



NIUA ISLAND STRATEGIC  
DEVELOPMENT PLAN  
2015 - 2018

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Original text: English

# NIVA'S ISLAND STRATEGIC DEVELOPMENT PLAN

## 2015-2018

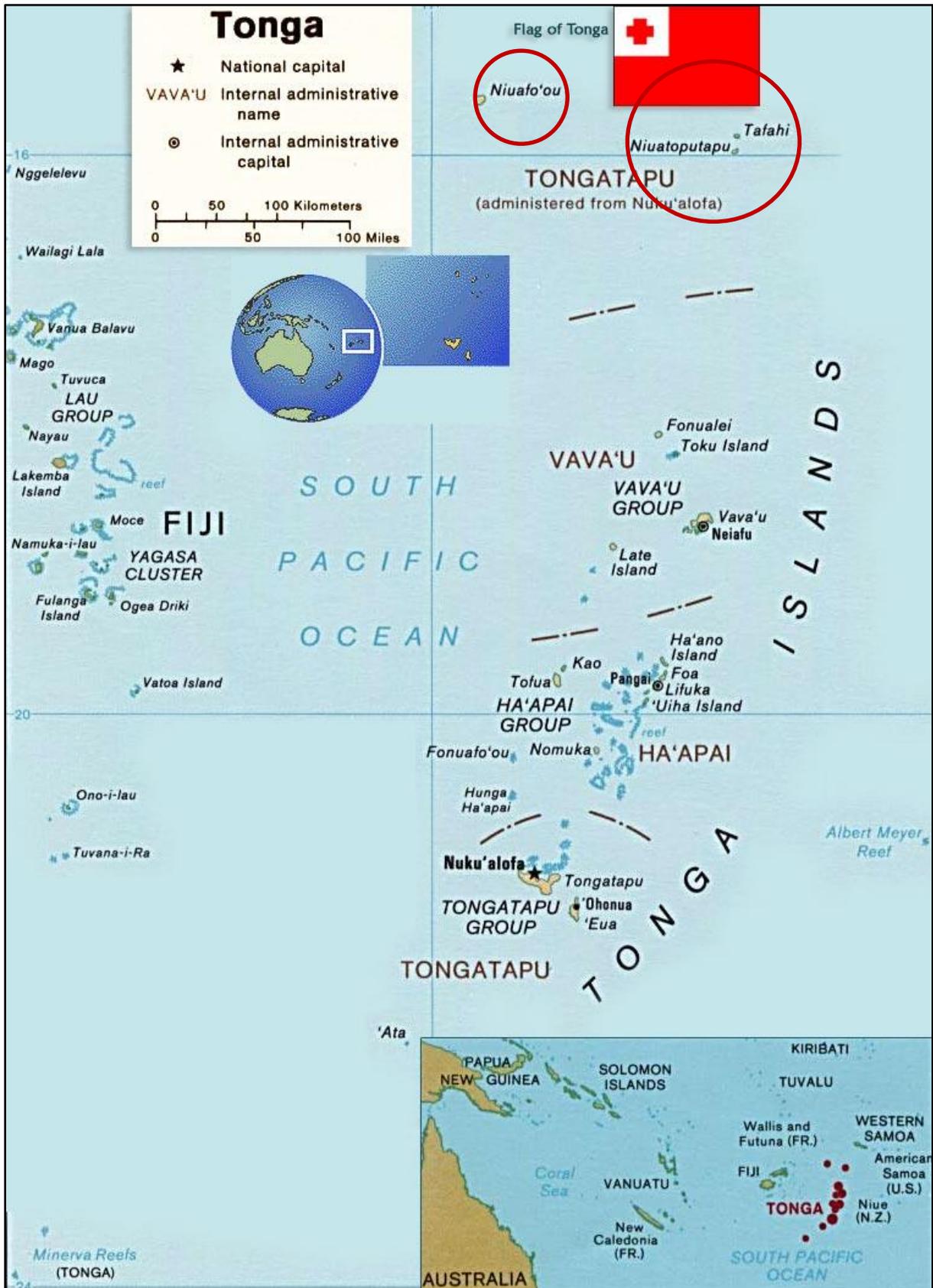
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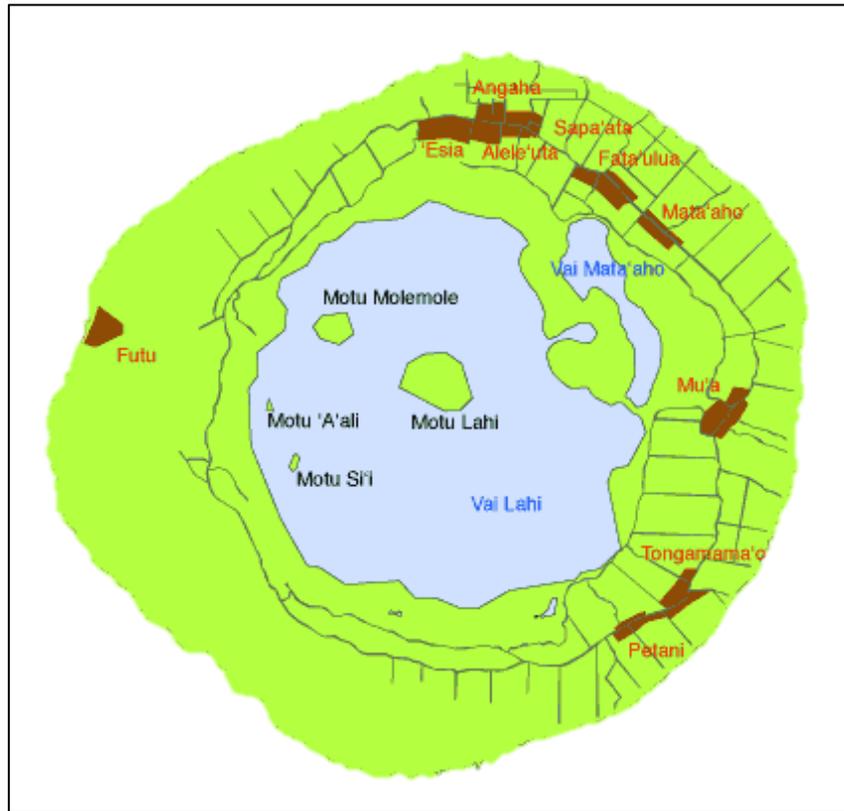
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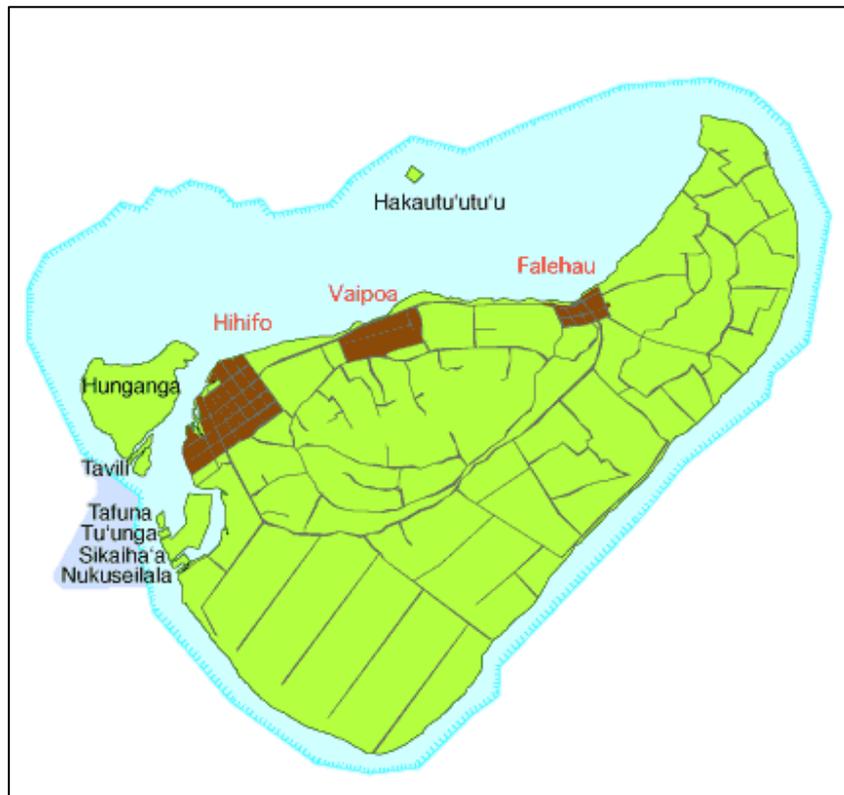
# MAP OF TONGA



## MAP OF NIUAFO'OU ISLAND



## MAP OF NIUATOPUTAPU ISLAND



# TABLE OF CONTENT

Map of Tonga.....	4
Map of Niuafo'ou Island .....	5
Map of Niuatoputapu Island .....	5
Table of Content .....	6
Abbreviation & Acronyms .....	7
1 Foreword .....	8
2 Introduction .....	9
3 Background.....	10
4 Approach And Methodology .....	12
4.1 Wider Planning Process Structure in Tonga.....	12
4.2 Review Of Existing Niuas Development Plans .....	12
4.3 The Planning Process .....	12
4.4 Climate and Disaster Risks Integration .....	13
5 Sectoral Background And Issues.....	16
A. Economic Sectors.....	16
5.1 Agriculture and Handicraft .....	16
5.2 Fishing .....	17
B. Infrastructure Sectors .....	17
5.3 Water .....	17
5.4 Renewable Energy (Solar Electricity) .....	17
5.5 Road.....	18
5.6 Wharf and Shipping.....	18
5.7 Airports and Air Services.....	18
5.8 Telecommunications .....	19
5.9 Town Halls And Evacuation Centers.....	19
C. Social And Community Service Sectors.....	20
5.10 Education .....	20
5.11 Health And Sanitation.....	21
6 Tier One Development Priorities.....	22
7 Second Tier Development Priorities .....	27
8 Monitoring And Evaluation .....	28
Annex 1: Wider Planning Process Structure .....	29
Annex 2: Strength, Weakness, Opportunity, Threat Analysis .....	30
Annex 3: List Of People Consult .....	36

## ABBREVIATION & ACRONYMS

CCDRR	Climate Change Disaster Risk Reduction
CDP	Community Development Plan
CHARM	Comprehensive Hazard and Risk Management
DDP	District Development Plan
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organisation
FISA	Friendly Island Shipping Agency
GoT	Government of Tonga
HH's	Household
IMC	Island Management Committee
MAFF	Ministry of Agriculture, Food , Forestry & Fisheries
MFNP	Ministry of Finance and National Planning
MIA	Ministry of Internal Affairs
MOE	Ministry of Education
MOH	Ministry of Health
MORDI TT	Mainstreaming of Rural Development Innovation Tonga Trust
NCD	Non-communicable diseases
NFO	Niuafu'ou
NSDP	Niva Strategic Development Plan
NTT	Niutoputapu
NZ	New Zealand
PLA	Participatory Learning Action
PRRP	Pacific Risk Resilience Programme
SPBD	South Pacific Business Development
SWOT	Strength Weakness Opportunity Threat
TS	Tongan Pa'anga
TBEC	Tonga Business Enterprise Centre
TCC	Tonga Communication Corporation
TERM	Tonga Energy Road Map
TSDF	Tonga Strategic Development Framework
TVET	Technical and Vocational Education and Training
USA	United States of America
WHO	World Health Organisation

# 1 FOREWORD

It gives me great honor to introduce the Niuva Islands Strategic Development Plan (NSCDP) for 2016-2019.

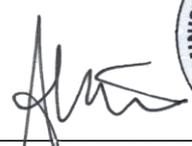
Tonga's Strategic Development Framework 2 (TSDF 2) was in the process of finalization, when the NSCDP was formulated. The timeliness of its preparation was made possible through several years of community-based, bottom up approach to rural community planning by the communities of these two remote, and most often neglected island districts. This plan compliments previous development plans prepared to guide the strategic and thematic developments in these two islands. The NSCDP links to all the five Pillars of the TSDF, but emphasizes predominantly in facilitating Pillars 1, 2, 3 and 5.

Key elements of the planning approach used include; the inclusion of the priority development needs of key stakeholders. This was realized through rural participatory planning, whereby intensive consultations with the local communities were undertaken. The existing bottom-up approach to planning, in which Community Development Plans (CDP) yielded District Development Plans (DDP) that link to the Niuva Island Development Plans (NIDP) was closely addressed. The NSCDP links these lower-level plans to higher plans such as the Tonga Agriculture Sector Plan (TSAP), Tourism Sector Plan (TSP) and NIP2. Vital considerations and attention were given to integrating Climate Change and Disaster Risk Management (CCDRM) into this plan. Further, this plan.

Built from these important links and participatory rural planning approaches, the plan outlined two categories i.e. tiers of potential development activities according to their importance. Despite the activities being categorized based on costs and priorities, the Monitoring and evaluation of the implementation process and quality, it is noted that the credibility of the M&E process highlighted the need to involve the local resident of these two vulnerable communities.

On behalf of the Niuva Development Committee, I am much obliged to acknowledge the Financial Assistance of the Pacific Risk Resilience Project (PRRP), which enabled the formulation of this plan. I thank the Ministry of Finance and national Planning (MFNP) for endorsing and facilitating of the preparation efforts. Lastly, I wish to thank the Mainstreaming of Rural Development Innovation, Tonga Trust (MORDI TT) for organizing and planning process from start to finish.

'Ofa atu



Honorable Fe'ao Vakata  
Chairman  
Niuva Development Committee

## 2 INTRODUCTION

The preparation of this Niua Island Strategic Development Plan (NSCDP) is undertaken in response to a request by the Niua Development Committee (NDC) for technical support to help prepare the plan. Because MORDI Tonga Trust (MORDI TT) has prepared community development plans for all 12 of the communities in the two Niua Islands during 2014, MORDI TT mobilized funding from the Pacific Risk Resilience Programme (PRRP) to fund a team to prepare the comprehensive NSCDP<sup>1</sup>.

There have been previous NSCDPs developed over recent decades — many of them have been useful documents. The team wishes to emphasize that this plan differs from previous plans in three key respects;

- (i) the inclusion of the priority development needs of key stakeholders, including both the Niua communities<sup>2</sup>;
- (ii) the planning approach has been based on realism in respect of financial resources availability and public service absorptive and implementation capacity; and
- (iii) climate and disaster risks are integrated in the process of developing this plan to ensure a resilient sustainable development in the two Niua's.

Preparation of the community plans has been the result of detailed consultation with each community by MORDI TT, the outputs of which are a set of prioritized needs that reflect the development aspirations of all sections of the communities, including women, men and youth. Because the strengthened and deepened community planning process, the priority activities presented in this document are a genuine reflection of community needs. The outcome is stronger community ownership of and commitment to their successful implementation and continuing maintenance. The advent of detailed community plans which are a genuine and representative reflection of all elements of the island communities has increased donor security to provide more funding support to outer island communities as well as encouraged Government to link their under-utilized staff resources in the islands to the implementation of these plans.

This NSCDP will reflect the needs and priorities of a number of key stakeholders, including the communities of Niuaotoputapu (NTT), Niuafo'ou (NFO) and Tafahi Islands, the NDC, Ministry of Internal Affairs (MIA) which has areas of responsibility including District, Town and Government Officers<sup>3</sup>, and the Ministry of Finance and National Planning (MNFP) which prepares the National Strategic Development Framework for Tonga and also funds the services and development activities on behalf of the Government of Tonga (GoT). The NSDP will also be relevant to the members of the donor community who also provide financial resources to implement additional development activities in the Niua's. These communities, agencies and institutions are the key "clients" of the NSDP.

Many development activities are funded from donor sources. The capacity of the Government of Tonga (GoT) to fund development, and even recurrent activities continues to be undermined by the increasing share of scarce financial resources that are needed to fund public service wages and salaries.

Potential development activities have been divided into 2 tiers depending on their relative importance. Tier One priority activities have been costed to the extent possible (in terms of both capital costs and recurrent costs) but this NSDP exercise is not only about priorities and costs. To have any relevance, there must also be a process to monitor the implementation progress and quality and to have credibility this monitoring process must significantly involve the residents of the affected target communities.

Furthermore, it has been widely recognized that climate change and natural hazards affect not only people but also developments at every level. As was experienced during the NTT earthquake and tsunami in 2009, disaster impacts on all sectors were severe and are taking several years, large amounts of both capital and technical expertise to regain at least pre-disaster status. The cost of disaster proofing development actions and reducing climate and disaster risks is minimal compared to the cost of disaster impacts without climate change and disaster risk integration. In the preparation of this plan, climate change and disaster level of risks were identified through community consultations with both Niua's and through the participatory process integrated in the development priorities.

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<sup>1</sup> A team consisting of: Anthony Ryan — Consultant, Viliamu Iese — Consultant, Taniela Hopenoa — Programme Manager / Live and Learn Environmental Education, Soane Patolo — General Manager / MORDI Tonga Trust

<sup>2</sup> As presented in the MTT community planning documents (Local Government Division —MIA will provide once requested)

<sup>3</sup> MIA responsible for Sport, Womens Affairs, Youth Affairs, Culture, Employment, District & Town Officers and Government Representatives.

### 3 BACKGROUND

The two Niua Islands (Niuatoputapu and Niuafu'ou) are together known as The Niua's and are comprised of two tiny, remote main islands. Niuatoputapu and Niuafu'ou are located 15.95 degrees south/173.77 degrees east and 15.60 degrees south/175.93 degrees east respectively, or approximately 600kms and 1,100kms north of Vava'u and Tongatapu respectively. The distance between the two Niua's is approximately 200kms and the tiny volcanic island of Tafahi is located 7kms from NTT.

NTT is a part volcanic, part limestone atoll island while NFO is an active volcanic island. The Niua's have a combined land mass of 53.5 square kilometers of which approximately 20sq. km's is a fresh water lake on NFO.

**The population of the Niua's fell by 34% and 24% in NTT and NFO respectively between 2006 and 2011<sup>4</sup>.** In 2011, the total population of the Niua's represents 1.24% of the total population of Tonga — down from 1.63% in 2006.

It can be argued that the very remoteness of the Niua's is their major contribution to the Kingdom of Tonga - the tuna rich Exclusive Economic Fishing Zone of Tonga comprises 700,000 sq/kms, of which the Niua's account for over 30% of this EEZ. But the reality for the people of the Niua's is that remoteness is a key development challenge, an important aspect of their current development status which in turn is a **key driver in out-migration and this is the single biggest development issue in the Niua's**.

There is no electricity reticulated to the Niua homes. The 2011 Census data indicates that 30% and 97% of households in NTT and NFO rely on solar energy for lighting — but about 50% of existing systems are non-operational. Although there is a reticulated water supply to the 3 villages on Niuatoputapu Island, in excess of 90% of HHs on both islands relies on domestic water tanks for drinking water supplies while 45% and 82% of HHs in NTT and NFO respectively rely on pit latrine sanitation.

The low existing development and absorptive capacity mean that any development activities need to be realistic in terms of geographic constraints, broadly targeted but still focus on key community needs. Further, transport links are both intermittent and expensive<sup>5</sup>. The 2009 tsunami which hit NTT highlighted the need for much improved disaster preparedness in these remote islands<sup>6</sup>.

Tonga is ranked third globally in terms of countries at risk of natural disasters - after Vanuatu and Philippines<sup>6</sup>. Tonga is also ranked second in terms of population exposure (55.2%) to natural hazards (earthquakes, cyclones/storms, droughts and sea level rise). Between 1969 and 2010, 19 out of the 55 cyclones (35%) were severe Category 3 or higher<sup>7</sup>. The latest one was the Category 5 Tropical Cyclone Ian in 2014 with estimated losses of US\$31 million. Cyclones are the most damaging natural hazard because of its short return periods (1 to 2 years), associated heavy rains and high strong storm surges<sup>8</sup>.

Of the island groups in Tonga, the Niua's are the most vulnerable to natural hazards and climate change due to their isolation, limited technical, financial, human and infrastructural capacity. The Niua's are highly exposed to cyclones, earthquakes, tsunami, droughts and volcano activities. The two most memorable natural disasters were the volcano of 1946<sup>5</sup> that led to the evacuation of most households from NFO to 'Eua Island and the Earthquake and Tsunami in NTT in 2009 which killed 9 people, destroyed government houses, offices, hospital, about 60% of households and an economic loss of 9 to 10 million USD. Most importantly, these hazards severely damaged crops and food supply, infrastructure, buildings and disrupted important basic services and livelihoods for prolonged period of times.

Climate change will continue to have adverse impacts for Tonga and Niua respectively. According to various climate change models for Tonga, the average sea level and temperature will continue to rise. There will be variations of annual average rainfall, frequency and severity of extreme events such as cyclones, droughts and storm surges. Therefore the Niua's are highly exposed to climatic and natural hazards.

The two Niua's are divided into two administrative districts with a total population of 1,382: (i) NTT has a population of 759 in 4 villages (2011 census)<sup>7</sup>; and (ii) NFO has a population of 523 in 8 villages. There is a Government representative posted in both islands and both the Nobles and the people of the Niua's each have one representative in the Tongan Parliament.

There were many Disaster preparedness and responds plans for NTT communities established after the tsunami but the implementation and monitoring and evaluation have been very poor due to lack of funding and proper coordination between the various groups.

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<sup>4</sup> 2011 Census

<sup>5</sup> The air and boat services are both more or less monthly. The one way air and boat fares to Tongatapu cost TS300 and approximately TS650 respectively — depending on which Niua.

<sup>6</sup> In addition to the delays in GoT decision making after the Niuafu'ou volcanic eruptions of 1946 when the Minister of Lands refused help from NZ and USA navy ships but a plebiscite 15 days later resulted in 1078 HHs (79%) requesting urgent evacuation.

<sup>7</sup> One of the four villages is the community on Tafahi Island.

Seasonal migrant labor schemes to NZ and Australia provide seasonal employment opportunities for around 4,000 Tongans of whom 78 (54 to NZ and 24 to Australia)<sup>8</sup> are sourced from the Niua's and can typically save around T\$15-20,000/year. Another major economic driver has traditionally been remittances from family members in elsewhere in Tonga, NZ, Australia and USA. While remittance flows have slowed as a result of economic weakness in those countries, the 2011 census data shows that in NTT and NFO, 73% and 81% of HHs respectively received remittances — which can be viewed as an opportunity to improve self-reliance and income resilience.

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<sup>8</sup> Min. Internal Affairs 10.7.15

## 4 APPROACH AND METHODOLOGY

### 4.1 Wider planning process structure in Tonga

The Team wishes to emphasize the changes to the planning process used in the preparation of this NSDP. After the Team met the Niua Development Committee (NDC) at the start of the mission, it was agreed that a wider planning process structure<sup>9</sup> would guide the Team in their work. This NSDP revision has benefited greatly from the established district (DDPs) and community development plans (CDPs) and the support and guidance of the MORDI Tonga Trust using well established Participatory and Learning and Action (PLA) tools.

This proposed revised NSDP will be central to the wider planning process structure with inputs from the Niua communities. It will also be an important source document for those implementing sector plans — especially in the agriculture, fisheries and infrastructure sectors. The high level national plan (Tonga Strategic Development Framework) is linked by the sector plans to the NSDP. Thus, the NSDP bridges and harmonizes the linkages between the higher level national plans on the one hand and the community plans on the other. It represents a logical and progressive planning process that is systematically built from bottom-up while linkages to sector plans ensure the NSDP also relates to higher level plans - crucial to the relevance, ownership and success of the NSDP.

### 4.2 Review of Existing Niua's Development Plans

The current NSDP (2012-2016) was prepared by the Member of Parliament for the Niua's in 2011<sup>10</sup> but has not been presented to cabinet for official approval. The team acknowledges that the Member's plan made considerable effort to identify and accommodate the needs of the people of the Niua's and that this current plan provides a transition pathway to the proposed, new NSDP (2016-2019). The current Member's plan also takes a strategic approach to ensure sustainable socio economic development for the Niua's and is intended to align with the Tonga Strategic Development Framework (TSDF) 2011 – 2014.

### 4.3 The Planning Process

**The Niua Island Strategic Development Plan (2012-2016)** was reviewed and the planning team has the following comments: (i) the plan identifies a set of 5 “outcome objectives”, each of which is supported by 2-3 activities which are intended support achievement of each objective. In reality, four of the objectives roughly address a development sector — education, health, income generation and infrastructure with the fifth objective addressing active community engagement in the development process. While this is an appropriate structure, the activities are somewhat general and lack linkage to clearly identified investment opportunities. Further, there are no identified implementation opportunities for civil society, the communities themselves or even the private sector. Despite being almost entirely focused towards government agencies, the plan made no attempt to account for the capacity of government to actually design and implement the required activities, or to provide indications of costs required for implementation.

**Community Participatory Planning Report for Niua (September ~ October 2014)** was prepared by the two Niua district officers with support from MORDI TT. Twelve communities were consulted and each community's prioritized needs were compiled into the relevant district plan. While there a number of issues identified which are specific to individual districts and communities, there are a three priority issues which are clearly important concerns for all communities in both islands and a further two issues which are of specific concern in each island. A scoring system was used to find the rankings which are outlined in Table 1 below<sup>11</sup>:

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<sup>9</sup> Refer to Annex 1 “The wider planning process structure”

<sup>10</sup> Hon. S. Fe'ao Vakata, People's Representative for the Niua's and Chairperson of the Niua Development Committee.

<sup>11</sup> The scoring system accounts for the ranking of each identified issue, and the number of communities which raise the issue.

**Table 1: Ranked priority needs – The Niuva’s.**

#	Issue	Ranking	
		NTT <sup>12</sup>	NFO
1	Livestock damage / broken boundary fence	1	3
2	Lack / damaged HH water facilities	2	1
3	Damaged hall/no evacuation center	3	2
4	Lack hospital equipment	4	-
5	Lack HH solar energy	5	-
6	Poor condition of roads <sup>13</sup>	-	4
7	Lack of tools <sup>14</sup>	-	5

The proposed plan addresses all of these priorities in some dimension. Other lower ranked priorities include village hygiene, farm and household tools, flush toilets and sports equipment - some of these activities are addressed in this revised plan as well.

#### 4.4 Climate and Disaster Risks Integration

Climate Change and Disaster risk identification and analysis has been undertaken - based on a community participatory comprehensive hazard and risk management (CHARM) process. During the community planning process in both Niuva’s, the MTT teams worked with the town officers and communities to identify risks in each community. The CC-DRR risk mapping activities were done with groups of men, women and youth. This is important as the plan will be implemented at the community level involving all three groups.

A separate CC-DRR ranking was done during the 2 hour consultations with each island community (based on MORDI TT experience of “consultation fatigue”). Information collected during the consultation was the seasonal calendar to show seasonal timing of occurrences of climate related hazards and social-economic activities the islanders are involved with during the year. The types of disasters the islands were affected, including the years, impacts as well as the developments or the coping mechanisms used by the communities were also mapped. The two communities listed the following disasters they remembered and their impacts on important sectors.

<sup>12</sup> Note: Compiled from priorities of 3 communities on Nivatoputapu and one on Tafahi Island.

<sup>13</sup> Note – this refers to various roads, incl. village, agricultural, access to fishing, access to quarry.

<sup>14</sup> Note – this refers to various tools, incl. handcraft, gardening, road maintenance, engineering and fishing.

**Table 2:** Disaster and their impacts on the Niuva's sectors *(from Community Consultations)*

<b>Disaster/Year</b>	<b>Niuvafo'ou Impacted Sectors</b>	<b>Niuatoputapu Impacted Sectors</b>
Volcano (1946)	Health, agriculture, Infrastructure. The islanders were relocated to 'Eua Island	No impact
Tropical Cyclone (1960)	No impact	Water, Agriculture, Infrastructure
Drought (1970)	No impact	Agriculture and Water
Tropical Cyclone Ofa (1990)	No impact	Water and Agriculture
Tropical Cyclone Ron (1998)	Agriculture, Fisheries, Infrastructure, Solar system, Public utilities,	No impact
Tropical Cyclone Waka (2000/1)	Agriculture, Fisheries, Infrastructure, Solar system, Public utilities	Water, Infrastructure and Health
Tsunami (2009)	No impact	Infrastructure, Houses, Fisheries, Agriculture, Water, 9 people died
Droughts (almost every year)	Water and Agriculture	No impact
Earthquakes (almost every year)	Water, infrastructure, health	No impact

The community developed their Risk descriptors (Table 3) to describe and quantify the level of impacts at the Island level. They also developed their Island Risk Matrix combining the Likelihood of occurrence, Level of impacts and identifying the level of risk treatment based on the community experiences and resources. Finally, this process developed a risk analysis matrix, including the hazard, the problem or priority identified by the community and the likelihood, potential consequences and the level of disaster risk.

CC-DRR integration into Island, district and community development plans were at the relationship between the type of hazards that occurred at the island and their impacts on the normal functioning of the communities (with respect to various critical sectors). Also the level of risk is an additional criterion for prioritizing community development needs. The communities prioritize development needs not only because of urgency, but also to reflect the level of climate and disaster risks the need will treat. The level of risk is also integrated to make CC-Disaster Resilient Solutions. The proposed community solutions will be implemented according to disaster-proof standards to reduce the risk to the population and also their sources of livelihood.

**Table 3: Risk descriptors for each Island**

<b>Risk Descriptor</b>	<b>NFO Description</b>	<b>NTT Description</b>
Low	No one die, no injury, 10% damages to one or more important sectors (Agriculture, Water, Health, Education, public utilities)	No damage to water supply, houses, crops and no loss of lives
Moderate	No one die, less than two people injured, about 40% damages to one or more important sectors	No damage to gutters, 5% damages to banana trees, All breadfruits fell, some damage to iron roofs, no one injured
High	1 person die, less than 10 injuries, about 60% damages to one or more important sectors	10% of livestock died, 50% damage on plantation/crops, Houses fully blown off up to 5 houses, 1 dead, 50% damages to water sources and storage
Very High	About 10 people die or evacuated, more than 10 people injured 80 to 100% damages to important sectors.	30 % livestock dead/damages More than 50% damages to crops/plantations, less than 50% house blown off, more than two people died, less than 50% damages to water tanks

The level of risks identified in the risk matrix is related to the need to treat it and who should address it. There are three levels used. Firstly, the Low Risk level (L) should be monitored by the community. The second level is Medium Risk (M) which is a risk the community should address based on their level of capacity and seeks external assistance to implement actions to reduce it. The last one is the High Risk (H) which is needed to be addressed urgently and the community should seek external assistance to address it. The priorities Tier 1 and 2 were identified including the potential climate change and disaster level of risks.

# 5 SECTORAL BACKGROUND AND ISSUES

## A. ECONOMIC SECTORS

### 5.1 Agriculture and Handicraft

Any discussion about livelihoods improvements in the Niuva's is largely a discussion about agriculture and handicrafts as the major opportunity for income generation. There are important differences between Niuvafo'ou (NFO) and Nuiatoputapu (NTT) — notably in terms of soil type. NFO has highly fertile volcanic soils while NTT has limited fertile soils and more sandy, less fertile, drought prone soils. But both Niuva's have common features as well. Because they are so remote, with intermittent and expensive shipping links, access to markets for both agriculture and handicrafts products is limited. Many producers market through family members in Tongatapu but this approach can be unreliable. Other common constraints to food and agriculture production are livestock damage from roaming pigs, a lack of understanding of market chains and the need for traders and processors to make a fair margin, market awareness, loss of labour due to out-migration, and the low capacity of farmers to absorb and understand technical messages from MAFFF staff.

While the relatively recent introduction of seasonal migrant labour schemes by New Zealand and Australia has introduced employment opportunities for many Tongans, including about 78 Niuva's in 2014, it has exacerbated the shortage of staff for agricultural activities.

While farmers in both Niuva's face important risks from cyclones, droughts, climate change and, in NTT, tsunamis, there are realistic opportunities which can be turned into reality. These opportunities include:

- (i) planting sandalwood trees for long term investment;
- (ii) planting climate resilient crops and trees for sustainable food security and livelihood
- (iii) fencing of agriculture plots to exclude roaming livestock;
- (iv) in-service training for MAFFF extension staff;
- (v) the shipping link to Samoa currently being trialed by MAFFF;
- (vi) training women on producing non-traditional handicraft that meet market demand;
- (vii) targeting donor climate adaptation funds; and
- (viii) capturing and documenting traditional agriculture and handicraft knowledge.

In addition, there are specific aspects of agriculture development in each Niuva.

#### **NIUAFO'OU**

The soils and climate of NFO enables farmers to grow a greater diversity of crops, including the high value crops of kava and vanilla. In addition, NFO farmers have a reputation for hard work which means that there are rarely any food security issues. This hard work was well demonstrated in 2014 when with support from the MAFFF extension officer and MORDI TT staff, NFO farmers established an additional 42 acres of vanilla, intercropped with kava with a potential annual income of T\$168,000.00. There are good market prospects for both these crops The European Union recently allowed kava to be imported for medicinal and pharmaceutical purposes while prices for vanilla are strong. There is additional potential to enhance earnings by value adding by drying green beans. The current green bean farm gate price is about T\$40.00/kg while the price for cured beans is about T\$130/kg. Given a ratio of green bean to cured bean ratio of 1:5, this represents a 30% margin for cured beans over green beans.

#### **NIUATOPUTAPU**

NTT agriculture is more focused on food production, with potential for root crop exports to Samoa. In fact, NTT has indigenous root crops (i.e. sweet yam (*ufilei*)/taro (*lotuma*)). The island of Tafahi (near NTT) has fertile volcanic soils — allowing NTT farmers to produce limited amounts of kava and green leaf crops (taro leaf or "lu") as well. NTT is also well known as a producer of high quality fine mats which are valued in important social occasions like weddings and funerals. For example, a mat which is 12m by 2m sells for T\$2,000.00 in Tongatapu and even more in USA, NZ or Australia. However, there are constraints to capturing and sustaining the full benefits of this market. As discussed, selling through family members frequently results in partial or no payment to the NTT producers. The other constraint is limited or insufficient access to the raw materials for fine mats — paper mulberry trees (*Broussonetia papyrifera*). This constraint can be addressed by farmers working with MAFFF to ensure young plants are produced from nursery stage for planting.

## 5.2 Fishing

As discussed, the Niuas contribute around 30% of the Tonga EEZ in waters which are rich in tuna stocks. Despite this, fishing in both Niuas is basically a subsistence activity for household food. While there is limited potential to further develop this as an economic resource in the Niuas, there are opportunities to improve fishing:

- (i) safety; and
- (ii) performance as well as post-harvest quality.

In particular, factors such as:

- i) lack of fishing boats;
- ii) poor fishing equipment;
- iii) lack of navigation equipment;
- iv) lack of post-harvest skills; and
- v) lack of ice making equipment and cool boxes can be addressed.

However, in the case of outboard motors, freezers and ice making equipment, unless and until improved technical skills can be developed to maintain and sustain such investments, there is limited likelihood that such investments can be justified. There are however opportunities to facilitate the purchase of fishing and safety equipment by fishermen.

## B. INFRASTRUCTURE SECTORS

### 5.3 Water

Drinking water is the main priority concern of communities on both Niuas — both availability and quality of water. While both Niuas enjoy significant rainfall, the existing state of household water storage is generally poor, except for the 74 households<sup>15</sup> (44%) on NTT that have been rebuilt in safer locations since the tsunami which received 5000L drinking water storage tanks. These 74 homes still need to be connected to the community reticulation system for non-drinking water. This system draws water from natural underground reservoirs. Ninety five percent of the 114 households on NFO have cement water tanks (mostly old, 20,000L which are prone to cracking).

However, there are number of issues associated with water supplies on both Niuas. In particular, despite there being a water management sub-committee of the Village Committees, the standard of maintenance of household water systems is weak. There are issues with broken spouting, pipes, and taps which are linked to a lack of plumbing technical skills. In addition, delivery of plastic water tanks to the Niuas is expensive — estimated as T\$1,400 per unit<sup>16</sup> and water quality is not regularly tested. In addition, there is discussion in some quarters around the environmental sustainability of exploitation of fresh water reserves from the tiny inland lake (*Vai Inu*) on NFO which is part of a larger inland lake (*Vai Lahi*) which is brackish or mildly saline. While the surface area of Vai Lahi is around 1250 ha, the surface area of *Vai Inu* is only around 1.5 ha or about 0.1% of the total lake area. As a result, a very careful environmental impact assessment is a critical first step in making this decision.

There are opportunities to address the water supply issues on both Niuas. These include using donor climate proofing funds to finance water supply improvements, provision of training for technicians/plumbers to underpin maintenance and equipping the water technicians on both Niuas with WHO water testing kits. However, water supply improvements of any kind are subject to the risks associated with earthquakes, climate change, cyclones and El Nino droughts.

### 5.4 Renewable Energy (Solar Electricity)

Both Niuas suffer from poor household energy services for household lighting. NTT communities rate this issue as a priority community concern. In NFO, despite having at least \$100,000 on deposit to fund repairs, only about 50% of the existing home solar systems are operational — despite there being an Island Management Committee (IMC) to manage home solar maintenance and replacement which has T\$100,000 invested for system parts replacement. This investment fund is built from the fees paid by home owners — 60% of the fees charged to users of home solar systems on NFO are invested to pay for system replacement with the remainder being spent on operation

<sup>15</sup> Note: 81% of homes in Falehau, 45% in Hihifo, and 15% in Vaipoo.

<sup>16</sup> But reducing for larger quantities.

costs — mostly technician salary. Despite this apparently sustainable system, 50% of home solar systems are not operational. The main challenges are expired storage batteries needing replacement, weak technical skills, lack of basic spare parts (including light bulbs and light fittings). Another challenge facing the IMC is the funding gap — current user fees represent about 50% of full costs.

There are a number of opportunities to improve the home solar energy situation. These include installing home solar systems in NTT, increasing the wattage of the solar panels from 150W to 220W — which will enable better lighting and possibly other appliances e.g. refrigerator, introducing more modern technology, especially batteries and panels, providing increased standard of training/re-training for technicians, reviewing the current IMC with a view to improving financial performance and customer satisfaction (including addition of customer representatives to the IMC), introducing an incentive scheme for IMC to improve their performance e.g. after 4 weeks without functional repair, a customer receives a week of free service for every continuing week without functional service, introduce an independent customer satisfaction survey — ideally a telephone survey, and ensure more regular and transparent audits of IMC accounts. There are a number of potential threats to the home solar systems, including damage from cyclones, earthquakes, tsunamis and a continuing high rate of out migration shrinking the customer base. Just as with poor education and health services, a dysfunctional household lighting system will encourage families to leave the Niua's.

## 5.5 Road

There are existing road networks but with different conditions on two islands of the Niua's. There is a tar sealed road (4km (T\$540,000)) on NTT that was built after the tsunami in 2009. But some part of the road (especially the agriculture roads) is damaged because of heavy rain and wandering livestock. NFO roads have been in very poor conditions for a long time. Roaming livestock, land erosion caused by heavy rain and poor road designs are also contributing factors to the poor conditions of the roads. According to the communities, the roads to farm lands, lake and the sea are needed to be properly maintained. There is a need to establish and encourage community based construction and maintenance of roads. The road drainage system should be established to minimize the impacts of heavy rain and cyclones. The roads will be useful as evacuation routes for the communities before and during disasters.

## 5.6 Wharf and Shipping

Shipping connections are very important to the people of the Niua's. Both islands are served by the Friendly Islands Shipping Agency (FISA) with a service which is subsidized by GoT at the rate of \$40,000 per trip for up to 4 trips per year. The inter-island ship was a new vessel in 2010<sup>17</sup>. NTT has a wharf at Falehau but the channel through the reef is shallow, narrow and without navigation lights since the 2009 tsunami. At NFO, there is no wharf, and cargo unloading can be very dangerous in either a low tide and/or big seas. The overnight service from Vava'u to either Niua takes around 12 hours, arriving at day break when unloading is possible. However, at NFO, when daybreak coincides with low tide, because there is no wharf, the ship has to come close to the rocks and frequently suffers damage which is a significant charge to FISA. All freight is one way to the Niua's — there is almost no freight coming from the Niua's. Freight costs T\$750.00 for a 7 foot container and passenger rates to Tongatapu are T\$159.00 per adult with a bunk but without food and T\$210 with food provided.

The trial freight service between Tongatapu and Samoa, stopping at island groups in between has made 3 voyages, but there has never been freight collected at either Niua. This service is in jeopardy due to trade restrictions for Tonga products into Samoa. The vessel is currently in Fiji for repairs after hitting a reef in Ha'apai.

## 5.7 Airports and Air Services

The Niua's are served by air services operated by Real Tonga Airline. The service runs on a repeating 3 weekly cycle with 2 trips to NTT and 1 to NFO per cycle. Fares are T\$590 and T\$620 to NTT and NFO respectively with 85% of passengers being GoT officials. There are almost no tourists and almost no Niuan's locals using the service. The cost of aircraft charter to the Niua's is T\$6,200 and T\$6,800 to NTT and NFO respectively, plus T\$450 per hour on the ground in the Niua's. The freight service for a minimum of 30kg consignment costs T\$5.70 and T\$6.10 for NTT and NFO respectively. Despite this, the air service is running at a loss of approximately T\$2,000 per trip — which is currently being borne by the airline. Part of the problem is the necessary reduction in passenger loading of the aircraft<sup>18</sup> due to Tongans being significantly heavier than Chinese people<sup>19</sup>.

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<sup>17</sup> Donated by Japan.

<sup>18</sup> Donated to Tonga by the Peoples Republic of China.

<sup>19</sup> For aircraft loading purposes, the average weight of Chinese men and women is calculated at 75kg and 65kg respectively — compared to 115kg for both Tongan men and women.

The grass airstrips on both Niuva's are 1.4km and 1.3km long on NTT and NFO respectively. Because they have grass surfaces, and because the grass must be completely dry before the aircraft can land safely, around 85% of all Niuva's flights are delayed while the grass dries – typically for 1-2 hours but about 30% of flights are cancelled and re-scheduled. This causes considerable frustration and cost to REAL Tonga as well as to passengers. The cost of surfacing the airstrips with 900m by 12m will be around TS\$4.3m<sup>20</sup> each.

## 5.8 Telecommunications

Telecommunications to the Niuva's is based on satellite links operated by Tonga Communications Corporation (TCC). The current service capacity is 256Kb per second to each island (i.e. around 4 channels). Since the damage to telecommunications infrastructure in the 2009 tsunami, TCC offers a mobile phone service in NTT while NFO has both line and mobile service. However, 2 NFO villages (Mu'a and Tongamama'o) are unable to receive mobile signal. Operating the telecommunication service in the Niuva's is expensive – solar powered infrastructure costs TS\$150,000 - TS\$200,000 per island to install, the current satellite link costs around \$1,000 per month with additional operation and maintenance costs – mainly diesel for backup generator and salaries of 3 staff per island. Revenue is limited because of low call traffic and call costs to, from and within the Niuva's are 17c per minute – the standard rate across all of Tonga. As a result, TCC is currently subsidizing the Niuva's service.

The current link (256Kb/sec) is too slow to operate internet properly. The cost of upgrading to internet capable links (i.e. to around 1Mb/sec) would be TS\$3-4,000 per month which is uneconomic in the current environment<sup>21</sup>. The prospects of fiber optic cable being laid to the Niuva's are remote – due to both cost and the technical risks associated with laying a cable across the Tonga Trench.

## 5.9 Town Halls and Evacuation Centers

The need for town hall rebuilding, repair and relocation is one of the top priorities the communities identified. The town halls are used for meetings, weaving and social gathering, and by students also use it for studying. All of these important socio-economic activities are hindered because of the poor conditions of the halls. Some of them were built in the early 1990s. The existing town halls are small and worn down with rusty roofing and lacking lights and toilets. The current poor conditions and the location of town halls are added to the vulnerability of the communities against climate change and natural hazards. There is also no revenue system in place to collect funds to maintain the halls.

The population of the communities is decreasing. A proper assessment is needed to identify which town hall that should be rebuilt and expanded, maintained and also relocated to safer places. There is also a need to disaster proof (against cyclones, earthquakes and volcano) the multi-purpose halls and ensure that all basic services (toilet, lights, water storage) are available for the community. The hall will also be used as an evacuation center before and during disasters. The community should form a Hall Management Committee and charge a user fee to be used for renovation and maintenance.

Table 4: Communities and status of their town halls.

Town hall	NTT	NFO
Community with Town hall	Falehav, Vaipoa, Hihifo <sup>24</sup>	'Esia, Kolofu'ou <sup>22</sup> , Sapaata <sup>23</sup> Fatailua, Tongamama'o <sup>24</sup> , Petani
Community with No town hall		Mata'aho, Mu'a
Community that use churches hall		Kolofu'ou, Sapa'ata, Mata'aho, Tongamama'o
Community that uses home or residential place		Mu'a

<sup>20</sup> Based on re-surfacing the "Eua strip (800m x 12m) at TS\$3.2.

<sup>21</sup> Note – when asked why they left the island for Tongatapu, a group of young Niuvafo'ou people replied "no Facebook".

<sup>22</sup> Town halls with no walls, it gets wet and windy during rain and storms affecting community activities

<sup>23</sup> The town hall is worn down and unsafe for the community

<sup>24</sup> New halls were built after the tsunami

## C. SOCIAL AND COMMUNITY SERVICE SECTORS

### 5.10 Education

Poor quality of education services and facilities is a major factor in encouraging out-migration by young families from any location and in the Niuva's (as discussed), between 2006 and 2011 the populations dropped by 34% and 24% in NTT and NFO respectively.

**Table 5: Education – pupils and teaching staff data**

		NTT	NFO
<b>Pupils</b>			
	<i>Primary</i>	97	96
	<i>Secondary</i>	128	109
<b>Teachers</b>			
	<i>Primary</i>	9	5
	<i>Secondary</i>	21	17
<b>Teacher: Pupil Ratio</b>			
	<i>Primary</i>	10.8	19.2
	<i>Secondary</i>	6.1	6.4

While high schools in both Niuva's now offer education to Form 7 level, an important factor in education delivery is the quality of teaching. While teachers are rotated to the Niuva's, some find reasons not to go and many do not last the appointed time. While teachers are paid a location allowance of T\$2,000, they argue this is insufficient to meet the additional costs of living. School certificate pass rates in both Niuva's are in line with national levels. At least part of the reason for this is the lack of distractions for young people in the Niuva's, but on the other hand, on NFO, the home solar lighting system is only functional in about 50% of homes, making homework very difficult. Students from the Niuva's who travel to Tongatapu for further education face the culture shock of adjusting to a very different location and NTT pupils suffer an additional disadvantage of speaking with a different accent which causes stigma and loss of confidence. As a result, the performance of good NFO students frequently drops steeply when they move to Tongatapu for further studies.

School facilities in NTT have been significantly upgraded since the tsunami of 2009. The school has been relocated further inland and buildings are now constructed to meet increased risk of major climatic and natural events. In NFO, on the other hand, school facilities are sub-standard. The high school was rehabilitated in 2000 using local bush materials. There is now an urgent need to upgrade these facilities to the standards that apply elsewhere in Tonga and also to ensure they are climate proof. In addition to adequate buildings, including the quality of housing for teachers, NFO high school needs basic facilities like desks, chairs, books, toilets and water supply. In addition, where it is appropriate, school halls can be constructed or modified to serve as both a school and community hall as well as an evacuation center in the event of an emergency. This would mean modification of the design or existing structure to provide adequate shower, toilet and cooking facilities as well as secure storage for emergency kits<sup>25</sup>.

There are realistic and practical opportunities to improve education in the Niuva's. As discussed, NFO high school is in urgent need of rehabilitation, greater attention needs to be paid to preparing teachers for service in remote locations, of ensuring they are fairly compensated for the cost of living there and that teacher housing is of a livable standard. Further, because the operating life of important investments e.g. solar lighting and water supplies are significantly reduced because of lack of quality maintenance, greater attention should be paid to offering practical training in important technical skills e.g. carpentry, plumbing, electrics and mechanics. Similarly, with early childhood education in the Niuva's, there are informal and private early childhood education services, but the standard of teaching and quality of facilities are variable. The Education Act 2013 allows for early childhood education to be integrated into primary schools and this should be implemented in the Niuva's as a matter of urgency.

<sup>25</sup> Note: Provision of adequate evacuation centers was identified as a very high priority by all 12 Niuva communities

The transition of pupils from Niua's to Tongatapu could be enhanced with better preparation for school leavers for life beyond the isolated Niua's. Similarly, youths who are applying for seasonal labor schemes could be provided with preparation training to help their adjustment to life and employment in NZ.

Additional education opportunities which are worthy of careful consideration are; (i) provision of distance learning opportunities — for pupils wanting to take subjects not offered in the Niua's, and for provision of vocational skills as outlined above; and (ii) development of twinning relationships with schools in Tongatapu, or New Zealand. This would enable teachers in the remote Niua's to enjoy mentoring support from other teachers and students to interact with pupils from another location/culture. In addition, there could potentially be exchange visits between schools.

### 5.11 Health and Sanitation

The standard of health in the Niua's is generally good. Immunization rates are almost 100%, there are few incidences of non-communicable diseases (NCD) - especially diabetes and hypertension, currently one known recorded case of tuberculosis in NTT and a recent (2015) survey shows negative test results for filariasis. Most cases are injuries and dental care — which are magnified by the remoteness of the location. Three major health development issues are identified.

First, the two Niua's are located far away from Tongatapu and Vava'u Islands, the main centers of government activities. The health related impact of remoteness is increased by inconsistent and intermittent shipping services which affects the supply of medical equipment's, medicines and health staff. There are no specialized dentists and midwives on the islands and medical equipment need replacing. Generally, pregnant women, and especially first birth mothers, transfer to Vava'u well in advance of delivery date. There is an annual national evacuation fund of T\$500,000 for transfer emergencies and critical patients to Vava'u or Tongatapu. In 2014, there were 10 medivac cases from NTT and 2 from NFO, each costing around T\$8,000.00. The Ministry of Health also pays for the transfer of potentially at risk pregnant women to Vava'u or Tongatapu for further medical tests and delivery.

Second, the NTT hospital which was destroyed by tsunami in 2009 has not been replaced - 7 years on. There is still no agreed final design for the replacement facility. Meantime, while there is a temporary clinic staffed by a nurse and health officer the health service remains very limited.

Third, sanitation is poor in both Niua's — in fact the 2011 Census shows that 45% and 79% of NTT and NFO respectively still have pit toilets. Further households with flush or manual flush toilets have little water with which to flush their toilets. In addition, there is no waste composting or garbage collection service — around 90% of garbage is burned.

The health and sanitation sector is prone to climatic and natural hazards. Tropical cyclones, heavy rains, earthquakes, tsunami, rising sea level are common in the Niua's group. Climate and natural disasters not only affect human lives but also critical health infrastructures. As a response, the Ministry of Health has developed a National Health Disaster Management Plan 2014 — 2018.

Most importantly, there are several opportunities available which can improve health and sanitation outcomes in the Niua's. These include:

- (i) consider introduction of distance diagnosis systems to support local health staff;
- (ii) regular water quality testing (ecoli and other contaminants) using WHO testing kits;
- (iii) working with MAFFF extension and Ministry of Education curriculum staff to improve awareness of dietary benefits of vegetables;
- (iv) provide in-service training for remote location health staff; and
- (v) review location allowances for medical staff posted to the Niua's to ensure they are fairly compensated for additional costs (as for education staff).

Finally, there are opportunities for improvements which can be financed from donor climate and disaster proofing funding. These include:

- (i) increase household water storage;
- (ii) establish proper toilet facilities including composting toilet for NFO;
- (iii) specialized training on waste management people to improve awareness on waste disposal, sorting, recycling and composting; and
- (iv) distribution of emergency health supplies in each island to prepare for natural disasters.

## 6 TIER ONE DEVELOPMENT PRIORITIES<sup>26</sup>

### ECONOMIC SECTOR

**TABLE 6: AGRICULTURE AND HANDICRAFT DEVELOPMENT PRIORITIES**

AGRICULTURE	IMPLEMENTING & MONITORING	COST	SOURCE	POTENTIAL DISASTER RISKS <sup>27</sup>	RISK LEVEL <sup>28</sup>	
					NFO	NTT
Multi-purpose Pack-house NFO	Partnership MAFFF / MORDI TT	TS400,000.00	MORDI TT	C- damages including building, tools, products; reduce supply of products/yield; disrupt shipping schedules and unloading of materials D – reduce crop yields, affect production line E, V – structural damages and reduce supply	H  H L	
Handicraft Value Chain Study – Improvement	TBEC / MORDI TT	TS40,000.00	TBEC / MORDI TT	C, D- damages to supply chain especially production, disrupt shipping schedules causing delay	H	H
Extension training staff & houses & CF NFO/NTT	MAFFF	TS20,000.00	TASP	C, D, E, V – disrupt schedules and structural damages to houses; reduce performances of field trials	H	H
Introduction of Climate Change crops NTT Climate proofing / Food Security by	MAFFF Research Extension	TS100,000.00	SPC	C, D, E, V – reduce yield, crop damage, water shortage T – crop damages, salt water intrusion	H M	H M
Review Health Staff Allowance as per education				-		
<b>TOTAL AGRICULTURE:</b>	<b>Capital Expenditure: Recurrent Expenditure:</b>	<b>TS470,000.00</b>				

<sup>26</sup> NOTE: Recurrent costs quoted do not include on-going O&M costs of capital investments.

<sup>27</sup> (C – cyclone, D – drought, E – Earthquake, T – Tsunami, V – volcano)

<sup>28</sup> L – Low risk (community need to monitor); M – Medium risk (community need to address with help of government and other partners); – High risk (Address urgently with help from government and development partners)

## INFRASTRUCTURE SECTORS

**TABLE 7: WATER SUPPLY DEVELOPMENT PRIORITIES**

WATER	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS <sup>29</sup>	RISK LEVEL <sup>30</sup>	
					NFO	NTT
Feasibility study for water and sanitation in NFO				C, D, E, V – disrupt schedule of study especially affecting shipping schedule	M	
10,000Ltr Drinking Water Tanks at every NFO house & 20,000 Litre – Halls, Churches	Red Cross / MORDI TT	House 100 X TS5,000 = TS500,000 Public 10 X TS10,000 = TS100,000 TS600,000	ADB	C – affect shipping schedules and unloading of tanks, damage water tanks D – shortage of water and damages to tanks (exposure to extreme heat) E, V – structural and tank damages	H M M	
Complete repairs to NTT Water reticulation	Red Cross / MORDI TT	50 X TS5,000 = TS250,000.00 12 X TS10,000 = TS100,000.00 TS350,000.00	ADB, Japanese GGP	C – damages to water source, supply and storage D – water shortage E, T – damages to pipes (supply)		H M M
Training to Water technician	TWB	TS50,000.00	ADB	C, D, E, T, V – disrupt schedule and shipping services (delay)	M	M
Spare parts kits to technician	TWB	TS50,000.00	ADB	C – damages to spare parts if not stored properly D – water shortage T – salt spray (damage spare parts)	H M	H M M
Water testing regular use WHO kits	Health	TS10,000.00 per year	ADB	C – damages kit if not stored properly D – water shortage	H H	H M
		<b>Capital</b> TS1,050,000.00				
		<b>Recurrent</b> TS10,000.00				

<sup>29</sup> (C – cyclone, D – drought, E – Earthquake, T – Tsunami, V – volcano)

<sup>30</sup> L – Low risk (community need to monitor); M – Medium risk (community need to address with help of government and other partners); – High risk (Address urgently with help from government and development partners)

**TABLE 8: RENEWABLE ENERGY – SOLAR ELECTRICITY**

SOLAR	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS <sup>31</sup>	RISK LEVEL <sup>32</sup>	
					NFO	NTT
Review NFO Home Solar Project and the Island management Committee + costing + solar needs	TERM	NFO CP repairs – 50 NFO = 2000 = 180,000 NTT New System NTT 200 X 5000 = 1,000,000 Total: T\$1,180,000	ABD / AUST	<b>C, D, E, V – disrupt shipping schedule and cause delay</b>	<b>H</b>	
Install 220W Panels + batteries in Niuafo'ou	TERM	?	ABD / AUST	C – structure damages to the panels and roofs, delay shipping and unloading of supplies D – possible damages on solar panels (extreme heat) E, V – Structural damages	H L M	
Training Solar Technicians	TERM	T\$50,000	ABD / AUST	C, D, E, V – disrupt shipping schedule and cause delay T – delay shipping and damage wharf	M	M
Spare parts 1	TERM	T\$50,000	ABD / AUST	C – delay shipping schedule and unloading, damages if not stored properly E, V – damages to spare parts	M M	M L
Incentive scheme for a good repair and prompt service by IMC technical	TERM	T\$1,000/yr.	TERM			
Independent complaint / service quality survey	TERM	T\$5,000/yr.	ABD / AUST			
		<b>Capital</b> T\$1,280,000.00				
		<b>Recurrent</b> T\$6,000				

<sup>31</sup> (C – cyclone, D – drought, E – Earthquake, T – Tsunami, V – volcano)

<sup>32</sup> L – Low risk (community need to monitor); M – Medium risk (community need to address with help of government and other partners); – High risk (Address urgently with help from government and development partners)

**TABLE 9: EVACUATION CENTERS**

EVACUATION CENTRE	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS <sup>33</sup>	RISK LEVEL <sup>34</sup>	
					NFO	NTT
Review status of Halls (NFO) Feasibility Study	MTT NDC	T\$5,000.00	MTT	C, E, V – disrupt shipping schedule and delay study		
Upgrade town halls / school to be done / evacuation include toilets waters supply & cooking include emergency supply	MOE, MEIDECC, ADB CLIMATE CHANE Project / MORDI TT	T\$800,000.00	ADB	C – Delay shipping, unloading of materials, delay construction, structural damages, damages of emergency supplies D – water shortages E, V – structure damages	H M M	
Village Committee	VC			C, D, E, V, T – injuries or death	M	M
	<i>Capital</i>	<b>T\$805,000.00</b>				

**TABLE 10: ROAD DEVELOPMENT PRIORITIES**

ROADS	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS	RISK LEVEL	
					NFO	NTT
Climate Change Disaster proof Road maintenance NTT (4 km)	NDC, MOI Road Division	T\$10,000.00	Road Maintenance fund	C – damages to roads and supplies, delay shipping schedules and unloading of materials D – water shortage E, T – damages to roads		H H M
Community based reconstruction / maintenance NFO	NDC, MOI Road Division	T\$200,000.00	ADB	C – delay shipping, unloading and construction of roads, damages of materials and roads caused by strong winds and heavy rains D – water shortage for construction and maintenance E, V – structural damages	H M M	
Maintenance committee	NDC			C, D, E, V – injuries or death	M	M
	<i>Capital</i>	<b>T\$200,000.00</b>				
	<i>Recurrent</i>	<b>T\$10,000.00</b>				

<sup>33</sup> (C – cyclone, D – drought, E – Earthquake, T – Tsunami, V – volcano)

<sup>34</sup> L – Low risk (community need to monitor); M – Medium risk (community need to address with help of government and other partners); – High risk (Address urgently with help from government and development partners)

## SOCIAL AND COMMUNITY DEVELOPMENT SECTORS

**TABLE 11: EDUCATION**

EDUCATION	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS <sup>35</sup>	RISK LEVEL <sup>36</sup>	
					NFO	NTT
Refurbish NFO High School Climate Proof	MOE	TS1,000,000.00	ADB	C – delay shipping schedule and unloading of supplies, structural damages D – water shortage E,V – structural damages	H H M	
Refurbish Climate Proof Teachers Housing	MOE	NFO – 8 X TS30,000 NTT – TS240,000 TOTAL: TS480,000	ADB	C – delay shipping schedule and unloading of supplies, structural damages D – water shortage E,V – structural damages	H H H	
Review teachers remote location allowance	MOE	TS25,000.00	MOE			
Intra Vocational and Skills Training to Nivan Min Education Include	MOE		MOE	C, D, E, V – disrupt shipping and training schedule T – disrupt shipping schedule and loss of lives	M	M M
Handicraft, Agriculture . . . . . \$50,000 (2)		<i>Capital</i> TS1,315,000.00				
Plumbing, solar technician . . . . . \$6 X 1000 / yrs		<i>Recurrent</i> TS6,000				

**TABLE 12: HEALTH AND SANITATION**

HEALTH and SANITATION	LEAD AGENCY	COST	SOURCE	POTENTIAL DISASTER RISKS	RISK LEVEL	
					NFO	NTT
Replace NTT Hospital by December 2016	MOH	TS2,000,000.00	EU	C – shipping and construction delay, damage supplies and structures D – water shortage E, T – structural damages		H H L
Ensure adequate HH's supplies at all times	MOH	TS50,000.00	EU	C, E, V, T – disrupt shipping schedule and timely supply, damages if not stored properly	M	M
Replace NFO pit toilets (Subject to feasibility studies)	MOH	NTT 70 X 6000 = \$455000.00 NFO 90 X 6000 = \$54,000.00 TS1,000,000.00	EU	C, D – disrupt of shipping and unloading schedules, damages to materials and structures, water shortages E, V – disrupt shipping and damages to supplies and structures	H M	
Review Health Staff Allowance as per education	MOH		EU			
		<i>Capital</i> TS3,000,000.00				
		<i>Recurrent</i> TS50,000.00				

<sup>35</sup> (C – cyclone, D – drought, E – Earthquake, T – Tsunami, V – volcano)

<sup>36</sup> L – Low risk (community need to monitor); M – Medium risk (community need to address with help of government and other partners); – High risk (Address urgently with help from government and development partners)

## 7 SECOND TIER DEVELOPMENT PRIORITIES

### **Agriculture:**

- planting sandalwood trees for long term investment;
- capturing and documenting traditional agriculture and handicraft knowledge.
- Specific handicraft production, processing and marketing activities as identified in Handicraft Feasibility Study (see Tier One)
- Traditional knowledge documentation and training
- Fence agriculture plots

### **Fishing**

- Safety training and equipment, incl. navigation equipment
- Assistance to procure improves fishing equipment;
- Fish post-harvest skills training.

### **Roads**

- Provision of basic tools to enhance community operation & maintenance of Tier One roads and agriculture roads

### **Education**

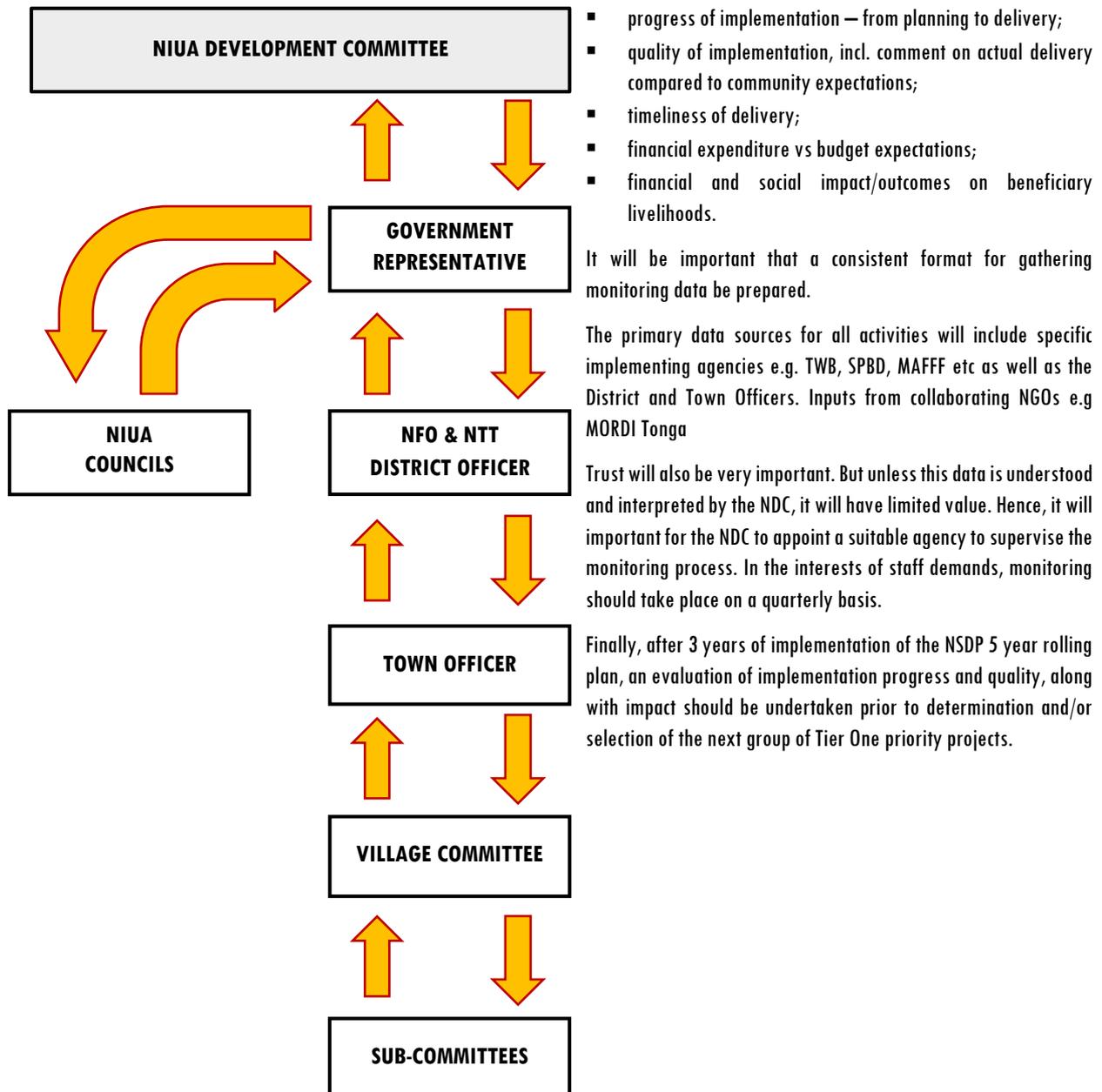
- Improve teacher training to provide targeted training needs of remote location teachers
- Provision of distance learning opportunities — for pupils wanting to take subjects not offered in the Niuva's, and for provision of vocational skills as outlined above; and
- Development of twinning relationships with schools in Tongatapu, or New Zealand. This would enable teachers in the remote Niuva's to enjoy mentoring support from other teachers and students to interact with pupils from another location/culture. In addition, there could potentially be exchange visits between schools.

### **Health**

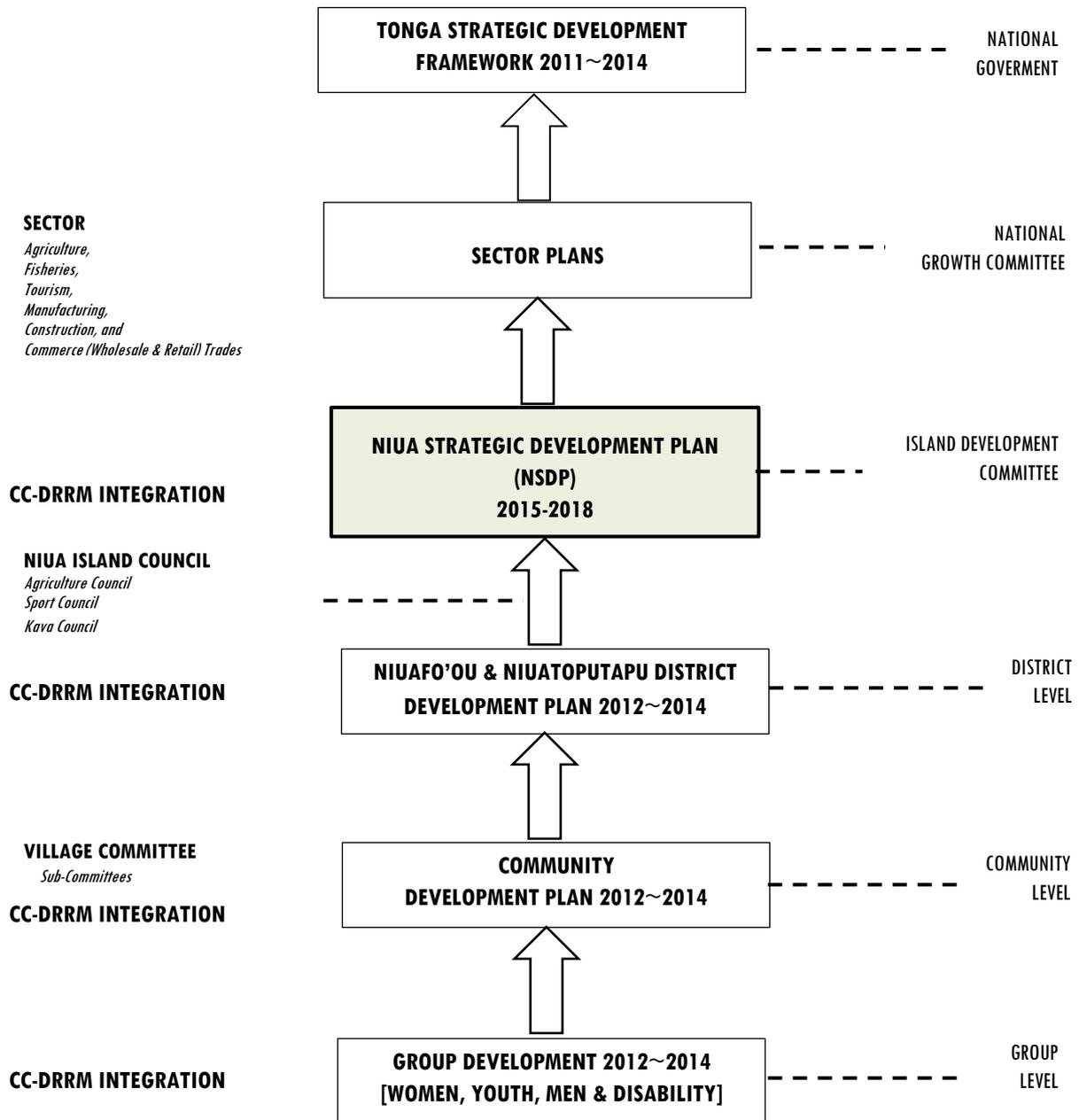
- consider introduction of distance diagnosis systems to support local health staff;
- regular water quality testing (ecoli and other contaminants) using WHO testing kits;
- working with MAFFF extension and Ministry of Education curriculum staff to improve awareness of dietary benefits of vegetables;
- specialized training on waste management people to improve awareness on waste disposal, sorting, recycling and composting.
- Trial composting toilets.

## 8 MONITORING AND EVALUATION

The Niua's Development Committee (NDC) will be responsible for measuring the rate and quality of implementation of this NSDP (2015-2019). Because the activities outlined in the NSDP are a series of largely independent activities to be undertaken by various government, private sector, community and civil society stakeholders with yet to be determined financial resources, it is impractical to prepare a detailed overall project implementation plan – with associated monitoring mechanisms. Instead, the NDC will rely on and require implementers and donors for each specific activity to prepare an implementation plan, including M&E arrangements. Each activity should involve no more than 5 key indicators which measure:



# ANNEX 1: WIDER PLANNING PROCESS STRUCTURE



## ANNEX 2: STRENGTH, WEAKNESS, OPPORTUNITY, THREAT ANALYSIS

### AGRICULTURE & HANDICRAFT SECTOR

STRENGTH	WEAKNESS
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Good rainfall</li> <li>▪ Indigenous root crops (ufilei &amp; lotuma)</li> <li>▪ Good market for traditional products (mats)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Poorer soils</li> <li>▪ Remote to market</li> <li>▪ Less diversity</li> <li>▪ Lack of planting materials</li> <li>▪ Un-motivated farmers</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ Good Soil</li> <li>▪ Diverse crop rage</li> <li>▪ Good Agriculture Climate</li> <li>▪ Pro-active work ethic</li> <li>▪ Unreliable family market connect</li> <li>▪ MAFFF / MORDI TT partnership support</li> <li>▪ Incentives to self-help</li> <li>▪ Good Tools</li> <li>▪ 42 acre increase on farm-land size</li> <li>▪ Community Organizational Structure in place</li> </ul>	<ul style="list-style-type: none"> <li>▪ Remote from Markets</li> <li>▪ Unreliable family market connection</li> <li>▪ Livestock damage</li> <li>▪ Poor Agriculture Roads</li> <li>▪ Lack Market chain awareness</li> <li>▪ Lack of access to planting materials</li> <li>▪ Low farmer absorptive capacity for technical change</li> </ul>
OPPORTUNITY	THREAT
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Food security</li> <li>▪ Sandalwood planting</li> <li>▪ Training women on market demand awareness</li> <li>▪ Climate Funds</li> <li>▪ Possible trading with Samoa</li> <li>▪ Traditional knowledge documentation and training</li> <li>▪ Donor focus on Climate Change and Disaster Resilience</li> <li>▪ Development of a sector disaster risk management plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tsunami</li> <li>▪ Drought</li> <li>▪ Labour Shortage (population drop)</li> <li>▪ Cyclone</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ High Value Crops (Kava / Vanilla)</li> <li>▪ Freight Ship to Samoa</li> <li>▪ Fence agriculture plots</li> <li>▪ EU Market opening for Kava</li> <li>▪ Value Adding</li> <li>▪ Value chain awareness training</li> <li>▪ Sandalwood (long-term asset)</li> <li>▪ Replace remittances with Agriculture Income</li> <li>▪ Food Security in Disaster Resilience</li> <li>▪ Donor focus on Climate Change and Disaster Resilience</li> <li>▪ Improved Extension Delivery</li> <li>▪ Development of a sector disaster risk management plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drought</li> <li>▪ Labour Shortage (population drop)</li> <li>▪ Cyclone frequency</li> <li>▪ Climate Change</li> </ul>

## SWOT - WATER SECTOR

STRENGTH	WEAKNESS
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Good rainfall</li> <li>▪ Underground reservoir</li> <li>▪ Funds available</li> <li>▪ New home good collection capacity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tsunami damage reticulation</li> <li>▪ Lack of operation and poor maintenance for both rainwater harvesting and underground water</li> <li>▪ No community management</li> <li>▪ No community storage</li> <li>▪ No water quality testing</li> <li>▪ High delivery cost - tanks</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ Good rainfall</li> <li>▪ Lakes (20 hectares)</li> <li>▪ Community Management Structure in place under Village Committee</li> <li>▪ Donor support</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lack operation and management – spouting, pipes, taps, roofing</li> <li>▪ Lack of Technical Maintenance Skills</li> <li>▪ No hydrological knowledge of lakes</li> <li>▪ No regular quality tests</li> <li>▪ High delivery cost - tanks</li> </ul>
OPPORTUNITY	THREAT
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Climate proofing funding available</li> <li>▪ Community Management Water Committee</li> <li>▪ Operation and Maintenance Technician Training</li> <li>▪ Constituency fund</li> <li>▪ Development of the sector disaster risk management plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tsunami</li> <li>▪ Drought</li> <li>▪ Cyclones</li> <li>▪ Earthquakes</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ Storage – Household &amp; Community Tanks</li> <li>▪ Climate proofing funding available</li> <li>▪ Train technicians</li> <li>▪ Regular Water Testing (WHO Test)</li> <li>▪ Operation and Maintenance awareness raising</li> <li>▪ Development of the sector disaster risk management plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Earthquake damage</li> <li>▪ Climate Change</li> <li>▪ Tropical Cyclone</li> <li>▪ Drought</li> <li>▪ Political Tools</li> </ul>

## SWOT - RENEWABLE ENERGY SECTOR

STRENGTH	WEAKNESS
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Plans and funding in place for mini grid system</li> <li>▪ Include technical training, spare parts provided.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lack of technical skills</li> <li>▪ Limited access to spare parts</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ Funds on deposit for equipment's replacement</li> <li>▪ Island Management Committee in place</li> <li>▪ Funds available to repair Home Solar</li> <li>▪ Strong Government support (TERM) – transparent</li> <li>▪ Self-funding fees system</li> <li>▪ Technician employed by Island Management Committee</li> </ul>	<ul style="list-style-type: none"> <li>▪ 50% Household not functioning</li> <li>▪ Island Management Committee dysfunctional</li> <li>▪ Fees system funding gaps</li> <li>▪ Lack of suitable spare parts e.g. light fitting</li> <li>▪ Lack of timely technical support</li> </ul>
OPPORTUNITY	THREAT
<b>NIUATOPUTAPU</b>	<b>NIUATOPUTAPU</b>
<ul style="list-style-type: none"> <li>▪ Community Management and fee collection as per Niuafo'ou</li> <li>▪ Disaster Management Plan</li> <li>▪ Constituency funds</li> <li>▪ Biofuel</li> <li>▪ Technical Training and Capacity Building</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tsunami</li> <li>▪ Drought</li> <li>▪ Cyclone</li> <li>▪ Earthquakes</li> <li>▪ Outmigration</li> </ul>
<b>NIUAFO'OU</b>	<b>NIUAFO'OU</b>
<ul style="list-style-type: none"> <li>▪ Increase Panel Wattage (150-220)</li> <li>▪ More advanced technology</li> <li>▪ Train Operation and Maintenance technician</li> <li>▪ Incentive scheme for a good repair and prompt service</li> <li>▪ Independent complaint / service quality survey</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cyclone Damage</li> <li>▪ Earthquake</li> <li>▪ Volcanoes</li> <li>▪ Migration</li> <li>▪ Purchase inappropriate equipment s</li> </ul>

<b>SWOT - EDUCATION SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ Good exam results</li> <li>▪ Lack of distraction</li> <li>▪ Parent Teachers Association</li> <li>▪ Health Education</li> <li>▪ Solar Home System (studying)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Poor school facilities &amp; equipment's</li> <li>▪ Unwillingness / poor teaching quality staff</li> <li>▪ Language dialect (poor performance of high level students because of language difficulties &amp; stigma)</li> <li>▪ Lack technical focused education</li> <li>▪ Lack of early childhood education</li> <li>▪ Lack of equity of resources accessing</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ Climate proofing</li> <li>▪ Distance learning / TVET</li> <li>▪ Greater equity in school allocations to OIs</li> <li>▪ Review teachers remote allowance</li> <li>▪ Better preparation of Teachers for remote location</li> <li>▪ Better preparation of students for transition to Tongatapu, Fiji, NZ</li> <li>▪ Early Childhood integration in Primary School Education Act</li> <li>▪ Twinning Linkages with Tongatapu, NZ</li> <li>▪ Disaster risk management plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cyclones</li> <li>▪ Earthquakes</li> <li>▪ Droughts</li> <li>▪ Migration</li> </ul>

<b>SWOT - COMMUNITY HALL SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ Existing Halls</li> <li>▪ Community maintenance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Rundown Halls</li> <li>▪ Lack of revenue by user</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ Evacuation center role</li> <li>▪ Multi-use design</li> <li>▪ Climate and disaster proof funds</li> <li>▪ Proper facilities include toilet &amp; wide</li> <li>▪ Storage for disaster response kits</li> <li>▪ Agreed use fee established</li> <li>▪ Establish Hall Management Committee</li> </ul>	<ul style="list-style-type: none"> <li>▪ Out migration</li> <li>▪ Cyclones</li> <li>▪ Earthquake</li> <li>▪ Volcano</li> </ul>

<b>SWOT - HEALTH &amp; SANITATION SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ Emergencies evacuation back-up include maternity</li> <li>▪ Good vaccination</li> <li>▪ Few non-communicable disease</li> <li>▪ Health Disaster Plan prepared Tonga wide</li> </ul>	<ul style="list-style-type: none"> <li>▪ Staff insufficient poorly trained</li> <li>▪ Poor facilities</li> <li>▪ Poor data availability</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ New Hospital complete NTT (6 year wait)</li> <li>▪ Distance diagnosis</li> <li>▪ Improve water quality testing</li> <li>▪ Improve vegetable production / intake</li> <li>▪ Trained staff for outer island services</li> <li>▪ Climate &amp; Disaster proofing funding</li> <li>▪ Review Outer Island Allowance</li> <li>▪ Composting toilet for Niuafo'ou</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cyclone</li> <li>▪ Earthquake</li> <li>▪ Volcano</li> </ul>

<b>SWOT - ROAD SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ Existing road system</li> <li>▪ Good road construction materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Poorly maintained and deteriorated</li> <li>▪ No heavy equipment</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ Community based construction and maintenance</li> <li>▪ Improve drainage</li> <li>▪ Disaster proof</li> <li>▪ Rationale air strip road</li> </ul>	<ul style="list-style-type: none"> <li>▪ Heavy rain</li> <li>▪ Cyclone</li> <li>▪ Earthquakes</li> </ul>

<b>SWOT - WHARF &amp; SHIPPING SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ There is a landing place</li> <li>▪ Government subsidy T\$40,000.00 per trip for the ferry</li> </ul>	<ul style="list-style-type: none"> <li>▪ No natural harbor</li> <li>▪ Very large investment requires</li> <li>▪ Ships unable to land sometimes</li> <li>▪ Danger to human / goods</li> <li>▪ Insufficient population to justify big investment</li> <li>▪ Cost of the fare and freight rate very high</li> <li>▪ Infrequent and unreliable schedule</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ Air service subsidy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Big waves / seas</li> <li>▪ Cyclones</li> <li>▪ Earthquake</li> <li>▪ Volcano</li> <li>▪ Tsunami</li> </ul>

<b>SWOT - ROAD SECTOR</b>	
<b>STRENGTH</b>	<b>WEAKNESS</b>
<ul style="list-style-type: none"> <li>▪ Existing road system</li> <li>▪ Good road construction materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Poorly maintained and deteriorated</li> <li>▪ No heavy equipment</li> </ul>
<b>OPPORTUNITY</b>	<b>THREAT</b>
<ul style="list-style-type: none"> <li>▪ Community based construction and maintenance</li> <li>▪ Improve drainage</li> <li>▪ Disaster proof</li> <li>▪ Rationale air strip road</li> </ul>	<ul style="list-style-type: none"> <li>▪ Heavy rain</li> <li>▪ Cyclone</li> <li>▪ Earthquakes</li> </ul>

## ANNEX 3: LIST OF PEOPLE CONSULT

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