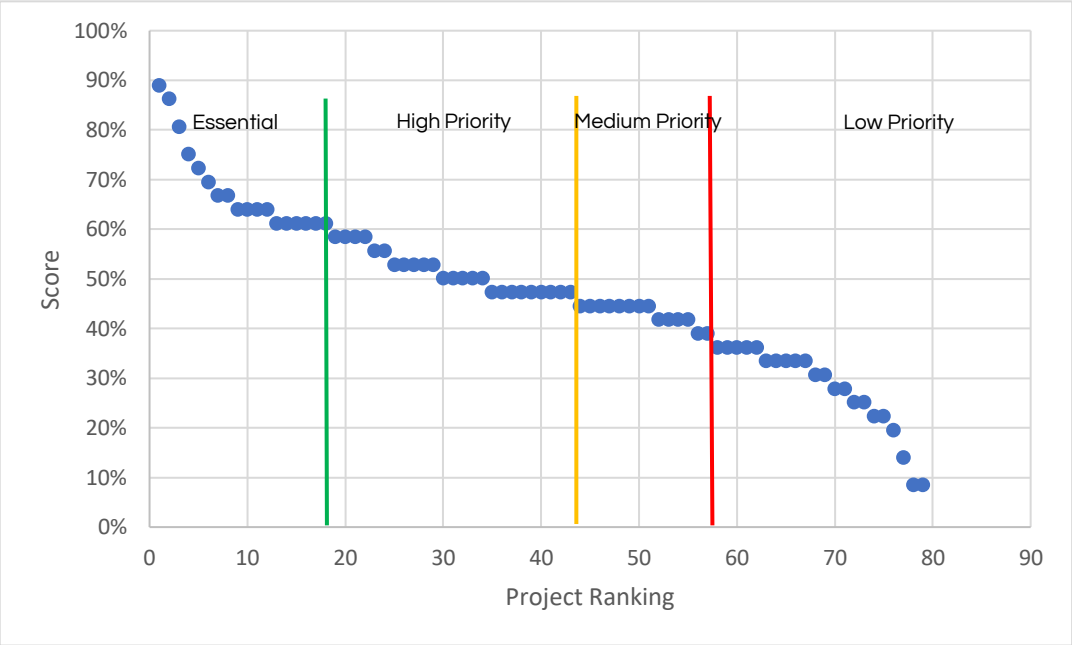
Figure 8-2: Average Score by Criteria



Source: Authors.

Figure 8-3 below shows the spread of scores resulting from the prioritization framework and scoring process. As can be seen, the framework results in a wide range of scores with a good spread. Achieving this is important to prove the effectiveness of the process.

Figure 8-3: Spread of Prioritization Scores



Source: Authors.

The project ranking above is based upon the application of equal weights for the four criteria. To test the robustness of these results, the prioritization has been repeated using alternative weights. These results show how priorities may differ if the government chose to focus on one area of the criteria more than others. The weights used in each sensitivity test are shown in Table 8-4 below.

Table 8-4: Sensitivity Test Weights

Test	Economy	Social	Resilience	Efficiency
Base	25%	25%	25%	25%
Emphasize economic criteria	40%	20%	20%	20%
Emphasize social criteria	20%	40%	20%	20%
Emphasize resilience criteria	20%	20%	40%	20%
Emphasize efficiency criteria	20%	20%	20%	40%

Source: Authors.

Figure 8-4 and Note: Top 15 projects plus ties.

Source: Authors.

Figure 8-5 below show the positions of projects in the "essential" category when alternative weightings are applied. This shows that, typically, the weights applied had only a limited impact on the positions of projects. As can be seen in Note: Top 15 projects plus ties.

Source: Authors.

Figure 8-5, as a result of applying alternative weights in each scenario, the following number of projects fall out of the "essential" category:

- Economy - 4
- Social - 5
- Resilience - 1
- Efficiency - 1

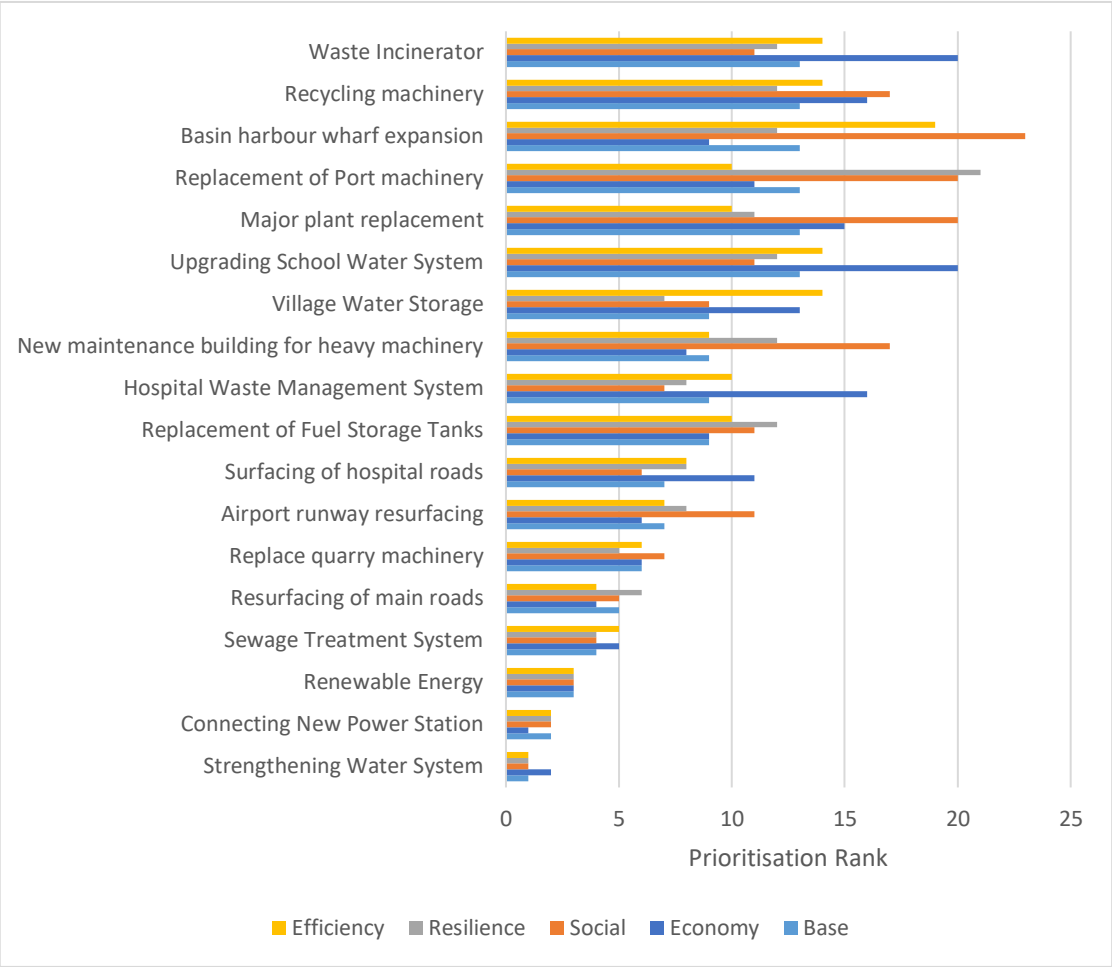
Figure 8-4: Summary of Prioritization of Essential Projects

Base	Project	Economy	Social	Resilience	Efficiency
1	Strengthening Water System	2	1	1	1
2	Connecting New Power Station	1	2	2	2
3	Renewable Energy	3	3	3	3
4	Sewage Treatment System	5	4	4	5
5	Resurfacing of main roads	4	5	6	4
6	Replace quarry machinery	6	7	5	6
7	Airport runway resurfacing	6	11	8	7
7	Surfacing of hospital roads	11	6	8	8
9	Replacement of Fuel Storage Tanks	9	11	12	10
9	Hospital Waste Management System	16	7	8	10
9	New maintenance building for heavy machinery	8	17	12	9
9	Village Water Storage	13	9	7	14
13	Upgrading School Water System	20	11	12	14
13	Major plant replacement	15	20	11	10
13	Replacement of Port machinery	11	20	21	10
13	Basin harbour wharf expansion	9	23	12	19
13	Recycling machinery	16	17	12	14
13	Waste Incinerator	20	11	12	14

Note: Top 15 projects plus ties.

Source: Authors.

Figure 8-5: Comparison of Prioritization Results by Sensitivity



Source: Authors.

These projects are replaced in the essential category as shown in Table 8-5.

Table 8-5: Projects Promoted to Essential Category in Sensitivity Tests[27]

Sensitivity Test	Projects Promoted
Emphasize economic criteria	New motorised barge and repair of work boat
Emphasize social criteria	Island Mobile Coverage Construction of LPG Storage Site
Emphasize resilience criteria	None
Emphasize efficiency criteria	None

LPG = liquefied petroleum gas.

Source: Authors.

The projects identified as being essential generally cover the whole island, or are core services, which might be in one place, but serve the whole island. The projects identified

[27] In some sensitivity tests the scoring means there are fewer projects in the essential category

include new infrastructure, upgrades to existing infrastructure, replacement of equipment and major repairs, as shown in Table 8-6.

Table 8-6: Categorization of Essential Projects

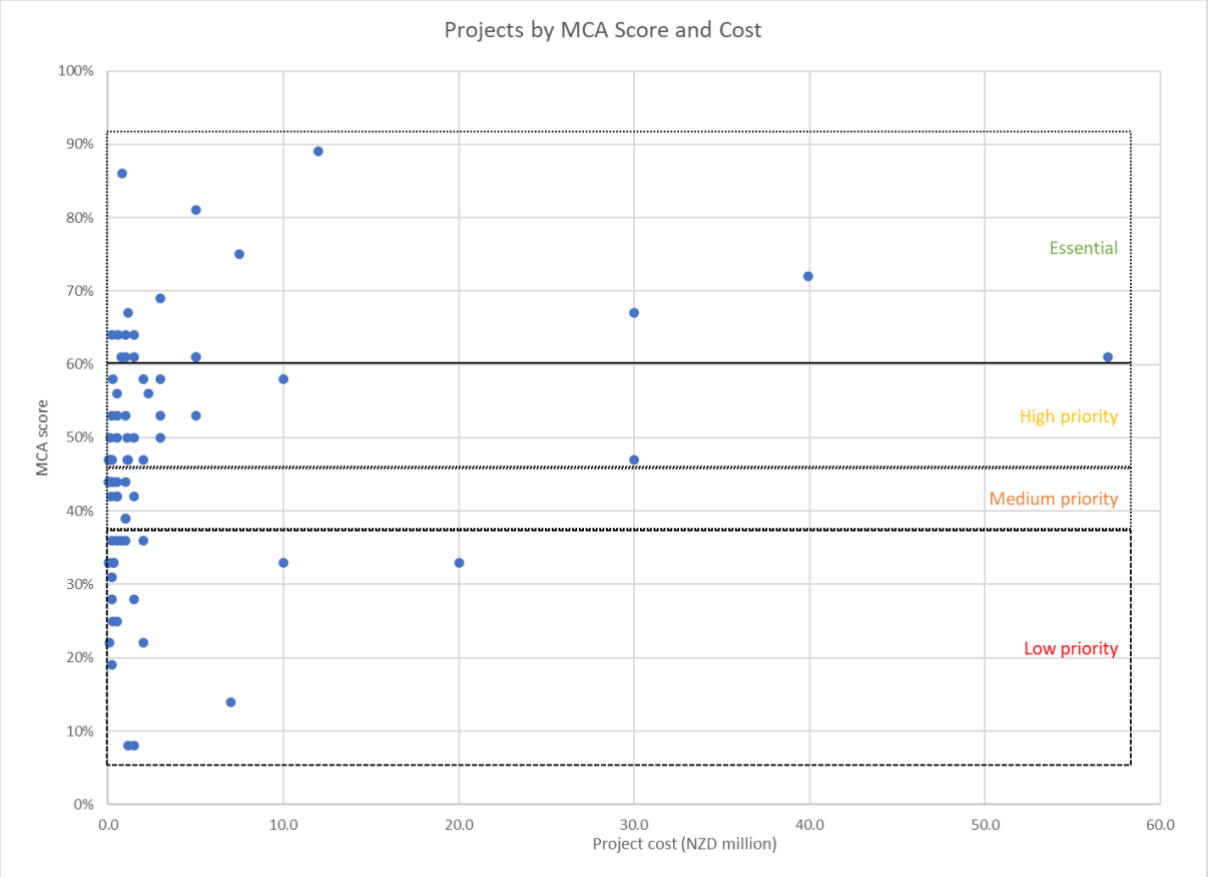
Project	Location	Sector	Type
Strengthening Water System	Island wide	Water	Upgrade
Connecting New Power Station	Fagalilika	Energy	New infrastructure
Renewable Energy	Island wide	Energy	New infrastructure
Sewage Treatment System	To be confirmed	Environment	New infrastructure
Resurfacing of main roads	Island wide	Roads	Repairs
Replace quarry machinery	Alofi South	Quarry	Equipment replacement
Airport runway resurfacing and security fencing	Hanan International Airport	Aviation	Upgrade
Surfacing of hospital roads	Fagalilika	Roads	Upgrade
Replacement of Fuel Storage Tanks	Alofi	Bulk Fuel	Equipment replacement
Hospital Waste Management System	Niue Foou Hospital	Health	Upgrade
New maintenance building for heavy machinery	To be confirmed	Major Plant	New infrastructure
Village Water Storage	Island wide	Water	Repairs/Upgrade
Upgrading School Water System	Niue High School	Education	Upgrade
Major plant replacement	Island wide	Major Plant	Equipment replacement
Replacement of Port machinery	Alofi	Wharf	Equipment replacement
Basin harbour wharf expansion	Alofi	Wharf	New infrastructure
Recycling machinery	To be confirmed	Environment	New equipment
Waste Incinerator	To be confirmed	Environment	New equipment

Source: Authors.

The total capital cost for the essential projects is approximately $173 million.

It is desirable for the investment program to contain a mix of larger more complex projects and smaller simpler projects, both to manage implementation capacity and to take advantage of results which can be achieved quickly. The spread of MCA scores against the estimated capital cost of projects is shown in Figure 8-6 below.

Figure 8-6: Projects by MCA Score and Cost



Note: One large but low priority project is not plotted for presentational reasons.

Source: Authors.

It can be seen that the shortlist of 18 projects prioritized as essential contains nine projects costing $3 million or more and nine projects costing less than $3 million, indicating a reasonable balance between larger and smaller projects. The design of the MCA is important in achieving this balance, with care being taken to minimize any bias in favour of larger projects and to focus on the efficiency of projects.

A further consideration in analysing the results of the prioritization exercise is the economic viability of projects. Included projects were, in the main, at the conceptual stage, with some information on capital cost but little quantification available in relation to project benefits. Thus, economic viability is difficult to estimate. However, using some simplifying assumptions, it is possible to estimate the average annual level of net benefits (benefits minus costs) needed in the operational phase of the project to generate a target rate of return on the capital invested in the project. Consideration can then be given to whether the annual net benefits required for economic viability, or at least to recover the initial capital cost of the project, are likely to be achieved. In this way, the requirements for economic viability are put into perspective even at the conceptual stage of project preparation. Table 8-7 provides these estimates for the 18 projects prioritized as essential.

Table 8-7: Net Benefit Stream for Economic Viability

Project	Sector	Capital cost		Annual net benefits required for IRR of 6% [1]		Annual net benefits to recover capital cost [2]	
		Total (NZD)	Per capita (NZD)	Total (NZD)	Per capita (NZD)	Total (NZD)	Per capita (NZD)
Strengthening Water System	Water	12,000,000	7,282	1,080,000	655	600,000	364
Connecting New Power Station	Energy	800,000	485	72,000	44	40,000	24
Renewable Energy	Energy	5,000,000	3,034	450,000	273	250,000	152
Sewage Treatment System	Environment	7,500,000	4,551	675,000	410	375,000	228
Resurfacing of main roads	Roads	39,900,000	24,211	3,591,000	2,179	1,995,000	1,211
Replace quarry machinery	Quarry	3,000,000	1,820	390,000	237	300,000	182
Airport runway resurfacing	Aviation	30,000,000	18,204	2,700,000	1,638	1,500,000	910
Surfacing of hospital roads	Roads	1,140,000	692	102,600	62	57,000	35
Replacement of Fuel Storage Tanks	Bulk Fuel	550,000	334	49,500	30	27,500	17
Hospital Waste Management System	Health	200,000	121	18,000	11	10,000	6
New maintenance building for heavy machinery	Major Plant	1,000,000	607	90,000	55	50,000	30
Village Water Storage	Water	1,500,000	910	135,000	82	75,000	46
Upgrading School Water System	Education	1,500,000	910	135,000	82	75,000	46
Major plant replacement	Major Plant	5,000,000	3,034	650,000	394	500,000	303
Replacement of Port machinery	Wharf	5,000,000	3,034	650,000	394	500,000	303
Basin harbour wharf expansion	Wharf	57,000,000	34,587	5,130,000	3,113	2,850,000	1,729
Recycling machinery	Environment	750,000	455	97,500	59	75,000	46
Waste Incinerator	Environment	1,000,000	607	130,000	79	100,000	61
		172,840,000	**104,879**				

Notes:

[1] Based on discounted cashflow over 20-year economic life and a target 6% internal rate of return (with the exception of machinery projects which apply a 10-year economic life). Annual net benefits are recurring project benefits less ongoing costs such as maintenance.

[2] Annual net benefits (undiscounted) required to recover capital cost of the investment over 20-year economic life (10-year economic life in the case of machinery projects).

Source: *Guideline to Preparing National Infrastructure Investment Plans* (PRIF, 2022), and authors

Source: Authors.

The economic viability of projects will assume greater importance as the investment planning process is strengthened, including a requirement to prepare and appraise more thorough business cases for priority projects before they are approved for funding.

SECTION 9

ONGOING MANAGEMENT OF ROLLING NIIP PROGRAM

9.1 Taking NIIP priority projects forward

9.1.1 Development of Outline Business Cases

Most of the projects included in this NIIP are at relatively early stages of project development, with limited feasibility or design work having been completed. While the level of information available is sufficient for project prioritization, it will be important that Niue undertakes a range of further studies. Each project in the essential projects list will require an outline business case. These business cases should include:

- An assessment of the strategic case for each project
  - What is the problem to be solved
  - What are the options that have been considered
  - What are the potential locations for the asset
- The development of concept designs
  - Sufficient to assess design options and risks
  - Need to enable reliable costings
  - Estimation of a budget level capital cost
- Completion of economic cost benefit analysis
  - Benefits estimation and comparison with life cycle costs
- An initial environmental and social impact assessment
  - Assessment of any environmental impacts
  - Review of land requirements and resettlement
  - Climate change and disaster resilience assessment

Project studies need to be recorded and reported in a consistent format that allows comparison between projects in different sectors. Niue is developing standardized business case documentation that will enable these comparisons.

9.1.2 Project Appraisal

One of the key next steps for all projects will be the completion of project appraisal documents. These documents need to show sufficient detail to make a reasoned decision about each project. Given the likely requirement for development partner funding it would be appropriate for these project appraisal documents to follow the guidance and standards of one of the main funding agencies, such as ADB. Where a specific funding source is already known, the guidance of that organization should always be followed.

9.1.3 Approval for Funding

A key part of the project development process will be a decision by POST and subsequently the cabinet to allocate funding to a particular project. This should always be based on the outline business case for each project. This stage of the process is important, even where a funding source is yet to be identified. Recognizing that a proposed project is a priority and represents good value for money is important to ensure that only the most effective projects are implemented in Niue.

This approval for funding will also allocate further funding toward project development, where this is required. This may include funding for:

- additional design studies, such as surveys to inform more effective designs;
- additional feasibility work;
- social and gender impact studies; and
- land ownership assessments.

9.2 Sustaining the NIIP

This NIIP should not be a static document and should be updated and maintained regularly. In addition to planned 5-yearly updates to the NIIP, regular informal reviews should be undertaken. These reviews need to assess progress in implementing projects, review the applicability of the prioritization criteria and compile learnings regarding the NIIP process in Niue.

As discussed elsewhere these reviews should be the responsibility of a central team, under the Secretary to Government's office.

This process needs to be closely linked to the AMS approach described in Section 0. The AMS should be used to log progress on projects, while also providing a mechanism to identify new investment requirements, resulting from deterioration in existing assets.

A key aspect of sustaining the NIIP process will be to achieve buy in from all stakeholders. As far as possible, all investment decisions should be made through the mechanisms set up as part of the development of the NIIP. This requires recognition from all Government officers and elected members, to minimize other decision-making processes. Training and capacity building is likely to be required at all levels to ensure full understanding of the process, including the importance of sticking with the process.

9.2.1 Subsequent NIIPs

This NIIP should be formally reviewed every 5 years. These reviews should adopt a similar mechanism to that used to develop this NIIP, with extensive stakeholder consultation, review of existing plans and strategies, compilation of a project longlist, review of prioritization criteria and results, and making of recommendations on priorities.

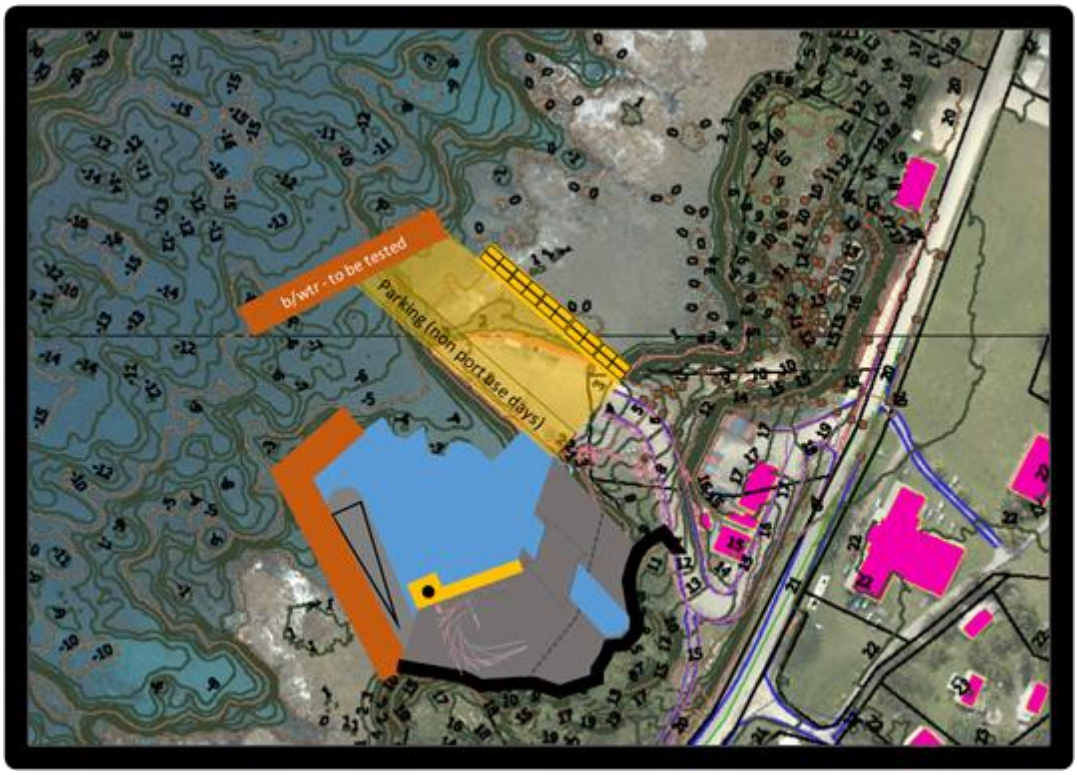
While the NIIP is to be a Government of Niue document, it is likely that for the foreseeable future, external technical support will be required. It is likely therefore that a small consultancy team will be required. Alongside the development of the updated NIIP, this team should be tasked with the development of capacity within Niue to contribute to the development of future iterations of the NIIP.

Appendix A

Project Information Sheets

Project Title	Basin Harbour wharf expansion		
Sector	Wharf	**Lead Agency**	Department for Transport (Min. of Infrastructure)
Location/ Site (if known)	Sir Robert's Wharf	**Partner Agencies (if any)**	
Implementation Status	The in-depth feasibility study for the wharf extension is underway and includes extensive surveys, as well as an assessment of market demand. Included in 2017 National Transport Strategy (NTS).		
Description (inc. outputs and outcomes)	A design-build procurement exercise may be the most appropriate to harness innovative technologies and solutions. The project should include the following: strengthen existing wharf; extend wharf deck to the north to provide greater space; construct wharf extension to a point where ships are able to tie up; integrate renewable energy sources; and provide additional lighting to allow 24-hour loading operations.		
Rationale and Objective/s	Niue Port Study (2011) proposed an expansion of the wharf, including construction of a breakwater to the north of the wharf to create a protected harbour for use by fishing and tourist vessels. This will increase significantly the area for ship unloading and would prevent the use of the wharf to other traffic during operations. However, to resolve the current challenges of unloading activities that are time consuming, dangerous and inefficient, a feasibility study is underway to consider a structure that stretches to the point where the sea is sufficiently deep for container ships to berth. This would not only benefit the handling of containers; it also would secure the ship, making unloading far easier and safer. Furthermore, such a structure would attract more frequent cruise ship visits and thus significantly boost Niue's tourism economy.		
Link to Govt. of Niue Priorities?	Ensures that trading activities and revenue collection can not only be continued, but also strengthened. Also meets the Niue National Strategic Plan (NNSP) requirements that transport infrastructure and services are provided to international standards and prepared to respond to national disasters and emergencies.		
Estimated Cost ($)	$57,000,000	**Funding Status**	Not secured

Figure: Proposed Option for Improvement



Source: Department of Transport.

Project Title	Connecting new power station		
Sector	Power	**Lead Agency**	Department of Utilities (Ministry of Infrastructure)
Location/ Site (if known)	Tuila	**Partner Agencies (if any)**	
Implementation Status	Power station constructed, but more parts need to be procured to complete connection to the grid.		
Description (inc. outputs and outcomes)	The new power station was constructed last year, funded by the Government of Australia, but has experienced delays due to the novel coronavirus disease (COVID-19) impacting getting supplies to the island. However, while work is now complete, the power station has not yet been connected to the grid so it is still not operational.		
Rationale and Objective/s	Once the new power station is connected, it will provide reliable energy across the island after the previous power station was flooded. Need to confirm what parts, materials and expertise is required to connect the station to the grid. It is the only viable option after the Australian Department of Foreign Affairs and Trade provided $2 million to build the station.		
Link to Govt. of Niue Priorities?	Key objective of the NNSP is to provide "continuous and reliable power supply transitioning to efficient renewable energy sources". The government aims to have cost effective and affordable energy services, whereby energy generation is more efficient. It is also expected that energy infrastructure is climate-proof and based on a low-carbon approach.		
Estimated Cost ($)	$800,000	**Funding Status**	Not secured

Figure: New Power Station Building

Source: TV Niue https://tvniue.com/2021/09/the-new-2-million-dollars-power-station-to-open-next-year/

Project Title	Construction of liquefied petroleum gas (LPG) storage site		
Sector	Bulk Fuel	**Lead Agency**	Bulk Fuel
Location/ Site (if known)	Hanan Niue International Airport	**Partner Agencies (if any)**	Department for Transport (Min. of Infrastructure)
Implementation Status	Building works had begun on this but funding has since stopped		
Description (inc. outputs and outcomes)	A new storage and filling facility for LPG was under construction but was halted when funding was stopped. More funding is now needed in order to complete the site. Access road needs to be completed; power/water reticulation to site; pumps installed; and additional space/safety features for cylinder filling.		
Rationale and Objective/s	The new fixed facility will allow 9 kg household cylinders to be filled by Bulk Fuel staff, thus reducing safety risks and providing the retailer with a cylinder swap system.		
Link to Govt. of Niue Priorities?	Provides safer and more resilient storage facilities, which aligns with the NNSP's objectives for reducing risks and protecting natural resources on land, as well as mitigating disaster risks.		
Estimated Cost ($)	$100,000	**Funding Status**	Not secured

Project Title	Hospital Wastewater Management System		
Sector	Health	**Lead Agency**	Department for Health (Min. of Social Services)
Location/ Site (if known)	Foou Hospital	**Partner Agencies (if any)**	Department for Utilities (Min. of Infrastructure)
Implementation Status	Full specifications of the required system are yet to be confirmed; this consultation is in progress.		
Description (inc. outputs and outcomes)	There is pressure on the current wastewater management system at the hospital and it needs to be upgraded.		
Rationale and Objective/s	The wastewater treatment plant for the hospital is currently working at capacity and needs to be upgraded to keep up with increasing demand, likely caused by the increased facilities located at the hospital campus. Further study is required to confirm the appropriate level of demand that the new treatment plant should be designed for.		
Link to Govt. of Niue Priorities?	This would help the hospital to continue to provide quality health services to the population, as required by the NNSP. Also ensures that waste management on the island continues to be done safely and sustainably, protecting the environment with minimum impact to public health.		
Estimated Cost ($)	$200,000	**Funding Status**	Not secured

Figure: Existing Hospital Septic Tank

Photo courtesy of James Reeves.

Project Title	Island mobile coverage		
Sector	Telecom and IT	**Lead Agency**	Telecom
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	Department of Utilities (Min. of Infrastructure)
Implementation Status	Not yet started; further study required to determine specifications of equipment required.		
Description (inc. outputs and outcomes)	Only around 65% of Niue is served by the 4G mobile network. This project will provide the equipment and infrastructure required (i.e., higher masts and additional transmitters) to ensure coverage for the whole island.		
Rationale and Objective/s	It is important to ensure that the whole of Niue has reliable telecoms. There is a need to expand the network coverage to the whole of the island.		
Link to Govt. of Niue Priorities?	NNSP aims to provide "quality affordable postal, [information and communications technology (ICT)] and broadcasting services". ICT development is important for Niue in the changing technological environment and connection to the world. Enabling quality and reliable ICT allows Niue to remain connected to the world and business. This will also assist those wishing to use Niue as a base for operations.		
Estimated Cost ($)	$8–10 million	**Funding Status**	Not yet secured

Project Title	Major plant replacement		
Sector	Major Plant	**Lead Agency**	Department of Transport (Min. of Infrastructure)
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	Japan International Cooperation Agency
Implementation Status	Discussions ongoing regarding individual pieces of equipment		
Description (inc. outputs and outcomes)	List of equipment to be replaced include: • Truck and Trailer • Lee's Forklift – O/S (22 ton) • CAT Front-end Wheel Loader - O/S (30 ton) • Isuzu Hiab - O/S (20 ton) • Isuzu Hiab - NPC (5 ton) • CAT Grader - C/Q (12 ton) • Sakai Roller - C/Q (10 ton) • D6K CAT Bulldozer Manual - C/Q • 950 CAT Wheel Loader - C/Q (5 ton) • Tractor Mower Field Master – RFS • Hyundai Excavator – C/Q (14 ton) • TCB Backhoe – C/Q (3 ton) • Side Lifter Trailer – O/S (20 ft.) • Low-end Loader Trailer – O/S • Isuzu Dump Truck – C/Q (12 ton) • Water tanker		
Rationale and Objective/s	Heavy Plant is used across the island by many different governmental departments and state-owned enterprises (SOEs), particularly Transport; Utilities, Civil, and Quarry; and Environment. Much of the existing fleet of equipment is life-expired or close to the end of its life. Some of this equipment is crucial to ensure the maintenance of various activities on the island, such as container handling, construction of buildings and infrastructure, and maintenance of services.		
Link to Govt. of Niue Priorities?	Aligned with NNSP's objective of macroeconomic policy and investment, specifically investment in sovereign assets and strengthened trading activities. Also continues to ensure equipment is well maintained and provides safe working environments for staff.		
Estimated Cost ($)	$5,000,000	**Funding Status**	Not secured

Figure: Existing Major Plant

Photos courtesy of James Reeves.

Project Title	New maintenance building for heavy machinery		
Sector	Major Plant	**Lead Agency**	Department of Transport (Min. of Infrastructure)
Location/ Site (if known)	TBC	**Partner Agencies (if any)**	Department for Environment (Min. of Natural Resources) Department for Utilities (Min. of Infrastructure)
Implementation Status	Not yet started – further study needed.		
Description (inc. outputs and outcomes)	A new building is required for maintenance and overnight storage of heavy equipment. Environment department also need such facility for their machinery (septic, rubbish), Bulk Fuel (fuel truck), etc. Further study is needed to confirm what machinery would need to be stored and maintained at this facility, who will manage it, how big it needs to be, and what is the best location for it		
Rationale and Objective/s	Heavy Plant is used across the island by many different governmental departments and SOEs, particularly Transport; Utilities, Civil, and Quarry; and Environment. However, there is no building where this machinery can be stored overnight and maintained when required. Providing this facility will allow for better maintenance and upkeep of Heavy Plant, greatly extending the life of the asset before it needs to be replaced.		
Link to Govt. of Niue Priorities?	NNSP aims to implement "manageable maintenance programs for consistent and reliable services for the public." As part of the national asset management approach, investment in key infrastructure and equipment with well-planned maintenance programs ensure ongoing infrastructure development and give confidence and assurance to the public. Also provides safe and healthy infrastructure and working environments.		
Estimated Cost ($)	$1,000,000	**Funding Status**	Not secured

Project Title	New motorized barge and repair of work boat		
Sector	Wharf	**Lead Agency**	Department for Transport (Min. of Infrastructure)
Location/ Site (if known)	Sir Robert's Wharf	**Partner Agencies (if any)**	
Implementation Status	Assessment of requirements completed, but funding not yet secured to begin procurement.		
Description (inc. outputs and outcomes)	The work boat needs urgent repair, and the barge needs to be replaced. A new motorized barge would be cost-efficient and enable safe transport of 40 ft containers and 45-ton capacity (The current barge is limited to about 24 tons). The new barge should be motorized to make wharf operations more cost-efficient and reduce the demand on the work boat. A new boat was identified but this proved to be inappropriate for Niue conditions, which include being able to be lifted out of the water when not in use. A new boat is required which has a stronger engine capable of operating in rougher seas, has the ability to carry heavier containers, and is more manoeuvrable. The work boat is also Niue's designated search and rescue vessel so must be repaired urgently. The details of the repair are yet to be confirmed.		
Rationale and Objective/s	All cargo is containerized and containers are moved from a moored ship via on-board cranes and an unpowered barge that requires propulsion from a work boat. This double-handling is time-consuming and inefficient. It also places considerable strain on the operation of the workboat, which is now in need of urgent repair. The barge also needs to be replaced. This does, however, provide an opportunity for the barge to be replaced with a motorized barge to make stevedoring and wharf operations more cost-efficient. This will also enable safe transport of 40 ft containers and 45-ton capacity (The current barge is limited to about 24 tons).		
Link to Govt. of Niue Priorities?	Ensures that trading activities and revenue collection can not only be continued, but also strengthened. Also meets the NNSP requirements that transport infrastructure and services are provided to international standards and prepared to respond to national disasters and emergencies.		
Estimated Cost ($)	$2,000,000	**Funding Status**	Not secured

Figure: Existing Workboat and Barge

Photos courtesy of James Reeves and Department of Transport.

Project Title	Recycling machinery		
Sector	Solid Waste	**Lead Agency**	Department for Environment (Min. of Natural Resources)
Location/ Site (if known)	Hikufenoga	**Partner Agencies (if any)**	
Implementation Status	Construction of new waste facility nearly complete. Requires additional machinery to be procured to allow for packing down recyclable materials. This procurement process has not yet begun.		
Description (inc. outputs and outcomes)	New waste facility (expected September 2022) being built requires machinery to pack down recyclables. The Government of Australia has contributed over $4 million to national waste management projects in Niue, including the new recycling facility. However, while most of the machinery is being procured, the Ministry of Natural Resources has identified the need for an additional machine to pack down recyclables at the facility. Specifications for the machine are yet to be confirmed.		
Rationale and Objective/s	Recycling machinery is needed to help pack down recyclables at the facility and increase Niue's capacity for recycling and reducing overall waste.		
Link to Govt. of Niue Priorities?	Addresses the NNSP's waste management objective to protect the environment with minimum impact to public health. Waste management in the NNSP includes all waste and waste reduction, reuse and recycling, systems for waste collection and disposal to be managed safely and sustainably.		
Estimated Cost ($)	$200,000	**Funding Status**	Not yet secured

Figure: New Recycling Facility

Photo courtesy of James Reeves.

Project Title	Renewable energy		
Sector	Power	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	Department for Environment (Min. of Natural Resources)
Implementation Status	As of 2020, 40% of Niue's energy is generated from solar. More needs to be implemented, as well as connecting new infrastructure to the grid, to achieve the National Sustainable Energy Road Map (NiSERM) target of 80% renewable energy generation by 2025.		
Description (inc. outputs and outcomes)	Need to increase renewable energy sources (such as solar) on the island.		
Rationale and Objective/s	In 2014, the percentage of solar photovoltaic generation in total electricity generation was 1.99%, while 98.01% was from diesel. As such, the NiSERM sets a target of Niue achieving 80% renewable energy generation by 2025. In 2020, Niue reached half that target, generating 40% renewable energy. However, there is much more to be done to reach that target, so $5 million has now been received from NZ Aid to fund more renewable energy sources such as solar.		
Link to Govt. of Niue Priorities?	Key objective of the NNSP is to provide "continuous and reliable power supply transitioning to efficient renewable energy sources." The government aims to have cost-effective and affordable energy services, whereby energy generation is more efficient. It is also expected that energy infrastructure is climate-proof and based on a low-carbon approach. NNSP's environmental and climate change priorities also states the need for sustainable use and management of Niue's natural resources and environment for present and future generations.		
Estimated Cost ($)	$5,000,000	**Funding Status**	Secured from NZ

Figure: Existing Solar Generation Facilities

Source: https://vectorpowersmart.co.nz/projects/niue. Accessed 27th April 2023

Project Title	Replace quarry machinery		
Sector	Quarry	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	Tafalolo	**Partner Agencies (if any)**	Department of Transport (Min. of Infrastructure)
Implementation Status	A full list of specific equipment required has yet to be received, but does include bulldozers, crushers, and excavators. Funding would then need to be secured to procure the required machinery.		
Description (inc. outputs and outcomes)	The single quarry in Niue is crucial to many aspects of life, as it provides materials for all construction and maintenance operations, including road maintenance, house building, grave construction and repairs to utilities. The equipment used within the quarry is life-expired and requires substantial ongoing maintenance, just to maintain operations. The condition and capability of the equipment precludes expansion of quarry operations. The heavy equipment, including bulldozers, crushers and excavators all needs replacing with modern equipment. A maintenance plan should also be prepared so that any new machinery procured can be well maintained on a regular basis.		
Rationale and Objective/s	The quarry is used for building and construction projects all over the island, including road surfacing. It is currently being blasted to produce aggregate for the airport resurfacing project. However, the existing machinery is life expired and requires replacement. Without this, it is likely that soon that Niue will not be able to generate much of its own materials for construction projects.		
Link to Govt. of Niue Priorities?	Ensures that Niue can continue to make "well-constructed buildings and structures," as required by the NNSP. The NNSP also sets out the need for investment in key infrastructure and equipment, with well-planned and funded maintenance programs to ensure ongoing infrastructure development.		
Estimated Cost ($)	$3,000,000	**Funding Status**	Not secured

Figure: Existing Quarry Machinery

Photos courtesy of James Reeves.

Project Title	Replacement of fuel storage tanks		
Sector	Bulk Fuel	**Lead Agency**	Bulk Fuel
Location/ Site (if known)	Alofi Wharf	**Partner Agencies (if any)**	Department for Transport (Min. of Infrastructure)
Implementation Status	Asian Development Bank (ADB) currently conducting a feasibility study on fixing/replacing these.		
Description (inc. outputs and outcomes)	Bulk Fuel currently has two tanks at the wharf that were damaged by the 2004 cyclone and are unlikely to be repairable. Awaiting findings of ADB study to confirm options and best solutions (i.e., whether to replace fuel storage tanks at the wharf and stop importing tanktainers, or whether to continue with tanktainer approach). In any case, the current damaged storage tanks will need to be decommissioned and safely disposed of to NZ. The cabinet has approved funding for this from NZ Aid (Asset Maintenance Fund).		
Rationale and Objective/s	Currently, fuel must be imported and stored using tanktainers. Due to lifting constraints tanks can only be brought in 75% full. This pushes up the unit costs. However, replacing the tanks and stopping the importation of tanktainers may make the current shipping frequency unviable. ADB is currently conducting a study on best options to resolve this issue. The aim of this project is to ensure that all fuels can be imported into Niue and stored in the most cost-efficient, timely, and reliable way possible.		
Link to Govt. of Niue Priorities?	Reduces the risks posed by natural hazards, and protects natural resources on land, and marine and coastal resources from the impacts of pollution. Helps to also ensure most cost-efficient methods of importing fuels.		
Estimated Cost ($)	$550,000	**Funding Status**	Secured from NZ Aid (Asset Maintenance Fund)

Figure: Existing Damaged Fuel Tanks and Tanktainers

Source: https://www.spc.int/updates/blog/2022/02/energy-resilience-and-security-in-focus-as-pacific-recovers-from-another. Accessed 27th April 2023

Project Title	Replacement of port machinery		
Sector	Wharf	**Lead Agency**	Department for Transport (Min. of Infrastructure)
Location/ Site (if known)	Sir Robert's Wharf	**Partner Agencies (if any)**	
Implementation Status	Not yet started; further study is needed to confirm specifications of machinery to be replaced.		
Description (inc. outputs and outcomes)	Some equipment damaged by weather conditions. Other equipment is life-expired. A full list of the equipment that has been damaged and needs to be replaced has yet to be confirmed.		
Rationale and Objective/s	Replacement of port machinery to ensure that the port remains operational. The port itself is a lifeline for Niue as the majority of imports come by sea, and thus this work should be considered urgent.		
Link to Govt. of Niue Priorities?	Ensures that trading activities and revenue collection can not only be continued, but also strengthened. Also meets the NNSP requirements that transport infrastructure and services are provided to international standards and prepared to respond to national disasters and emergencies.		
Estimated Cost ($)	$5,000,000	**Funding Status**	Not yet secured

Figure: Existing Port Machinery

Photos courtesy of James Reeves.

Project Title	Airport runway resurfacing		
Sector	Airport	**Lead Agency**	Department of Transport (Min. of Infrastructure)
Location/ Site (if known)	Hanan Niue International Airport	**Partner Agencies (if any)**	Department of Utilities (Min. of Infrastructure)
Implementation Status	Downer New Zealand Ltd. were contracted to do this work in 2020 and the project is underway. Works have been delayed due to the COVID-19 pandemic, but they are continuing. Included in 2017 NTS.		
Description (inc. outputs and outcomes)	The main purpose of the construction work is to bring all airfield paved surfaces and aeronautical ground lighting systems into compliance with relevant Civil Aviation Authority and International Civil Aviation Organisation standards. The main works currently being undertaken include: - milling of approximately 20 mm of the existing coral rock asphalt surface and replacement by 65 mm new AC14 coral rock asphalt concrete; - topsoiling and grassing of strip area to tie-in with the new asphalt overlay; - grooving in case friction results indicate an insufficient level of skid resistance; - installing cabling system with sit pits and ducts; - retaining and modifying precision approach path indicators; and - replacing approach lighting, runway lighting, and turn pad lighting.		
Rationale and Objective/s	Hanan International Airport is the only international passenger gateway into Niue. The runway was originally laid in 1971, with the most recent overlay applied in 1995. While it remains in operational condition, it is close to the end of its life cycle. Significant surface material loss is now visible, and it requires maintenance. It is proposed to recondition the runway pavement to extend its life for a further 30 years. Without this, it could lead to significant maintenance efforts and the runway becoming unworthy for use.		
Link to Govt. of Niue Priorities?	NNSP aims to "provide and maintain safe, secure and reliable transport infrastructure and services at international standards and prepared to respond to national disasters and emergencies". Maintaining the airport runway and keeping it operational also helps to ensure sustainable growth in tourism, and maintain strong working partnerships with other nations.		
Estimated Cost ($)	$30,000,000	**Funding Status**	Secured from NZ

Project Title	Resurfacing of main roads		
Sector	Roads	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	Department of Transport (Min. of Infrastructure)
Implementation Status	Since the NTS, some of this resurfacing has been completed by local funding but the main program of 46 km is still to be completed. This should be done as soon as possible to avoid further deterioration of the network.		
Description (inc. outputs and outcomes)	Main roads require resurfacing with an asphalt layer. Funding is needed to purchase the materials and labour to finish the job. A prioritization of works also needs to be conducted to first ascertain which roads should be rehabilitated first. A program of works should also be produced so that a prioritized maintenance plan is put in place moving forward that requires frequent but small maintenance works on each road.		
Rationale and Objective/s	The NTS outlined a program of works, which called for paved sections to be re-asphalted in such a way as to last a minimum of 20 years. The condition of the main road network was considered critical, and despite the roads being passable, many segments have deteriorated to an advanced degree. This has a negative impact on road safety and the condition of vehicles.		
Link to Govt. of Niue Priorities?	NNSP objective is to provide "quality, safe, secure and reliable ports and roading." Roads should be maintained to the standard that they are safe to use and allow residents to reliably access key facilities across the island. Proper resurfacing and continuous maintenance also ensures that the roads can be used in all weather conditions, especially during emergencies when speed of evacuations are key.		
Estimated Cost ($)	$39,900,000	**Funding Status**	Not secured

Project Title	Sewage treatment system		
Sector	Water	**Lead Agency**	Department for Environment (Ministry of Natural Resources)
Location/ Site (if known)	TBC	**Partner Agencies (if any)**	Department for Utilities (Min. of Infrastructure)
Implementation Status	Not started. Finance and technical feasibility studies need to be undertaken as soon as possible to assess the options for such facilities and what the requirements and specifications are.		
Description (inc. outputs and outcomes)	Installation of facility to process wastewater. Currently wastewater is collected across the island and dumped on area of land at end of airport runway.		
Rationale and Objective/s	Dealing with wastewater is currently a major issue for Niue. There is no reticulated wastewater collection system, so disposal is limited to private septic tanks which are then emptied by the Department of Environment/Department of Utilities and then untreated effluent is dumped on a portion of land at the end of the airport runway. The lack of a proper treatment and disposal facility has serious consequences for health care, environmental quality and other factors, but most importantly, it could eventually impact the water lens and subsequent freshwater resources for the island. To avoid this, sewage treatment systems should be implemented that can avoid the degradation of water resources in Niue.		
Link to Govt. of Niue Priorities?	NNSP's objective for waste management is for "residents and visitors manage waste to protect the environment with minimum impact to public health." Sewage treatment will help to prevent the pollution of Niue's environment and the freshwater lens, ensuring sustainable access to clean drinking water.		
Estimated Cost ($)	$7,500,000	**Funding Status**	Not secured

Project Title	Strengthening water system		
Sector	Water	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	N/A
Implementation Status	Master planning underway of water system for efficient use and monitoring. Finalizing Green Climate Fund proposal and finding partner.		
Description (inc. outputs and outcomes)	New infrastructure needs to be introduced to the water supply system to increase its climate resilience and weather proofing. Ultraviolet drinking water treatment units are currently being rolled out in villages and government buildings across Niue; however, these should only be temporary solutions. Further study is required to determine locations for more permanent solutions such as fixing leaks, clearing water bore and tank sites, stormwater diversion, repairs to water bore and tank covers as well as cleaning supply tanks. Out of 14 villages on the island, five have also installed ultraviolet drinking water treatment units, so further investment is required to implement more in the remaining villages, ensuring that everyone has constant access to clean water all year round. While installing water treatment units, further study is needed to produce options on more efficient and permanent solutions to improving the water quality issues in each village		
Rationale and Objective/s	Currently, in the event of high rainfall, high levels of coliform can enter the system which needs to be prevented. Ultraviolet -treated water outlets are located at the Niue High School, Primary School, Commercial Center, and Hospital, but in other cases the public have been previously advised to boil water before drinking it when high levels of coliform has been found.		
Link to Govt. of Niue Priorities?	Key objective of the NNSP is to provide "access to 24 hour water supply and safe potable drinking water." Strengthening the water system ensures there is sufficient supply of freshwater during emergencies and builds resilience to climate change.		
Estimated Cost ($)	$12,000,000	**Funding Status**	$600,000 only secured from ADB for Water Safety Planning Activities

Figure: New Water Tank in Alofi

Source: https://commons.wikimedia.org/wiki/File:A_renewed_water_tank_in_the_Alofi_South_Township_in_Niue,_2012._The_tank_was_one_of_six_rehabilitated_with_the_assistance_of_an_Australian-funded_Water_Supply_Operations_Adviser._Photo-_Clinton_Chapman,_Australian_adviser_%2813253013713%29.jpg. Accessed 27th April 2023

Project Title	Surfacing of hospital roads		
Sector	Roads	**Lead Agency**	Department for Utilities (Min. of Infrastructure)
Location/ Site (if known)	Foou Hospital	**Partner Agencies (if any)**	Department of Transport (Min. of Infrastructure)
Implementation Status	To be completed as part of road resurfacing contract. Included in 2017 NTS.		
Description (inc. outputs and outcomes)	The NTS highlighted the urgent need to surface the remaining unsealed sections of road around the hospital. These roads represent some of the most essential links on the island, especially in emergency situations. Length of road to be resurfaced is to be confirmed but every road requires a strong foundation, overlaid with asphalt concrete. It is necessary to confirm whether all approach roads can be surfaced as part of the program, or if some need to be prioritized.		
Rationale and Objective/s	Pursuant to the construction of the new hospital, high school and power station following Cyclone Heta, a network of unsealed roads was built to link them. Approximately 10 km of this road remains unsealed, the condition of which is gradually deteriorating. Not only do the roads link these facilities, as well as the proposed Emergency Operations Center; they also connect to the government depot, main administration building and airport. As such, the roads become part of the most essential roads in Niue, particularly in the event of emergency. It is proposed to upgrade these roads to complete the entire sealing of Niue's network of roads and to improve key facility linkages.		
Link to Govt. of Niue Priorities?	NNSP aims to "provide and maintain safe, secure and reliable transport infrastructure and services at international standards," as well as ensure "healthcare and quality health services will support a healthy population that makes healthy lifestyle choices."		
Estimated Cost ($)	$1,140,000	**Funding Status**	Expected to be supplied by New Zealand as part of main roads surfacing contract – not yet confirmed

Figure: Internal Roads in Alofi

Source: Department of Utilities.

Project Title	Upgrading school water system		
Sector	Water	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	High School & Primary School	**Partner Agencies (if any)**	Department for Education (Min. of Social Services)
Implementation Status	Not yet started – technical support required to confirm scope and specification of upgraded system.		
Description (inc. outputs and outcomes)	Water system at school campus needs urgent upgrading. A new water supply is required for the high school to replace the system installed when the school was constructed. No drawings of the original system exist, making repairs and improvements difficult. This project will need outside project management and technical support.		
Rationale and Objective/s	A priority is to upgrade the water system at the school campus. The current system experiences low pressure (according to 2016 AMP) and the piping needs to be upgraded. The spouting also needs replacement. the high school currently serves around 230 pupils and 28 staff, while the primary school serves around 197 pupils and 18 staff. The high school had a toilet upgrade in 2013, and is due for renewal in 2023, according to the AMP. Cosmetic upgrades are currently being completed.		
Link to Govt. of Niue Priorities?	Key objective of the NNSP is to provide "access to 24 hour water supply and safe potable drinking water." Strengthening the water system ensures there is sufficient supply of freshwater during emergencies and builds resilience to climate change. Project also ensures that Niue can continue to provide a quality, balanced education service for children within a nurturing and secure learning environment.		
Estimated Cost ($)	$1,500,000	**Funding Status**	Not secured

Figure: Existing School Toilet Block

Photo courtesy of James Reeves.

Project Title	Village water storage		
Sector	Water	**Lead Agency**	Department of Utilities (Min. of Infrastructure)
Location/ Site (if known)	Nationwide	**Partner Agencies (if any)**	
Implementation Status	Not yet started – further study is required.		
Description (inc. outputs and outcomes)	Rehabilitation of existing drinking water storage tanks. A full plan should be developed that determines how frequently each of the storage tanks on the island are cleaned and undergo maintenance works. This should allow for efficient ongoing maintenance of the tanks to avoid reaching a point where they need to be rehabilitated. For now, all tanks that need rehabilitation should be identified and cleaned as soon as possible.		
Rationale and Objective/s	One of the key methods of improving resilience within Niue's water system is to rehabilitate and clean existing drinking water storage tanks across the island. This will help reduce the introduction of bacteria into drinking water and avoid any health implications that brings. Subsequently, the amount of instances when residents have to boil water to make it safe is reduced, thus easing the demand on the power network.		
Link to Govt. of Niue Priorities?	Key objective of the NNSP is to provide "access to 24-hour water supply and safe potable drinking water." Strengthening the water system ensures there is sufficient supply of freshwater during emergencies and builds resilience to climate change.		
Estimated Cost ($)	$1,500,000	**Funding Status**	Not secured

Project Title	Waste incinerator		
Sector	Solid Waste	**Lead Agency**	Department for Environment (Min. of Natural Resources)
Location/ Site (if known)	TBC	**Partner Agencies (if any)**	
Implementation Status	A solid waste incinerator was previously funded by the European Union (EU), but it is not working at capacity. Further study is needed to ascertain the size of incinerator required and then procurement to be undertaken.		
Description (inc. outputs and outcomes)	An operational incinerator for waste is needed. One was funded by the EU but it is not working at full capacity. Further study is required to determine the reason for the current incinerator not operating at full capacity, and assessing whether a new incinerator is required or if improvements can be made to the existing one. A feasibility study is also required to ascertain options for waste to energy conversion.		
Rationale and Objective/s	Niue requires an incinerator for the disposal of non-recyclable solid waste. There was one funded by the EU at the hospital, but it is not working at full capacity. The capacity of incinerating must be increased to meet the demand of waste disposal, especially as the number of visitors returns to pre-COVID-19 levels.		
Link to Govt. of Niue Priorities?	Addresses the NNSP's waste management objective to protect the environment with minimum impact to public health. Waste management in the NNSP includes all waste and waste reduction, reuse and recycling, systems for waste collection and disposal to be managed safely and sustainably.		
Estimated Cost ($)	$1,000,000	**Funding Status**	Not secured

Figure: Waste at Existing Dump Site

Photo courtesy of James Reeves.

Appendix B

Project Prioritization Scoring

Name/Description	1a.	1b.	1c.	2a.	2b.	2c.	3a.	3b.	3c.	4a.	4b.	4c.	Total	Rank
	Impact on economic growth and employment	Overall financial position of the sector	Efficiency gains or reduction in costs for infrastructure users	Impact on quality or coverage of social services	Impact on village development	Impact on good governance	Contribution to climate change adaptation	Resilience and recovery of Niue to natural disasters	Impact on the environment	Linkages with other infrastructure	Optimal use of existing infrastructure	Urgency of the project	Score	
Strengthening water system	2	2	3	3	3	2	3	3	3	3	2	3	32	1
Connecting new power station	3	3	3	3	3	2	1	3	2	3	2	3	31	2
Renewable energy	3	2	3	1	3	2	3	2	3	3	2	2	29	3
Sewage treatment system	1	2	3	2	3	2	3	2	3	3	0	3	27	4
Resurfacing of main roads	2	3	3	2	3	0	1	3	1	3	2	3	26	5
Replace quarry machinery	1	3	3	1	2	1	1	3	2	3	2	3	25	6
Airport runway resurfacing	2	3	3	1	0	2	2	2	1	2	3	3	24	7
Surfacing of hospital roads	1	2	3	3	2	1	1	3	1	2	2	3	24	7
Replacement of fuel storage tanks	2	3	3	2	1	1	2	2	1	3	1	2	23	9
Hospital Waste Management System	0	2	3	3	2	1	1	2	3	2	2	2	23	9
New maintenance building for heavy machinery	2	3	3	1	1	1	1	2	2	3	2	2	23	9
Village water storage	1	2	3	2	3	0	3	2	2	2	1	2	23	9
Upgrading school water system	0	2	3	3	1	1	1	2	3	2	2	2	22	13
Major plant replacement	2	2	2	1	2	0	2	2	2	3	2	2	22	13
Replacement of port machinery	2	3	3	1	1	1	0	2	2	2	2	3	22	13
Basin harbour wharf expansion	3	3	3	1	1	0	2	3	1	3	1	1	22	13

Name/Description	1a.	1b.	1c.	2a.	2b.	2c.	3a.	3b.	3c.	4a.	4b.	4c.	Total	Rank
	Impact on economic growth and employment	Overall financial position of the sector	Efficiency gains or reduction in costs for infrastructure users	Impact on quality or coverage of social services	Impact on village development	Impact on good governance	Contribution to climate change adaptation	Resilience and recovery of Niue to natural disasters	Impact on the environment	Linkages with other infrastructure	Optimal use of existing infrastructure	Urgency of the project	Score	
Recycling machinery	1	2	3	1	2	1	2	1	3	2	2	2	22	13
Waste Incinerator	1	2	2	1	2	2	2	1	3	3	1	2	22	13
Construction of LPG storage site	2	2	3	2	3	1	2	2	1	2	0	1	21	19
New motorised barge and repair of work boat	2	3	3	1	1	1	0	2	2	3	1	2	21	19
Resurfacing of bush roads (incl. machinery)	2	2	2	2	3	0	2	3	1	1	1	2	21	19
Island mobile coverage	2	3	2	2	3	1	0	2	0	2	2	2	21	19
Paving of evacuation routes	1	1	2	2	3	1	2	3	2	1	1	1	20	23
Metering of water supply	0	3	3	0	0	3	2	1	2	1	3	2	20	23
Airport terminal	2	3	2	0	0	2	2	2	1	1	2	2	19	25
Construction of fire station	0	1	1	2	1	2	2	3	2	2	1	2	19	25
Replacement of control tower equipment	1	2	2	0	0	3	2	1	1	2	2	3	19	25
Replacing hospital roof	0	2	2	3	0	0	1	2	0	3	3	3	19	25
Broadcasting equipment	1	2	2	2	2	2	0	2	0	1	2	3	19	25
Refurbishment of rescue 2 fire truck	0	2	1	1	1	1	1	3	2	2	2	2	18	30
Improved charts and navigational aids	1	1	2	0	0	3	2	2	2	1	2	2	18	30
Police vehicle replacement	0	2	1	1	1	3	1	2	2	1	2	2	18	30
Land fill rehabilitation	1	2	2	0	1	2	1	1	3	1	2	2	18	30
Sea tracks repairs	2	2	2	0	2	0	2	1	2	1	2	2	18	30
Technology hub	2	3	1	1	2	2	1	1	2	1	1	1	18	30
Refurbishment of rescue 3 fire truck	0	2	1	1	1	1	1	3	2	2	2	1	17	35
Installation of UPS at the hospital	0	3	3	3	0	0	0	1	0	2	2	3	17	35
Evacuation centres	0	0	1	2	3	2	1	3	1	1	1	2	17	35

Name/Description	1a.	1b.	1c.	2a.	2b.	2c.	3a.	3b.	3c.	4a.	4b.	4c.	Total	Rank
	Impact on economic growth and employment	Overall financial position of the sector	Efficiency gains or reduction in costs for infrastructure users	Impact on quality or coverage of social services	Impact on village development	Impact on good governance	Contribution to climate change adaptation	Resilience and recovery of Niue to natural disasters	Impact on the environment	Linkages with other infrastructure	Optimal use of existing infrastructure	Urgency of the project	Score	
Network/transformer upgrades	2	2	2	1	1	0	1	2	1	2	2	1	17	35
Namakulu wharf repairs	2	2	2	1	1	1	1	1	1	2	2	1	17	35
Replacement of wharf fenders and repair its side wall	1	2	2	1	0	1	2	1	1	2	2	2	17	35
Provision of new mooring systems	2	1	2	1	1	1	1	1	2	2	1	2	17	35
New police equipment	0	1	2	2	2	2	0	2	1	2	2	1	17	35
Rubbish collections vehicle	1	1	2	2	2	0	1	0	2	2	2	2	17	35
Upgrading oxygen plant	1	2	2	3	1	0	0	2	1	2	1	1	16	44
NDMO vehicle replacement	0	2	2	2	1	1	0	3	1	1	1	2	16	44
NDMO equipment replacements	0	1	2	2	1	2	1	3	1	1	1	1	16	44
Improved comms for search & rescue	1	1	2	1	1	2	1	2	1	1	1	2	16	44
Research farm	3	2	3	0	1	1	2	0	2	1	0	1	16	44
New vehicle for collection of waste water from septic tanks	0	1	2	2	2	0	1	0	2	2	2	2	16	44
Avatele landing improvements	2	2	2	0	2	0	1	1	1	1	2	2	16	44
UPS for airport	1	2	2	0	0	1	2	2	1	2	2	1	16	44
Prison upgrades	0	2	2	3	0	3	0	1	1	0	1	2	15	52
Building a container storage area	2	2	2	0	1	1	1	1	1	2	0	2	15	52
Tsunami warning system repairs	0	1	1	1	2	1	1	3	1	0	2	2	15	52
Import/export processing hub	3	3	3	0	1	1	0	0	1	1	1	1	15	52
Digitalization of education for all schools to support learning, future-proofing	1	2	1	3	1	0	1	1	1	1	1	1	14	56
New court building	1	2	1	1	2	3	0	1	0	1	0	2	14	56
Development of livestock farms	3	3	2	0	3	0	1	0	1	0	0	0	13	58
Fish aggregation devices	2	2	2	0	1	0	0	0	2	0	2	2	13	58

Name/Description	1a. Impact on economic growth and employment	1b. Overall financial position of the sector	1c. Efficiency gains or reduction in costs for infrastructure users	2a. Impact on quality or coverage of social services	2b. Impact on village development	2c. Impact on good governance	3a. Contribution to climate change adaptation	3b. Resilience and recovery of Niue to natural disasters	3c. Impact on the environment	4a. Linkages with other infrastructure	4b. Optimal use of existing infrastructure	4c. Urgency of the project	Total Score	Rank
Surveillance and monitoring facility and equipment	3	2	1	0	0	1	0	0	2	1	1	2	13	58
Biosecurity facilities at wharf	3	1	1	0	1	2	0	0	2	0	1	2	13	58
Street lighting upgrade	1	1	0	0	0	1	2	1	3	1	2	1	13	58
New public library and archives centre	0	2	2	3	1	1	0	0	1	0	1	1	12	63
Electric vehicles	0	1	2	0	1	0	3	1	3	0	0	1	12	63
Incinerator within wharf	2	1	1	0	0	2	0	0	2	2	1	1	12	63
Better pig sties	1	2	2	0	2	1	0	0	3	0	0	1	12	63
Second undersea cable	1	1	1	2	2	1	0	2	0	1	0	1	12	63
Evacuation bus	0	0	2	1	2	0	1	3	1	0	0	1	11	68
Relocation of families/villages from seaside to inner land.	2	0	1	0	3	0	2	3	0	0	0	0	11	68
Upgrading airport fuelling system	0	2	2	1	0	0	1	0	1	1	1	1	10	70
Airport incinerator	0	0	1	0	0	2	1	0	3	1	0	2	10	70
New classroom for special needs	0	0	2	3	1	1	0	0	1	0	0	1	9	72
Machinery for moulding facility	2	1	1	0	0	1	1	0	1	0	2	0	9	72
Additional building for the creche	0	1	1	3	0	1	0	0	0	1	0	1	8	74
Evacuation provision for tourists	1	1	1	0	0	0	1	3	0	0	0	1	8	74
Wireless alarm systems for fire systems	2	1	1	0	0	1	0	1	0	0	0	1	7	76
Sports stadium permitting indoor sports	0	0	0	2	1	0	0	2	0	0	0	0	5	77
Reorganizing airport parking	0	1	1	0	0	0	0	0	0	0	1	0	3	78
Provision of a school swimming pool	0	0	0	2	0	0	0	0	0	0	0	1	3	78

LPG = liquefied petroleum gas, NDMO = National Disaster Management Office, UPS = uninterruptible power supply.
Source: Authors.

Pacific Region
Infrastructure Facility

www.theprif.org