



**Pacific Community (SPC)**

**Government of the Federated States of Micronesia (FSM)**

**EUROPEAN UNION – NORTH PACIFIC - READINESS FOR EL NIÑO  
(RENI) PROJECT**

**PROJECT DESIGN DOCUMENT**

**Securing water resources ahead of drought in Yap  
and Pohnpei States, FSM**

**October 2018**



**Securing water security ahead of drought**

## **Project Summary**

The overall objective of the project is to enhance the resilience of people living in the Federated States of Micronesia (FSM) to the shocks and insecurities resulting from droughts. The specific objective is to strengthen water security using a sustainable, multi-sector and gender sensitive/rights-based approach. The three outputs are: (1) individual and community behaviours around drought resilience enhanced; (2) water security measures to support drought resilience implemented; and (3) planning and technical measures undertaken to prepare for future droughts.

Against the background of the 2015/2016 drought, and the scope of previous projects, the national government of FSM determined that the RENI project would focus on water security, mainly in Yap State and with additional activities in Kapingamarangi, a remote atoll near the equator, in Pohnpei State. Limited by the short timeframe available to deliver the RENI project, Yap State Government decided to focus on refurbishing abandoned community water systems in Yap Proper. These water systems would then provide “point water sources” for the public during drought. In addition, community rainwater catchment systems will be refurbished and expanded in Kapingamarangi. The project will directly benefit 2,916 persons living in the focus communities in Yap Proper and will also provide benefit to the entire population of Yap Proper, 7,371 persons. The entire population of Kapingamarangi, 500 persons, will also be direct beneficiaries.

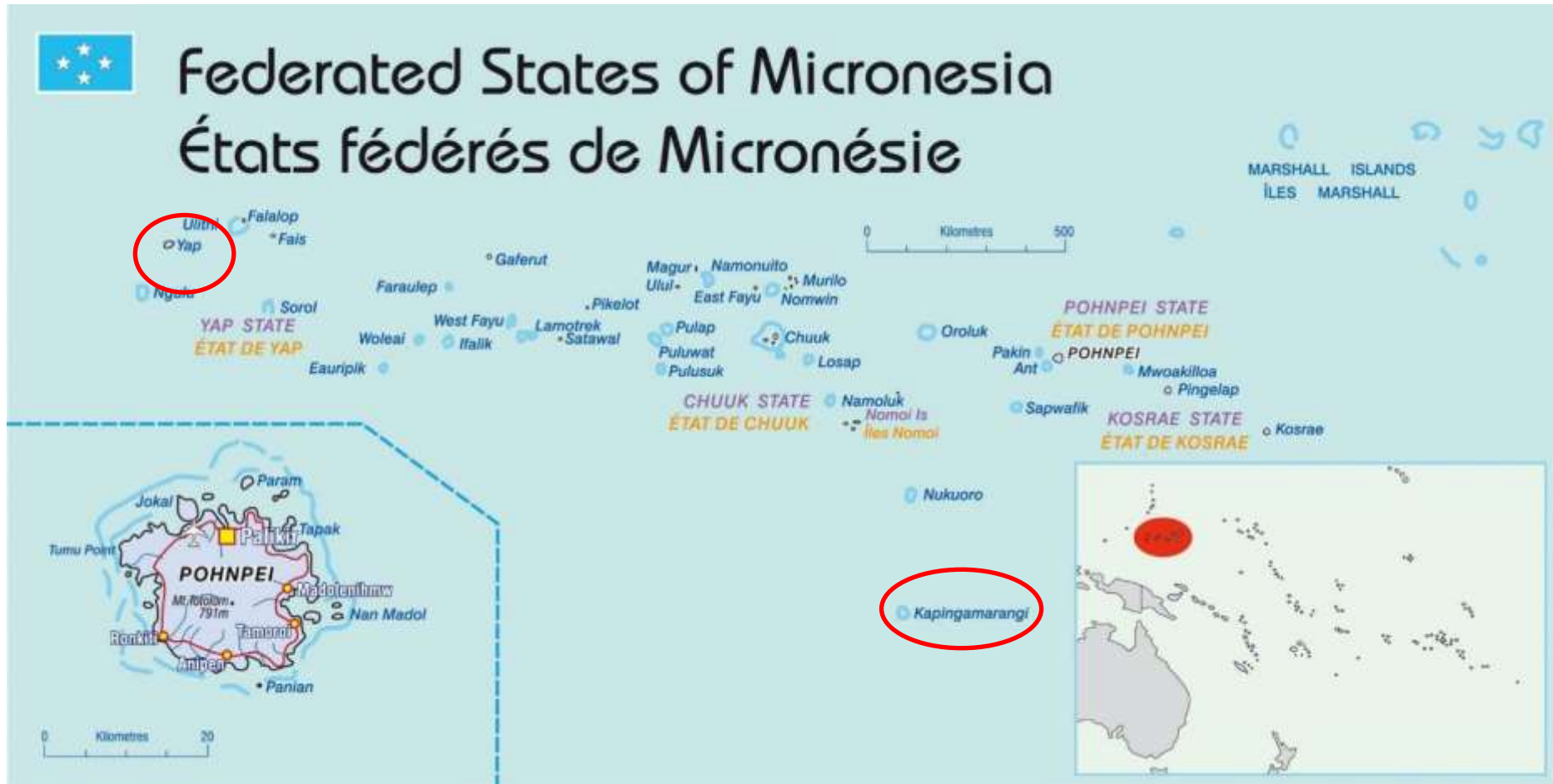
The project will involve the state government, national government agencies, non-government organisations, communities and wherever possible the private sector too. The project is about enhancing the resilience of people and communities, and in this respect a participatory and community-led approach is adopted throughout the design and implementation with a particular emphasis on applying a gender-sensitive/rights-based approach.

After initial assessments and consultations in Yap Proper, the groundwater sources in Dugor, Weloy Municipality, and Rumuu, Fanif Municipality have been identified as the most feasible sites; and community water catchment systems in Rull, Gagil, Tamil and Weloy municipalities have also been identified for refurbishment and expansion. Agreements will be entered into with the communities for the long term maintenance of the water systems.

A hydrogeological assessment will be conducted of specific groundwater resources and in particular the Tamil-Gagil aquifer, one of the most productive sources of groundwater in Yap Proper. In Kapingamarangi, solar disinfection (SODIS), a low cost water quality treatment process, which has been successful in Kiribati, will be introduced.

The implementation period of this project will commence on the date of signature of this Project Design Document and end on 30 June 2020. The project will be implemented by the Yap State Department of Resources and Development, the Kapingamarangi Municipality of Pohnpei State and the Department of Environment, Climate Change and Disaster Management, FSM National Government. The project is consistent with the 2013 Nationwide Integrated Disaster Risk Management and Climate Change Policy.

# MAP OF FSM



## Table of Contents

Project Summary.....	2
Map.....	3
Table of Contents.....	4
List of Abbreviations.....	5
Signature Page.....	6
<b>1. INTRODUCTION.....</b>	<b>7</b>
Background to FSM.....	7
Geographical setting.....	7
Vulnerability and climate change projections for FSM.....	7
National policies and strategies.....	8
Ongoing projects and activities relating to water security.....	9
About the RENI project.....	9
Description of the Overall RENI Project.....	9
The RENI Project in FSM.....	11
Rationale.....	12
<b>2. PROJECT SELECTION PROCESS.....</b>	<b>14</b>
<b>3. DETAILED PROJECT DESCRIPTION.....</b>	<b>16</b>
Overall Objective.....	16
Specific Objective.....	16
Key Outputs and Activities.....	16
Output 1 Individual and community behaviours around drought resilience enhanced.....	16
Output 2 Water security measures to support drought resilience implemented .....	17
Output 3 Planning and technical measures to support El Niño readiness.....	19
<b>4. INSTITUTIONAL ARRANGEMENTS, RISK MANAGEMENT AND EXIT STRATEGY.....</b>	<b>20</b>
Institutional Arrangements.....	20
Risk Management.....	21
Exit Strategy.....	22
Annex 1 Indicative log frame matrix RENI activities in FSM.....	24
Annex 2 Activities and budget.....	28
Annex 3 Schedule of activities.....	29

## List of Abbreviations

ACP	Africa, Caribbean, Pacific countries
ACSE	Adapting to Climate Change and Sustainable Energy
ADB	Asian Development
BSRP	Building Safety and Resilience in the Pacific
CSIRO	Commonwealth Scientific, Industrial Research Organisation (Australia)
DRM	Disaster Risk Management
EPS	Ecological Purification System
EU	European Union
EUR	Euros
FRDP	Framework for Resilient Development in the Pacific
FSM	Federated States of Micronesia
GDP	Gross Domestic Product
GCCA: PSIS	Global Climate Change Alliance: Pacific Small Island States project
M&E	monitoring and evaluation
MOU	Memorandum of Understanding
NDRFM	National Disaster and Risk Management Framework
NEC	National Emergency Committee
NGO	Non-governmental organisation
NOAA	National Oceanographic and Atmospheric Agency (USA)
PET	Polyethylene terephthalate
PREL	Pacific Resources for Education and Learning
R2R	Ridge to Reef
RENI	Readiness for El Niño
RESPAC	Disaster Resilience for Pacific Small Island Developing States
RMI	Republic of the Marshall Islands
SDG	Sustainable Development Goal
SODIS	Solar disinfection
SPC	Pacific Community
SPC-GEM	Pacific Community Geosciences, Energy and Maritime Division
SPC-LRD	Pacific Community Land Resources Division
SPC-RRRT	Pacific Community Regional Rights Resources Team
SPC-SDP	Pacific Community Social Development Programme
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
USGS	United States Geological Service
WERI	Water and Environmental Research Institute (University of Guam)

## **1. INTRODUCTION**

This section describes the background to the Federated States of Micronesia (FSM) and the background to the RENI Project.

### **Background to FSM**

#### **Geographical setting**

The FSM is a group of 607 islands in the western Pacific Ocean. These islands vary in size from small islets that disappear at high tide to atolls to large volcanic islands of more than 80 km<sup>2</sup>, with an overall total land area of 701km<sup>2</sup>. The exclusive economic zone covered an area of 2,980,000km<sup>2</sup>. Approximately 65 of the islands and atolls are inhabited, with an estimated population of 102,843 (2010 census). The most striking physical characteristic of FSM is the small land area spread over a great expanse of water from 1°S–14°N latitude, and 135°W–166°E longitude.

The country comprises four states: Chuuk, Kosrae, Pohnpei and Yap, with each having a considerable degree of autonomy. The RENI project has been guided by the Government of FSM, to focus on Yap State and Kapingamarangi in Pohnpei State.

In Yap State the 2010 state-wide population was 11,377 with 7,371 residing in Yap Proper. The state has a total land area of 102 km<sup>2</sup>. Yap is fairly developed yet maintains its traditional cultural norms and practices and has a generally good quality of life. Pohnpei State, population 36,196 (2010), includes several sparsely populated outer islands, one of which is Kapingamarangi, a remote atoll located near the equator and with a population of 500.

The mainstays of the Micronesian economy are subsistence farming and fishing. In recent years, FSM has earned between USD 18 million and 24 million annually from licensing fees paid by foreign vessels fishing for tuna in the country's exclusive economic zone. Some locally-owned fishing operations and on-shore processing have also been initiated, along with farming of giant clams and other marine products. Small-scale commercial agriculture has had some successes, especially in niche export markets, e.g. kava (sakau), betel nut, black pepper, cooked breadfruit, and processed noni. Tourism has increased in recent years with a number of small hotels opening in the states, some with facilities for diving. However, large-scale investment in this sector is constrained by limitations in major air transportation services, along with land-tenure issues and competition with other countries that are closer to major tourist markets.

The FSM government plays a central role in the economy; the national and state-level governments employ over half of the country's workers and Government services and public enterprises account for 38% of the Gross Domestic Product. FSM's external transactions continue to be characterised by a heavy and increasing reliance on imports without a comparable increase in exports.

#### **Vulnerability and climate change projections for FSM**

Climate projections for FSM based on the global climate models show that for the period to 2100:

- There is *very high confidence* that El Niño and La Niña events will continue to occur in the future, but there is little consensus on whether these events will change in intensity or frequency.
- There is *very high confidence* in the direction of long-term change in a number of key climate variables, namely an increase in mean and extremely high temperatures, sea level will continue to rise, ocean acidification will continue, and the risk of coral bleaching will increase.
- There is *high confidence* that the frequency and intensity of extreme rainfall will increase.
- There is *medium confidence* that mean rainfall will increase, especially in the wet season and *medium confidence* in a decrease in drought frequency.
- Global climate model projections for changes in typhoons in the Northern Pacific basin show inconsistent results.

(These climate projections are based on the 2014 Australian Bureau of Meteorology and CSIRO Report: Climate variability, extremes and changes in the Western Tropical Pacific: New science and updated country reports).

These changes in climate are likely to exacerbate water security issues in FSM.

### **National policies and strategies**

Climate change and disaster risk management, food and water security, and social inclusion are among the key priorities for FSM and critical to achieve various policy and strategic objectives to achieve sustainable development. Among the FSM key policies are the following:

- National Strategic Development Plan 2004-2023, which has four key objectives: stability and security, economic growth, improved health and education, and improved self-reliance and sustainability.
- Infrastructure Development Plan 2004 2023, which also makes provisions for water and wastewater infrastructure.
- Nation-wide Integrated Disaster Risk Management and Climate Change Policy 2013, which has several strategic objectives and outcomes including food, water and energy security.
- Agricultural Policy 2012 which aims to include national food security, safety and nutritional health.
- Framework National Water and Sanitation Policy 2011, which seeks to secure access to clean and safe drinking water for all the people of FSM and that the use of the nation's freshwater resources is planned in a manner that maximises the benefits now and in the future.

In addition, Yap State has:

- Yap Joint State Action Plan for Disaster Risk Management and Climate Change 2016
- Yap State Disaster Preparedness Plan 2017.

## Ongoing projects and activities relating to water security

Listed below are some of key related projects and activities that are presently ongoing in FSM.

Project/Activity	Status
UNDP/RESPAC Disaster Resilience for Pacific Small Island Developing States (RESPAC) Project – disaster preparedness and planning	Ongoing
GEF/Ridge to Reef (R2R): Regional component focuses on demonstrations, governance and knowledge management. The national component in FSM focuses on integrated ecosystem management and rehabilitation, and protected area management.	Ongoing
EU-GIZ/ - Adapting to climate change and sustainable energy (ACSE) – Climate change education and sustainable energy measures in schools	Ongoing
EU Intra ACP/NDMO/SPC, Building Safety & Resilience in the Pacific (BSRP) – Planning for community based disaster risk resilience	Ongoing
Adaptation Fund: Resilience to drought and flooding in FSM, all 4 states, outer islands of Yap and Pohnpei States including Kapingamarangi	Ongoing
Italian Government/Yap State/College of Micronesia: Water security in outer island communities in Yap Proper	Start 1 October 2018
Catholic Relief Services – Adaptive community transformation in Yap	Ongoing

### About the RENI Project

#### Description of the overall RENI project

The El Niño extreme weather event in 2015 - 2016 affected countries and regions around the world with events such as protracted droughts and floods. On 3 November 2016, the European Commission, through the 11<sup>th</sup> European Development Fund, allocated EUR 150,135,000 million to 21 African, Caribbean and Pacific (ACP) countries for the Pro-Resilience Special Measure in response to food insecurity. Of this total amount, EUR 4.5 million was reserved for the North Pacific ACP countries, namely, Federated States of Micronesia (FSM), Marshall Islands and Palau.

The global objective of the Pro-Resilience Special Measure is to structurally and sustainably reduce food and nutrition insecurity by tackling the root and underlying causes of vulnerability



and reducing the negative impacts of stresses and shocks.

The European Union (EU) – North Pacific – Readiness for El Niño (RENI) project is about communities working to secure food and water resources ahead of drought. The three-year (2017 - 2020) project is implemented by the Pacific Community (SPC) in collaboration with the governments and peoples of FSM, Marshall Islands and Palau.

The overall objective of the EU – North Pacific – Readiness for El Niño (RENI) project is to enhance the resilience of the people of the FSM, Marshall Islands and Palau to the shocks and insecurities resulting from extreme El Niño events. The specific objective is to strengthen the implementation of a sustainable, multi sectoral, multi stakeholder approach to readiness for future El Niño events.

The three key outputs for the RENI project are:

- Uptake of key individual and community behaviours that support El Niño resilience.
- Local area structural measures implemented to support El Niño resilience building in water and food security and paying special attention to the rights of women and vulnerable groups in outer islands.
- National measures - institutional, planning and technical – implemented to support readiness for future El Niño events

The activities in each country focus on water security, or water and food security, since the shortage of fresh water has been identified as the most severe stress in the North Pacific.

Building on the activities linked to El Niño readiness already implemented in the countries and the region supported by EU and other development partners, the project develops a rights-based, gender sensitive approach focusing on water and food security primarily in outer islands.

By strengthening readiness for future El Niño events, the three countries will be in a better position to respond to such events and it is anticipated that the adverse impacts of these events on human lives will be lessened.

The action will enhance the capacity of national and sub-national government and civil society stakeholders, and contribute to the *Framework for Resilient Development in the Pacific (FRDP)*, the *Sendai Framework for Disaster Risk Reduction*, the *Paris Agreement to the United Nations Framework Convention on Climate Change*, and the *Sustainable Development Goals*, especially Goal 2: zero hunger, Goal 6: clean water and sanitation and Goal 13: climate action.



## **The RENI project in FSM**

Advisories were issued by the National Oceanic and Atmospheric Agency (NOAA) that there was a high probability of below normal rainfall for FSM through the first half of 2016 and that “drought conditions are beginning to take hold across Yap... rainfall the past three months was below normal.” Based on this advice, Yap State Resources and Development (R&D) undertook an assessment of amounts and quality of available water supplies in the outer islands early in 2016. Extensive efforts were taken to ship potable water to many of the outer islands of Yap State, and water rationing was started in some areas of Yap Proper. A Yap State El Niño Mitigation Plan was prepared to guide the emergency response. Following the crisis in 2016, a Yap State Disaster Preparedness Plan was prepared.

In Kapingamarangi, the drought had the greatest impact later in the year – in September to November 2016 – when the drinking water supply was depleted. During this period, emergency water supplies had to be delivered by ship from Pohnpei.

These measures and plans informed the design of the RENI project in FSM. The FSM National Government selected water security as the focus for the RENI project, with activities to be focused in Yap State, with some smaller-scale measures done in Kapingamarangi, Pohnpei State.

The selection of water security activities was informed by the lessons learnt in the 2015-2016 drought and the scope of past and ongoing water security projects in Yap State. Recognising there are significant water security needs throughout Yap State, and limited by the short timeframe available to deliver the RENI project, it was decided to focus on refurbishing abandoned community water systems in Yap Proper. These refurbished community wells and community rainwater catchment systems can then provide “point water sources” or “hotspots” during drought for nearby and distant households in Yap Proper. Maintenance of these point sources will be a particular focus as it is critical to the project’s success.

In Kapingamarangi, an atoll near the equator, activities will focus on expanding community rainwater catchment systems at the Church Hall and the Elementary School as well as modifying the tank at the hospital.

Other activities will include state and community consultations to guide the design and maintenance of the water security measures. A hydro-geological assessment will be conducted of the Tamil-Gagil Aquifer, one of the most productive aquifers in Yap Proper which supplies a significant proportion of Yap Proper’s piped water.

The project will adopt a participatory and community led approach throughout the design and implementation of activities in both locations, and there will be a particular emphasis on applying a gender-sensitive/rights-based approach throughout.

The 2010 population estimate for the communities where water storage systems will be refurbished/built are shown in the table below. These are the direct beneficiaries of the project, but it is also anticipated that the wider population of Yap proper will benefit from the RENI water security measures especially during drought.

**Population figures (2015 census) for the direct and indirect beneficiaries of the RENI Project**

State	Community	Municipality	Total population 2010 census
Yap State	Rumuu	Fanif	193
	Dugor	Weloy	224
	Gachpar	Gagil	145
	Maa	Tamil	120
	Kaday	Weloy	72
	Balabat	Rull	131
<b>Yap State Direct Beneficiaries</b>			<b>885</b>
<b>Yap State Indirect beneficiaries</b>			<b>7,371</b>
Pohnpei State	Kapingamarangi		500
<b>Pohnpei State Direct and Indirect beneficiaries</b>			<b>500</b>

The RENI project will be implemented using a gender-sensitive/rights based approach. For several years, development work in the Pacific islands, and indeed around the world, has included gender equality as one of the critical aspects of sustainable development. However, more recently in development work it has been recognised that gender equality is only one of the human rights that need to be considered in equitable development work. Thus the RENI project will adopt a gender-sensitive/rights based approach throughout the design and implementation with the assistance of SPC's Social Development Programme and Regional Rights Resources Team.

**Rationale**

Based on the foregoing the justification and rationale for the RENI project in FSM is as follows:

- The geography and location of FSM makes its people highly vulnerable to disaster and climate risks.
- Future projections for climate changes show a very high confidence in the El Niño/La Niña patterns continuing through to 2100; added to which there is a very high confidence in the projected increase in mean and extreme temperatures, and in sea level

rise. These projections will continue to increase the vulnerability of persons living in FSM.

- The government of the FSM, through its policies, strategies and plans, places a high priority on strengthening food and water security.
- Given the country-wide impact of the 2015-2016 drought, the need to focus on water security is evident.
- The RENI project will provide tangible outcomes that will help the people of FSM, especially in Yap Proper and Kapingamarangi cope with future water shortages and droughts.
- Adopting a gender-sensitive/rights-based approach will ensure that the principles of equality and equity are provided to rights holders in FSM.

## **2. PROJECT SELECTION PROCESS**

This section provides a timeline of the planning activities that have led to this Project Design Document. Activities are listed below in chronological order.

*September 2017:* The RENI project was introduced to numerous stakeholders in Pohnpei, FSM.

*October 2017:* National government of FSM advises they have selected the water sector as the focus for RENI.

*November 2017:* The national government of FSM advises that the RENI project activities will be focused in Yap State with some smaller water security activities in Kapingamarangi, Pohnpei State.

*January – March 2018:* Following consultations with Yap State Government it was confirmed that the RENI project would focus on Yap Proper. This was based on a review of the ongoing and planned projects in the Yap State outer islands and Yap Proper and the short duration of the RENI project.

*April 2018:* The Project Concept Note was finalised. This identified the refurbishment of abandoned community water systems in Yap Proper. These refurbished water sources can then provide “point water sources” or “hotspots” during drought for nearby and distant households in Yap Proper. Maintenance of these point sources is an issue that will have to be addressed at the start of activities with the communities concerned and water utilities such as Yap State Public Service Commission. Three communities with abandoned water systems were tentatively identified for further investigation: (1) Rang, Fanif municipality; (2) Rumuu, Fanif municipality; and (3) Dugor, Weloy municipality.

*May 2018:* During a visit to Yap, water resources at six sites were assessed: (1) Rang, Fanif municipality; (2) Rumuu, Fanif municipality; (3) Dugor, Weloy municipality; (4) Nimaar, Weloy Municipality; (5) Yinuuf, Rull Municipality; and (6) Ngolog, Rull Municipality. A comparative matrix was prepared listing the proposed works, approximate costs and risks. The matrix was discussed with partners in Yap State and four sites were prioritised: Rumuu, Dugor, Nimaar and Yinuuf.

*June 2018:* A visit was made to Yap to interview possible candidates for the RENI-FSM National Coordinator position and to present the RENI project at the “Learning exchange: women leading climate action in Melanesia, Micronesia and Alaska” organised by The Nature Conservancy and other partners. Further information on the prioritised sites was collected.

*June, 2017:* An assessment visit to Kapingamarangi was conducted. (This atoll is so remote that access is only possible by ship about four times a year). Water resources were assessed. Consultations were held with the Mayor, Council members and communities to discuss the project and confirm the proposed activities: to increase the rainwater storages at the school and the church, and to modify the existing water storage system at the hospital so it can function more efficiently.

*August 2018:* A visit was made to Yap to conduct community consultations, obtain further data and complete final prioritisation and planning. A community consultation was held with 26 participants (F=5; M=21) to share information about the project and collect local experiences and knowledge about the potential sites and how the water sources had functioned during the last drought. A separate consultation was held with women's groups (F=8, M=2) and outline the proposed opportunities for parallel activities designed and implemented by women. Maintenance of the refurbished water systems was also discussed in detail and proposals put forward for developing memoranda of understanding with communities to cover maintenance and land easement arrangements.

The main outcome of the week's prioritisation consultations was:

- Prioritise refurbishment of underground water systems at Rumuu, Fanif municipality; and Dugor, Weloy municipality using an ecological purification system for ensuring good quality water.
- Refurbish community rainwater harvesting systems at Balabat in Rull municipality; Kaday in Weloy municipality; Maa in Tamil municipality; and Gachpar in Gagil municipality.
- Hold specific consultations with the identified communities to consider the designs of the water measures.
- Conduct a hydrogeological assessment of the Tamil-Gagil aquifer, one of the most productive aquifers, to determine the quantity of water that can safely be extracted.
- Assess the post-project impact of past water security project measures in Fais Island to understand the impacts and sustainability of the measures.

These activities have all been incorporated into this project design document.

### **3. DETAILED PROJECT DESCRIPTION**

This section describes the overall objective, specific objective and outputs, as well as the logical framework that is used to monitor progress. The section also includes the project budget and the schedule.

#### **Overall Objective**

The overall objective is to enhance the resilience of those living in Yap Proper and in Kapingamarangi to the shocks and insecurities resulting from droughts. The project focuses on refurbishing abandoned community water systems in Yap Proper. Following an initial assessment, six sites across Yap Proper have been selected with two back-up sites. These refurbished community wells and water catchment systems can then provide “point water sources” during drought for nearby and distant households in Yap Proper.

#### **Specific Objective**

The specific objective is to strengthen water security using a sustainable, multi-sector and gender sensitive/rights-based approach. Within the framework of the EU Pro-Resilience Special Measure in response to food insecurity, under which the RENI project is funded the activities in FSM will focus on water security. The project will involve state government, communities and wherever possible the private sector too. The project is ultimately about enhancing the resilience of people and communities to drought.

#### **Key outputs and activities**

**Output 1: Individual and community behaviours around drought resilience enhanced.**

#### **YAP PROPER**

##### **1.1 Oversight of RENI in Yap State**

State agencies already meet to review and provide oversight for various ongoing projects in Yap State. Oversight of the RENI project will be included in this existing arrangement.

##### **1.2 Conduct State level and community consultations**

Following water assessments, consultations were conducted with women’s groups on 23.08.18 and with community groups on 24.08.18. Further consultations will be held in the selected communities to obtain community feedback on the final design, and to confirm arrangements for land easement and the maintenance of the refurbished water systems. A gender-sensitive/rights-based approach will be adopted to ensure that women and vulnerable members of the community are consulted.

### 1.3 Recruit and employ a National Coordinator

A National Coordinator started work on 09.07.18 for two years. The Coordinator will coordinate, implement and report on RENI project activities in FSM, especially Yap Proper, and is placed in the Yap State Department of Resources and Development.

### 1.4 Provide office support for National Coordinator; water equipment, repairs and supplies.

The Yap Government will provide administrative support and the RENI project will provide small office equipment; water equipment, repairs and supplies, as may be required.

### 1.5 Water conservation education activities

These activities will be designed in collaboration with other ongoing water security educational activities and projects, and will build on the work of Catholic Relief Services, Pacific Resources for Education and Learning (PREL) and others.

### 1.6 Fais Island – Impact assessment of completed water security activities

This activity seeks to conduct an “informal” assessment of past water security activities in Fais Island, including the Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) work on community and household water catchment systems and the Australia Direct Aid Program work on refurbishment/replacement of household roofs, both completed in 2015. This activity will seek to understand the long term sustainability of these measures.

## **KAPINGAMARANGI**

### 1.7 Oversight of RENI in Kapingamarangi

In Kapingamarangi, the Mayor and Council members will oversee the activities.

### 1.8 Sharing of experiences in water security Fais Island and Kapingamarangi

Representatives (one male and one female) from Fais Island will visit Kapingamarangi to share experiences about water conservation in remote outer islands.

### 1.9 Establishment of solar disinfection (SODIS) in Kapingamarangi

Following the technical study (see Activity 3.3) educational and learning materials will be prepared in the local language to facilitate the uptake of solar disinfection. 1.5 litre bottles made of polyethylene terephthalate (PET) will be shipped to the island for use in SODIS.

## **Output 2: Water security measures to support drought resilience implemented**

## **YAP PROPER**

### 2.1 Purchase and install one environmental purification system (EPS) at Dugor, Weloy municipality



This will include plastic tanks for the EPS, settling tank and storage tank as well as the necessary piping and connectors.

2.2 Purchase and install solar powered pumps at Dugor, Weloy municipality.

One pump will installed and the second pump will act as a spare.

2.3 Purchase and install one environmental purification system (EPS) at Rumuu, Fanif municipality

This will include plastic tanks for the EPS, settling tank and storage tank as well as the necessary piping and connectors.

2.4 Purchase and install solar powered pumps at Rumuu, Fanif municipality.

One pump will installed and the second pump will act as a spare.

2.5 Refurbish community rainwater storage systems in Rull, Weloy, Gagil and Tamil municipalities

Existing community rainwater storage systems will be refurbished/expanded at: Balabat, Rull municipality; Kaday Village, Weloy municipality; Gagil Elementary School, Gagil municipality; and Women's Community Centre, Tamil municipality. This will include the purchase and installation of additional tanks and appurtenances.

2.6 Training in monitoring and maintenance and provision of small-scale equipment

Each community where the water system is to be refurbished will enter into a Memorandum of Understanding (MOU) with the Yap State Department of Resources and Development to cover maintenance of the system. Training will also be provided to community members in monitoring and maintenance. Tools and equipment will also be purchased. Yap State Public Service Commission may also be involved in aspects of the maintenance arrangements.

2.7 Parallel measures to support drought preparedness designed and led by women's groups

Parallel water conservation and drought resilience measures will be conducted by women's groups to design and implement activities that complement the RENI project and that also empower women and vulnerable groups to address climate and disaster risk.

## **KAPINGAMARANGI**

2.8 Refurbish community rainwater catchment systems

Existing community rainwater storage systems will be refurbished/expanded at the Church Hall, Elementary School and hospital. This will include the purchase and installation of additional tanks and appurtenances.

## 2.9 Training in monitoring and maintenance

The Kapingamarangi Mayor and Council will be responsible for the monitoring and maintenance of these systems. Training in maintenance will be provided and tools and equipment purchased.

### **Output 3: Planning and technical measures to support El Niño readiness**

#### **YAP PROPER**

##### 3.1 Hydrogeological assessments of Tamil-Gagil Aquifer

A hydrogeological assessment of the Tamil-Gagil Aquifer, one of the most productive reservoirs in Yap Proper, will be conducted by the SPC-Geoscience, Energy and Maritime (GEM) Division. This will guide the management, extraction and use of this important water source in the future.

#### **KAPINGAMANGI**

##### 3.2 Conduct a scientific assessment to confirm that solar disinfection (SODIS) is a reliable method for FSM

A scientific study into solar irradiation in FSM will be conducted to determine the potential for SODIS, especially in Kapingamarangi.

The logical framework for the FSM RENI project is presented in Annex 1.

The activities and budget is presented in Annex 2. (The budget is in Euros).

The schedule for the activities is presented in Annex 3.

## **4. INSTITUTIONAL ARRANGEMENTS, RISK MANAGEMENT AND EXIT STRATEGY**

### **Institutional Arrangements**

Implementation of this project in FSM will be the responsibility of the Yap State Department of Resources and Development, and the Kapingamarangi Municipality, Pohnpei State. The FSM National Government, Department of Environment, Climate Change and Emergency Management will provide overall guidance. The RENI project in FSM is being implemented under the ambit of the Pro-Resilience Special Measure in response to food insecurity in ACP countries, CRIS number: FSM FED/2016/39693, and under the Delegation Agreement (Ref. Ares (2017) 3249058 – 29/06/2017) which was signed by representatives from the European Union Delegation to the Pacific and SPC on 5<sup>th</sup> July 2017.

#### Project Steering Committee

In Yap State, State agencies already meet to review and provide oversight for various ongoing projects. Oversight of the RENI project will be included in this existing arrangement. While in Kapingamarangi the Mayor and the Island Council will provide oversight.

#### Reporting

The FSM RENI National Coordinator will be responsible for providing quarterly narrative and financial progress reports to the RENI project team in SPC in Suva. A template for reporting will be provided. Short monthly progress reports will also be prepared.

#### Day to Day Implementation of the Project

The FSM RENI National Coordinator situated in the Yap State Department of Resources and Development will have responsibility for overall coordination of the RENI activities, including regular financial and narrative reporting to Yap State and national government and to SPC as required. The National Coordinator is also responsible for day-to-day coordination of the delivery of the three outputs. The National Coordinator reports to the Director of the Yap State Department of Resources and Development, and the RENI Project Manager in SPC.

## Risk Management

<b>Risk</b>	<b>Risk level</b>	<b>Mitigating Measures</b>
<b>Extreme events</b>		
Project implementation delayed by an extreme weather event e.g. typhoon, ocean surge, severe El Niño drought, or major social/cultural events	High	<ul style="list-style-type: none"> <li>• Ensure planning of activities contains sufficient buffering for minimum one severe and disruptive weather event.</li> <li>• Despite the above mitigating measure, a severe drought in 2019/2020 will likely delay full delivery of all activities.</li> <li>• Major social and cultural events to be included in schedules during inception and planning.</li> </ul>
<b>Time constraints</b>		
Insufficient time (3 years and 4 months) to complete the Action.	Moderate/High	<ul style="list-style-type: none"> <li>• Regularly monitor and revise Action Plans;</li> <li>• Regularly remind countries of limited time framework.</li> <li>• Apply lessons learnt from previous projects e.g. GCCA: PSIS project.</li> </ul>
<b>National capacity and challenges to full stakeholder involvement</b>		
Countries have insufficient capacity to fully implement the project activities	Moderate	<ul style="list-style-type: none"> <li>• Ensure in design phase that activities that are selected are fully feasible using lessons learnt from other projects.</li> <li>• Supply support for a National Coordinator so as not to burden existing staff with heavy workloads.</li> </ul>
Little involvement of women and vulnerable groups.	Low/moderate	<ul style="list-style-type: none"> <li>• Using experience from previous projects and programmes, and with the help of SPC's gender advisors and the Regional Rights Resource Team, tried and tested ways of adopting a gender-sensitive/rights based approach have been built into the design and implementation.</li> </ul>
<b>Challenges with implementation</b>		

<b>Risk</b>	<b>Risk level</b>	<b>Mitigating Measures</b>
Logistical challenges of implementing activities become overwhelming.	Moderate	<ul style="list-style-type: none"> <li>• Build on lessons learnt about scheduling and logistics from previous projects; adopt flexible and back-up planning approaches such that alternatives (e.g. reducing the number of sites) can be prioritised if and when necessary.</li> </ul>
<b>Assumptions</b> <ul style="list-style-type: none"> <li>• Global economic conditions and national governance do not prevent economic growth.</li> <li>• Global support for the Paris Agreement and Sendai Framework is maintained.</li> <li>• Continual high-level national government commitment to prioritising climate change and disaster risk management in the national development agendas.</li> <li>• Social and political stability is maintained in each country.</li> <li>• Continuous collaboration amongst development partners occurs and is documented to ensure coherence, complementarity and efficiency amongst climate change and disaster risk management interventions.</li> </ul>		

## **Exit Strategy**

### Strategy 1: Mainstreaming and learning from past activities

By transferring knowledge and application of water security and disaster and climate risk resilience measures from past activities and projects, disaster risk management, and especially preparation and preparedness, can be enhanced in FSM.

During the RENI project, FSM will be conducting an impact assessment of past water security measures in Fais Island, Yap State. This will move beyond lessons learnt to a fuller understanding of which type of measures are really sustainable in the context of a remote outer island. The peer-to-peer exchange between Fais Island and Kapingamarangi will also provide an opportunity for the exchange of lessons learnt.

Sharing of knowledge about new technologies, such as the Ecological Purification System, provides long term benefit for the water sector, as this technology has potential for application to other states of FSM.

In keeping with the Framework for Resilient Development for the Pacific (FRDP), the integration of measures that address climate risk and disaster risk within a sector is another example of a mainstreaming approach that contributes to sector resilience beyond project life.

### Strategy 2: Further Funding

Identifying alternative sources of grant funding or loan finance, or national government funds in order to continue a project's activity is a second exit strategy.

RENI is working closely with a number of disaster risk management and climate change adaptation projects being implemented by SPC, as well as other projects implemented by regional and international organisations. Throughout the course of the project, routes to create synergies with other longer running activities will be pursued and where appropriate, developed.

#### Strategy 3: Private Enterprise

Developing an alternative business and/or operational model, through commercialising aspects of the project, is a third exit strategy.

Within the scope of RENI, private sector involvement in disaster risk management and climate change adaptation interventions will be encouraged where appropriate.

#### Strategy 4: Project Closure

Winding down a project's activities as efficiently and effectively as possible in order not to impact adversely on the project's staff and its stakeholders, and to capture the benefits and any lessons learned is a fourth exit strategy.

The project will work to efficiently wind down the activities as the end date is approached. Lessons learnt from the Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project will be applied and include allowing sufficient time and staff for an efficient and complete closure process, complete documentation of all narrative and financial materials, and perhaps most importantly the compilation and sharing of lessons learnt through interactive discussion sessions with national stakeholders and regional partners.

## Annex 1 Indicative Logframe Matrix RENI Activities in FSM

The activities, the expected outputs and all the indicators, targets and baselines included in the logframe matrix are indicative and may be updated during the implementation of the action. Note also that indicators will be disaggregated by sex whenever relevant.

	Intervention logic	Indicators	Baselines (2017)	Targets (2020)	Sources and means of verification	Assumptions
Overall objective: Impact	<p><b>Overall objective:</b> To enhance the resilience of those living in Yap Proper and Kapingamarangi, FSM, to the shocks and insecurities resulting from droughts.</p>	<ul style="list-style-type: none"> <li>•Capacity of national stakeholders to address disaster and climate risk strengthened.</li> <li>•Capacity of women to assume leadership roles enhanced.</li> </ul>	<ul style="list-style-type: none"> <li>•2016 Yap State El Niño Mitigation Plan</li> <li>•2016 Yap Joint State Action Plan for Disaster Risk Management &amp; Climate Change</li> <li>•2017 Yap State Disaster Preparedness Plan</li> </ul>	<ul style="list-style-type: none"> <li>•30 stakeholders.</li> <li>•1 water security activity designed and led by women.</li> </ul>	<ul style="list-style-type: none"> <li>•Reporting on SDGs especially 6, 13.</li> <li>•Reporting on Sendai Framework and FRDP priorities.</li> <li>•Reporting on SPC’s development &amp; strategic goals.</li> <li>•Reporting on national and sector policies &amp; plans.</li> <li>•Baseline questionnaires.</li> <li>•Capacity surveys and interviews.</li> <li>•Workshop reports</li> <li>•Pre and post surveys.</li> </ul>	

	<b>Intervention logic</b>	<b>Indicators</b>	<b>Baselines (2017)</b>	<b>Targets (2020)</b>	<b>Sources and means of verification</b>	<b>Assumptions</b>
<b>Specific objective: Outcome</b>	<p><b>Specific objective:</b> To strengthen water security using a sustainable, multi-sector and gender sensitive/rights-based approach.</p>	<ul style="list-style-type: none"> <li>• Environmental Purification System (EPS) for low cost, high quality water introduced to Yap Proper.</li> <li>• Government and non-governmental agencies collaborate to enhance water security.</li> </ul>	<ul style="list-style-type: none"> <li>• 2016 Yap State El Niño Mitigation Plan</li> <li>• 2016 Yap Joint State Action Plan for Disaster Risk Management &amp; Climate Change</li> <li>• 2017 Yap State Disaster Preparedness Plan</li> </ul>	<ul style="list-style-type: none"> <li>• 1 EPS system installed and operational.</li> <li>• 2 Drought preparedness measures publicised using different media formats.</li> </ul>	<ul style="list-style-type: none"> <li>• Reporting on Sendai Framework priorities</li> <li>• Reporting on national and sector policies &amp; plans</li> <li>• Pre and post surveys and interviews</li> <li>• Training and workshop reports</li> <li>• Project reports</li> <li>• Media reports</li> </ul>	<ul style="list-style-type: none"> <li>• Beneficiary governments and stakeholder groups are committed to taking action to build El Niño resilience and focus on collaborative activities.</li> <li>• Climate change adaptation and disaster risk management remain as high priorities for FSM.</li> </ul>



<b>Outputs</b>	<p><b>Output 1:</b> Individual and community behaviours around drought resilience enhanced.</p> <p><b>Output 2:</b> Water security measures to support drought resilience implemented.</p>	<ul style="list-style-type: none"> <li>• Community residents contribute to the design of water storage systems.</li> <li>• Mechanism in place to share water resources during drought</li> <li>• Community rainwater catchment systems expanded and refurbished.</li> <li>• Capacity of communities to maintain refurbished water systems enhanced.</li> <li>• Access to refurbished water systems for all persons including those with disabilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Community experiences during past droughts (collected in consultations 2018)</li> <li>• El Niño Mitigation Plan and water quality reports 2016</li> <li>• There is very little baseline data on community water resources. This will be collected for selected communities during implementation.</li> <li>• Various USGS reports prior to 1990.</li> <li>• Yap State Census (2010)</li> </ul>	<ul style="list-style-type: none"> <li>• 4 community consultations documented.</li> <li>• 4 communities sign MOUs to share water resources during drought</li> <li>• 4 community rainwater catchment systems expanded/ refurbished</li> <li>• 4 communities trained and equipped to maintain water systems.</li> <li>• 4 refurbished community water systems with access to the public including persons with disabilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Pre and post surveys and interviews</li> <li>• Documentation on community consultations</li> <li>• Monthly reports from National Coordinator</li> <li>• Signed MOUs with communities</li> <li>• Project reports</li> <li>• Reports on maintenance training</li> <li>• Close out reports on construction of refurbished water storage systems.</li> <li>• Procurement plan</li> <li>• Concept notes and design documents for all structural measures</li> <li>• Asset registers and handover reports.</li> <li>• Project reports</li> </ul>	<ul style="list-style-type: none"> <li>• Country beneficiaries remain committed to taking action to build El Niño resilience.</li> <li>• Governments and communities willing to proceed with project implementation</li> <li>• Sufficient local resources and skills available</li> <li>• Natural and man-made hazards, especially a drought, do not adversely affect project delivery</li> </ul>
----------------	--	--	---	--	---	---

	<p><b>Output 3:</b> Planning and technical measures undertaken to support El Niño readiness</p>	<ul style="list-style-type: none"> <li>• Knowledge base on underground water resources expanded.</li> <li>• Feasibility of irradiation for solar disinfection assessed in FSM.</li> </ul>	<ul style="list-style-type: none"> <li>• USGS reports on water resources prior to 1993</li> <li>• Reports by University of Guam WERI and other organisations.</li> <li>• Irradiation surveys for Kiribati 2014</li> </ul>	<ul style="list-style-type: none"> <li>• 1 Hydro-geological assessment of the Tamil-Gagil Aquifer.</li> <li>• 1 scientific study on irradiation amounts for FSM.</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrogeological assessments</li> <li>• SODIS reports and studies</li> <li>• Project reports</li> </ul>	<ul style="list-style-type: none"> <li>• Beneficiaries (FSM residents) are open and willing to adopt water conservation measures.</li> <li>• Further severe El Niño events do not occur during project time frame</li> </ul>
--	---	---	---	---	---	--

<b>Annex 2 Activities and Indicative Budget FSM</b>	
<b>Activity</b>	<b>Budget Line Items (Euros)</b>
<b>Output 1: Individual and community behaviours around drought resilience enhanced</b>	
<b>YAP PROPER</b>	
1.1 Oversight of RENI in Yap State	0
1.2 Conduct state level and community consultations	2,000
1.3 Recruit and employ a National Coordinator	60,000
1.4 Provide office support for National Coordinator; water equipment, repairs and supplies	30,500
1.5 Water conservation education activities	10,000
1.6 Fais Island impact assessment of completed water security activities	10,200
<b>KAPINGAMARANGI</b>	
1.7 Oversight of RENI in Kapingamarangi	0
1.8 Sharing experiences of water security Fais Island and Kapingamarangi	2,000
1.9 Establishment of solar disinfection (SODIS) in Kapingamarangi	3,000
Contingency	9,350
<b>Sub-total</b>	<b>127,050</b>
<b>Output 2: Water security measures to support drought resilience implemented</b>	
<b>YAP PROPER</b>	
2.1 Purchase and install one environmental purification system (EPS) at Dugor, Weloy municipality	75,400
2.2 Purchase and install solar powered pumps at Dugor, Weloy municipality	9,600
2.3 Purchase and install one environmental purification system (EPS) at Rumuu, Fanif municipality	75,400
2.4 Purchase and install solar powered pumps at Rumuu, Fanif municipality	9,600
2.5 Refurbish community rainwater harvesting systems in Rull, Weloy, Gagil and Tamil municipalities.	167,615
2.6 Training of communities in monitoring and maintenance and provision of small-scale equipment	21,500
2.7 Parallel measure to support drought preparedness designed and led by women's group	25,000
<b>KAPINGAMARANGI</b>	
2.8 Refurbish community rainwater catchment systems	100,000
2.9 Training in monitoring and maintenance (Budget included in 2.6)	
Contingency (already built into each line item)	
<b>Sub-Total Output 2</b>	<b>484,115</b>
<b>Output 3: Planning and technical measures undertaken to support El Niño readiness</b>	
<b>YAP PROPER</b>	
3.1 Hydrogeological assessment of Tamil-Gagil aquifer	115,000
<b>KAPINGAMARANGI</b>	
3.3 Conduct a scientific assessment to confirm that solar disinfection (SODIS) is a reliable method for FSM	2,000
Contingency	10,000
<b>Sub-total</b>	<b>127,000</b>
<b>Overall total</b>	<b>738,165</b>

Acquittals of funds received must be supported by copies of all receipts and substantiating documents.

Annual government audits will be sufficient unless any accounting or financial problems emerge. Any interest accruing from any advances paid by SPC shall be considered as income for the purpose of operating this project. It may be used to cover eligible costs of the operation.

The Government shall oversee accurate and regular records and accounts of the implementation of the operation. Financial transactions and financial statements shall be subject to the internal and external-auditing procedures laid down in the financial regulations, rules and directives of SPC.

Fixed Assets: All fixed assets purchased by the project (equipment) will remain the property of SPC until the closure of the project. On closure of the project the assets will be officially handed over by SPC to the respective stakeholders in the country. An asset register of all assets purchased should be kept in the office of the Government.

Annex 3 Schedule of Activities														
	2017		2018				2019				2020			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
Selection of sector														
Selection of states														
Concept Note finalised														
Preliminary site assessments														
Project Design Document														
<b>Output 1: Individual and community behaviours around drought resilience enhanced</b>														
<b>YAP PROPER</b>														
1.1 Oversight of RENI in Yap State														
1.2 Conduct state level and community consultations														
1.3 Recruit and employ a National Coordinator														
1.4 Provide office support for National Coordinator; water equipment, repairs and supplies														
1.5 Water conservation education activities														
1.6 Fais Island impact assessment of completed water security activities														
<b>KAPINGAMARANGI</b>														
1.7 Oversight of RENI in Kapingamarangi														
1.8 Sharing experiences of water security Fais Island and Kapingamarangi														
1.9 Establishment of solar disinfection (SODIS) in Kapingamarangi														
<b>Output 2: Water security measures to support drought resilience implemented</b>														
<b>YAP PROPER</b>														
2.1 Purchase and install one environmental purification system (EPS) at Dugor, Weloy municipality														
2.2 Purchase and install solar powered pumps at Dugor, Weloy municipality														
2.3 Purchase and install one environmental purification system (EPS) at Rumuu, Fanif municipality														
2.4 Purchase and install solar powered pumps at Rumuu, Fanif municipality														
2.5 Refurbish community rainwater harvesting systems in Rull, Weloy, Gagil and Tamil municipalities.														
2.6 Training of communities in monitoring and maintenance and provision of small-scale equipment														
2.7 Parallel measure to support drought preparedness designed and led by Women's group														
<b>KAPINGAMARANGI</b>														
2.8 Refurbish community rainwater catchment systems														
2.9 Training in monitoring and maintenance (Budget included in 2.6)														
<b>Output 3 Planning and technical measures to support El Niño readiness</b>														
<b>YAP PROPER</b>														
3.1 Hydrogeological assessment of Tamil-Gagil aquifer														
<b>KAPINGAMARANGI</b>														
3.3 Conduct a scientific assessment to confirm that solar disinfection (SODIS) is a reliable method for FSM														

