Secretariat of the Pacific Community

Government of Niue

GLOBAL CLIMATE CHANGE ALLIANCE: PACIFIC SMALL ISLAND STATES

PROJECT DESIGN DOCUMENT

Augmentation of Rainwater Capture and Storage in Niue

Project Summary

The **overall *objective*** of the project is to contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities and the **purpose** is to augment rainwater capture and storage in Niue. The project will be implemented over the period starting on the date of signature of this project design document and finish on 19th November 2014 – although a request for extension of the entire Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project has been submitted by the Secretariat of the Pacific Community (SPC) to the European Union.

The **key result areas** (KRAs) are as follows: (i) Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced; (ii) Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities; and (iii) Newly installed rainwater storage systems monitored and maintained regularly throughout Niue.

The project will provide Niue Government agencies and communities with the necessary technical assistance, staff support, equipment, and training opportunities so that 214 households representing 45% of the total population (736 people, based on the 2011 census) in the three communities of Tuapa, Alofi North and Alofi South will have an alternative water supply that will be fully functional during and after cyclones and other extreme events when electricity supplies are suspended. (At present the main source of water is groundwater that has to be pumped and then distributed via a piped system).

The project will be implemented by the Department of Environment and they have coordinated the resources from three projects: (i) GCCA: PSIS project, (ii) Pacific Adaptation to Climate Change (PACC) project supported by the United Nations Development Programme/Global Environment Facility; and (iii) the PACC+ project supported by the Australian Agency for International Development, to provide rainwater capture and storage systems to **every** inhabited household in Niue.

Special features of the project include monetary contributions from each householder to supply the necessary fascia boards, guttering and downpipes, thereby promoting community ownership. Furthermore the storage systems (tanks) will be manufactured in Niue, thereby ensuring the infrastructure and skills for manufacture of additional tanks (for water, garbage or septic storage) is available in country.

The project will contribute to the 2009 National Drinking Water Safety Plan, and the Climate Change Policy and the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management 2012-2014.

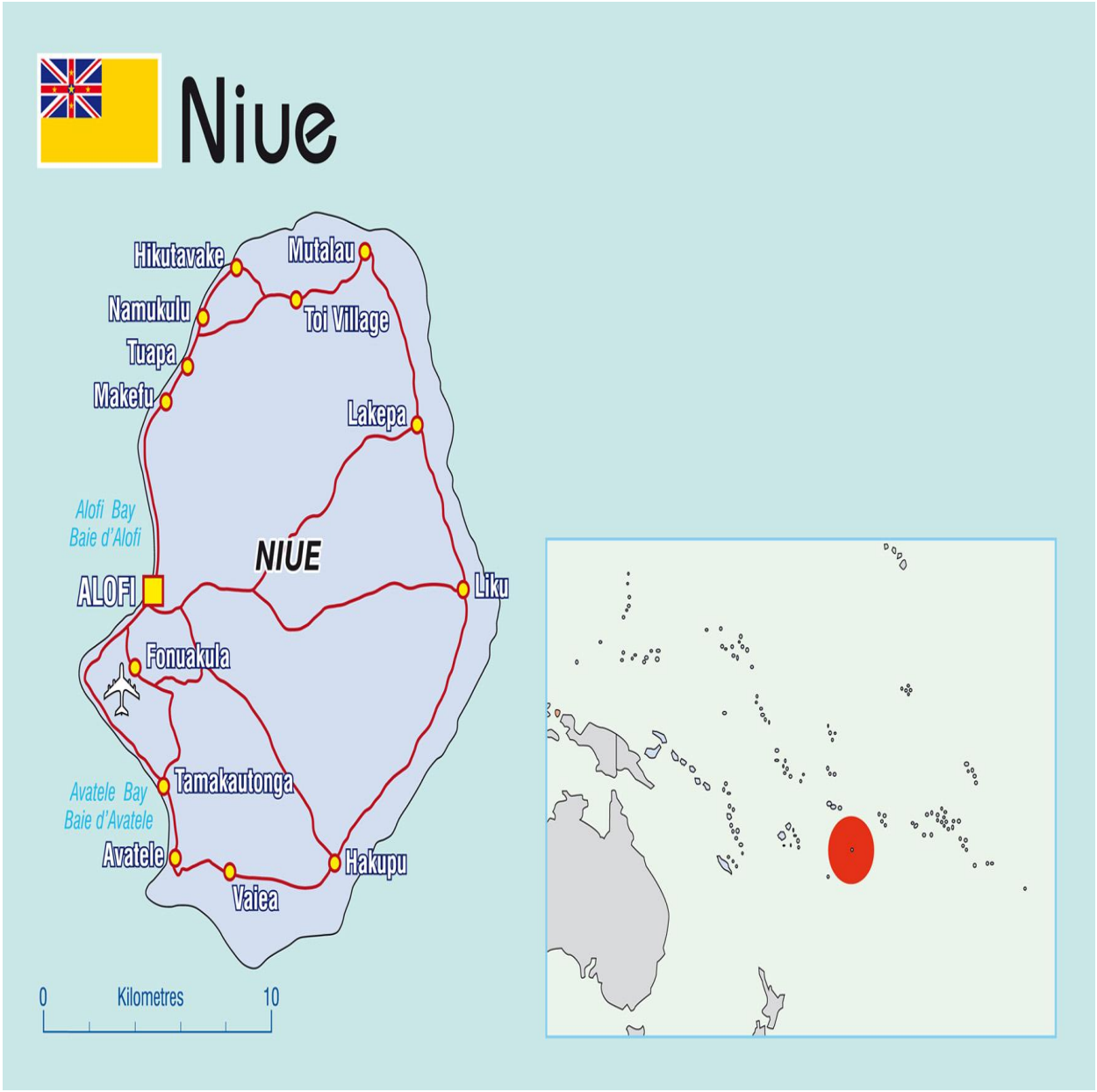

Figure 1: Niue Island

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1. INTRODUCTION

The Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project is a three-year project funded by the European Union and implemented by the Secretariat of the Pacific Community (SPC). The overall objective of the GCCA: PSIS project is to support the governments of nine smaller Pacific Island states, namely Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Tonga and Tuvalu, in their efforts to tackle the adverse effects of climate change. The purpose of the project is to promote long-term strategies and approaches to adaptation planning and pave the way for more effective and coordinated aid delivery to address climate change at the national and regional level.

The GCCA: PSIS project is implemented by SPC as part of its whole of organization approach and is one of the activities contributing to the SPC Climate Change Engagement Strategy. The four key result areas (KRA) are:

National Level Key Result Areas

KRA 1: Supporting national efforts to successfully mainstream climate change into national and sector response strategies.
KRA 2: Identifying, designing and supporting the implementation of adaptation activities.

Regional Level Key Result Areas

KRA 3: Enhancing the contribution of regional organisations to national adaptation responses.
KRA 4: Building regional capacity to coordinate the delivery of streamlined adaptation finance and targeted technical assistance to countries

Niue, as one of the countries participating in this project, has already highlighted many of its adaptation needs in official documents and at various regional and international fora. It has, during the last decade, been involved in a number of climate change projects which have helped shape how climate change adaptation is dealt with in country. Niue's approach to climate change adaptation is based on a no-regrets approach and it will pursue a strategy for precautionary adaptation since it is difficult to predict far in advance how climate change will affect a particular site, sector or island community. The strategy ensures that implementing adaptation measures now would be justified even in the absence of climate change, as it would lead to better management of natural resources and sustainable development.

Niue has identified "Augmentation of Rainwater Capture and Storage in Niue" as its focus for a national climate change adaptation project to be implemented under the GCCA: PSIS project.

This project design document (PDD) outlines the overall objective, project purpose, key result areas and activities that comprise the project. The project design follows the logical framework approach. The first section of the PDD outlines the background to the project, its

rationale and related projects. Section two describes how the project was identified. The third section describes the project's overall objective, project purpose, key result areas and activities using a logical framework approach, while the fourth and fifth sections of the document provide a budget and schedule for the project activities. Institutional arrangements, and risk management and exit strategies are the content of sections 6 and 7 respectively.

Background

Niue is the world's largest and highest single coral atoll with a land area of 259 km^2. It is situated in the southwest Pacific Ocean (19^{o}S, 169^{o}W) about 2,400km northeast of New Zealand. It is approximately 480 km east of Tonga, 930 km west of Rarotonga and 660 km southeast of Samoa. Within its exclusive economic zone of 39,000 km^2, Niue has two reef atolls, Antiope and Beveridge, visible only at low tide, from which commercial fishing is banned. Niue's marine region hosts a number of seamounts re-known for its high value fisheries productivity.

Niue is characterised by three terraces; the rim of the lower terrace averages 28 m above sea level, with the upper rim averaging 69 m above sea level. The slopes of the terraces are rough, with jagged coral outcrops. The island has a rugged, rocky coastline, featuring steep cliffs, caves, deep chasms and blowholes. The reef is continuous, and is breached at one small area opposite the Alofi wharf.

Niue has a resident population of 1,607 (based on the 2011 census). There are 14 villages scattered around the island's coast, one of which Alofi is the capital. Most villages are within walking distance of each other, especially the western coastal villages. A coastal road passes through all villages; it is sealed within each village and along the west and south coast. There are also two major cross-island roads, both of which are sealed.

There is no natural harbour. The open roadstead in Alofi Bay lies on the sheltered west coast, in the lee of the prevailing easterly trade winds, and has a wharf, which accommodates smaller vessels with other cargo being transferred by lighters. There is a 2,335 m runway which receives a twice weekly flight from Auckland.

The government's long-term policy for economic development and financial stability is to encourage national self-reliance. In the short- and medium-term, the government aims to maximise available funds to invest in high priority areas. One of the strategies is to target development of eco-tourism and the expansion of export products such as vanilla and noni. In 2006, non-market (government) earnings made up most of GDP. The private sector contributes 20% of total GDP. Niue imports four times more than it exports; the five major import items are food, mineral products, vehicles, home appliances, and steel building items. Imports of building materials and machinery increased following the 2004 cyclone. Niue also earns revenue from fishing in its exclusive economic zone.

Artesian bores tap an underground reservoir of freshwater for domestic, commercial and agricultural purposes. The current land clearing coupled with farming practices and an inadequate waste disposal system pose a potential threat to the present water quality. The underground water source is also vulnerable to land based pollution and contamination. The extraction, storage and distribution of underground water supplies to households are highly dependent on the use of fossil fuel.

Present and Future Climate for Niue

Niue has a tropical maritime climate, with a seasonal range of about 4^{o}C between the warmest and coolest months. There are two distinct seasons in Niue: the hot or wet season from December to March and the cool dry season from April to November. The average annual rainfall is approximately 2,180 mm, but it can vary from 810 mm to 3,300 mm. The bulk of rainfall is concentrated in the hot season and is often delivered in torrential downpours; it accounts for 68% of the total annual rainfall. The cool season is characterised by warm, sunny days and cool nights, with temperatures averaging 24^{o}C.

Cyclones strike Niue at irregular intervals, the most recent one being Cyclone Heta in January 2004, which caused devastation to people, properties, government, industry, infrastructure, agriculture and the economy with an estimated damage cost of more than USD 60 million (or NZD 89.1 million). Since 1863, when records began, more than 30 tropical cyclones have affected Niue with a frequency of one severe cyclone within 2–15 years.

Droughts occur from time to time, affecting agriculture, particularly, as there is no irrigation system. Year-to-year variability is often strongly influenced by the El Niño Southern Oscillation. The rate of sea-level rise since 1993 measured by satellite is 5 mm per year.

Future projections of climate change for Niue (based on the Pacific Climate Change Science Program 2011) over the next 15 to 35 years show (i) average air temperature will increase by 0.9 – 1.7^{o}C (ii) an increase in the number of very hot days; (iii) a decrease in cooler weather; (iv) increase in average annual rainfall with increases in wet and dry season rainfall; (v) increase in sea surface temperature; (vi) increase in ocean acidification; and (vii) sea level will continue to rise. Projections about the future behavior of typhoons and the El Niño-Southern Oscillation show a significant range of uncertainties at the moment.

Rationale

The water sector in Niue is highly vulnerable to the adverse impacts of climate change and climate variability especially droughts and tropical cyclones.

Niue is a raised limestone island and has no surface water, and therefore depends entirely on its groundwater source and rainfall catchment for all domestic, commercial and agricultural purposes. Water is extracted from the underground freshwater lens which is

recharged by rainfall percolating through the predominantly limestone rocks. The recharge zone is believed to be the entire surface area of the island less a 1km band around the circumference of the island. The recharge potential over the entire freshwater lens area is estimated to be about 132million m^3/yr. Freshwater pumped from the groundwater lens provides most of the freshwater used for domestic and agricultural purposes.

Each village has a well (bore) with a submersible pump and a reservoir to provide sufficient head to gravity feed the village reticulation network. Some systems have a surface pressure pump to boost the pressure so that water is supplied to elevated areas. There are a total of 17 production bores across the island with Alofi having five production wells.

A 2005 report by SPC-SOPAC indicated Niue's groundwater resources are sufficient to meet supply demands during normal conditions and adequate to provide at least a minimum of five months water supply in the dry season. In drought years, when there may be as many as 8-9 months with no recharge, the lens would be expected to shrink in size. The most recent prolonged dry period was June-November 2012.

The changes to the thickness in freshwater lens have serious implications for water supply management in Niue. Lowering of the lens often leads to higher electricity costs for pumping water. The rate of electricity consumption for water pumping has been rising, suggesting that water consumption per capita is rising. It is estimated that, per capita demand 10 years ago was 278 litres per day compared with current rates of 350 litres per day.

The water from the Niue groundwater lens is deemed safe and of good quality and is thus pumped directly to consumers without any form of treatment. The costs for maintaining the drinking water supply are currently met by the Niue Government. Consumers are not charged for water use.

Maintenance of household water fixtures is the responsibility of individual households. However, house owners have little or no incentive to maintain their household fixtures as there is no tariff on water. This is a major concern for water managers given that the Niue water supply pumping system is energised by mains power generated with imported diesel fuel. Water leakage and reckless use of water has resulted in high pumping costs to the government.

Prior to Cyclone Heta in 2004, Niue depended, almost entirely, on the underground water lens for its freshwater supplies. However during Cyclone Heta and for a considerable period of time after the cyclone, water supplies were seriously disrupted. Cyclone Heta, a major storm, caused major damage to the environment and infrastructure in Niue and resulted in significant economic disruption.

Following Cyclone Heta in 2004, an asbestos removal and reroofing project provided households with clean, safe roof catchments for the collection of potable water for use during cyclones when electricity supplies are disrupted.

The addition of effective and efficient household rainwater capture and storage systems will provide a more secure supply of potable water for individual households in the communities

especially during and after extreme weather events. With the planned increase in economic activities and the additional Air New Zealand flight each week, Niue cannot continue to depend only on its underground water lens for freshwater supplies. Rainwater harvesting is regarded as a supplementary source at the household level, and reserve tanks would provide similar back-up at the community level.

The re-introduction of rainwater harvesting in Niue will not only ease pressure on freshwater from the underground reservoir but will also contribute to better management of water resources in Niue by providing a back-up supply. (In the past household water catchment systems were made of cement that could only hold 1,300 litres and were difficult to maintain over time in terms of water quality, overall maintenance and adequate covers. A few of these old catchment systems remain).

The GCCA: PSIS project will supply 5,000 litre rainwater tanks to each individual household in three communities, namely Alofi South, Alofi North and Tuapa villages. (The size of the tanks was determined following a cost benefit analysis conducted by the Secretariat of the Pacific Regional Environment Programme in 2012). The project is not a stand-alone project as it will complement supplies of rain water capture and storage systems to 11 other communities/villages on the island through support from the PACC project and PACC+ project.

Rainwater harvesting is economically viable and culturally acceptable in Niue. To maximise on the household upgraded reroofing project that was conducted following Cyclone Heta in 2004 and funded mainly by NZAID, this project will ensure clean safe roof capture and storage of potable water for use during and after tropical cyclones and for normal use at other times. Electricity supplies are shut down at the onset of a “Yellow” alert when a tropical cyclone is in the vicinity and threatening Niue. The addition of rainwater harvesting will provide a secure supply of potable water to households during and after extreme weather events, as well as a back-up supply at other times.

Rainwater storage tanks will be moulded and manufactured in Niue thereby transferring the skills and providing the infrastructure for additional tanks in the future.

Individual householders will have to purchase their own fascia boards, guttering and downpipes before they receive the rainwater storage system. This will ensure that they have to make a monetary contribution to the rainwater capture and storage system and this measure will likely contribute to individual ownership of the systems.

The National Integrated Strategic Plan (2009-2013) and the Joint National Action Plan for Climate Change Adaptation and Disaster Risk Management for Niue have identified the need to increase the amount of potable water available to all residents. The project will also contribute to the implementation of Niue Drinking Water Safety Plan 2009.

Related Projects

Niue has implemented a number climate change related projects since 1998. It has produced the first national communication under the United Nations Framework Convention on Climate Change (UNFCCC). The second national communication is still being prepared. The projects outlined below focus on adaptation particularly in the water sector and provide opportunities for building synergy.

1) *Pacific Adaptation to Climate Change (PACC)* – focuses in Niue on "Water storage systems designed to adapt to the uncertainties of climate change posed by natural disasters". The project is working to provide an adequate back up system to the existing groundwater supply infrastructure by increasing rainwater harvesting and water storage capacity of individual households within village communities. It involves capacity building, training, climate scenarios, modelling and the application of socio-economic, vulnerability and adaptation assessments using climate information on current water resource management. The implementation period is 2008-2013 and the cost of the project is US$500,000. The project is funded by the Global Environment Facility (GEF) with the United Nations Development Programme (UNDP) as its implementing agency and the Secretariat of the Pacific Regional Environment Programme (SPREP) as implementing partner. Recently additional funding has been provided by AusAID through PACC+. PACC and PACC+ will be providing water capture and harvesting systems to 263 household in 11 villages, while the GCCA: PSIS project will supply similar systems to 214 households in three villages. Together the three projects (PACC, PACC+ and GCCA: PSIS) will ensure all the inhabited households (477 households in 14 villages) in Niue have a rainwater capture and storage system. The three projects will be coordinated and delivered as one project whilst acknowledging the different donor contributions.

2) *Integrated water resources management (IWRM*) - Niue's IWRM Demonstration Project is entitled "*Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model for the Alofi Town Groundwater Supply and Near-shore Reef Fishery*". This project uses integrated land use, water supply and wastewater management as a model for Alofi Town groundwater supply and near shore fishery. The project implementation period is 2008 – 2013 and it is funded by UNDP/GEF.

3) *Implementation of the joint national action plan (JNAP) for climate change adaptation and disaster risk management.* The JNAP was prepared in 2011-2012 and provides a three year plan of action to address existing gaps relating to vulnerability to climate change impacts and disasters. Key goals are: Strong and effective institutional basis for disaster risk reduction/climate change adaptation; strong public awareness and improved understanding of the causes and effects of climate change, climate variability and disasters; strengthened livelihoods, community resilience, natural resources and assets; strengthened capacity to adapt renewable energy technologies and improve energy efficiency; strengthened disaster preparedness for

effective response. The GCCA: PSIS project is contributing to the implementation of the JNAP.

4) *USP-EU-Global Climate Change Alliance Project*. 2012-2014. This regional project seeks to develop and strengthen the Pacific countries' capacity to adapt to the impacts of climate change through formal training, applied research and community engagement. In Niue the project is working with a community in Tamakautoga to address community issues including water.

2. PROJECT SELECTION PROCESS

The project selection process involved a number of activities which are listed below in chronological order.

February – May 2012: Review of Background Information

A literature review was conducted of the projects, programmes and activities relating to climate change that were ongoing or recently implemented in the country. Information from the review was compiled into a climate change profile for Niue now available at http://www.spc.int/en/our-work/climate-change/gcca.html. The document provided a useful background for identification of a focus area for the adaptation project in Niue.

May 2012: Initial discussions at the GCAA:PSIS Project Steering Committee Meeting

Niue's adaptation needs and priorities were discussed at the first GCCA: PSIS Project Steering Committee Regional Meeting held from 28-29 May 2012 in Suva, Fiji. At this meeting a specific session was focused on identification of possible focus areas for adaptation and other areas including mainstreaming, national coordination activities, working arrangements and training and/or capacity building needs. Niue had already identified the water sector as their focus area based on the PACC project activities and consultations during the preparation of the JNAP.

September 22-28, 2012: GCCA: PSIS Project Mission

The first mission was conducted in Niue in September 2012. Key stakeholders agreed that the GCCA:PSIS project would complement the on-going programme in the water sector – i.e. supporting the ongoing rainwater harvesting projects that were being funded under the PACC project and with the support from the Australian government (PACC+). The government of Niue was of the view that Niue would combine the funds from GCCA: PSIS, PACC and PACC+ to focus on the water sector in an integrated overall manner rather than a piecemeal basis.

October 2012 - February 2013: Preparation of the Project Concept Note

On the basis of these consultations a project concept note on "Augmentation of Rainwater Harvesting in Niue" was prepared by Niue and the GCCA: PSIS project team. The project concept note was subsequently approved by the EU Delegation in Suva, Fiji. (During subsequent discussions the title of the project has been changed to "Augmentation of Rainwater Capture and Storage in Niue" so as to be in keeping with the terminology used by the PACC and PACC+ projects.)

March 18-22, 2013: Project Planning Meeting in Niue

A project planning meeting was held in Niue from 19-20 March 2013. There were 12 participants from the Department of the Environment, Public Works, Treasury, Meteorological Office, Chamber of Commerce, USP-GCCA project, and four communities.

Participants were informed about the: (i) selection of the three districts and communities (a total of 214 households) for this particular project based on previous assessments done by the PACC project and the Water Technical Committee; and (ii) willingness to pay aspects – including monetary contributions as well as purchase of facia boards, guttering and down pipes. The other 11 districts would receive water capture and storage systems provided through the PACC and PACC+ projects. The tender for construction and installation of the water capture and storage systems was in the final stages. The contracted company will manufacture the water tanks in Niue.

The participants also developed a preliminary log frame and key result areas. This formed the basis of the final log frame presented in Section 5.

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April – August 2013: Budget Planning and GCCA: PSIS Mission to Niue

The Department of the Environment prepared a budget for the GCCA: PSIS project components and the PACC and PACC+ components and this was discussed with the project team in Nadi during the Pacific Climate Change Roundtable meetings in July. Following this discussion, a mission was conducted to Niue, 2-9 August 2013, to prepare this Project Design Document.

3. PROJECT DESCRIPTION

This section outlines the overall objective, purpose and key result areas as outlined in the project log frame. It also describes how the key result areas will be implemented, monitored and evaluated over the project life and beyond.

PACC and PACC+ projects were already in progress when the GCCA: PSIS project started in 2012. The combined PACC projects included funding for the manufacture of rainwater storage systems in Niue, their installation in individual households as well as related training, education, awareness and ownership-building activities. With the addition of the GCCA: PSIS project funds, the Niue Government saw the potential to upscale the combined PACC projects to include all inhabited households in Niue. This proposal was outlined in the project concept note and endorsed by SPC and the EU in February 2013.

The Niue Government has agreed that with the implementation and delivery of the project all three projects (PACC, PACC+ and GCCA: PSIS) will be acknowledged in all activities, regardless of which particular project pays for a specific activity).

This project description relates to the entire project including the components funded by PACC and PACC+. However the specific inputs of the GCCA: PSIS project are indicated in the discussion of the key result areas and the activities. Similarly in the next section of this document, the budget, funding for the entire project is included and again the specific GCCA: PSIS components are identified.

Overall Objective

The overall objective of the project is **to contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities.** The project will complement and upscale the existing rainwater capture and storage project funded under PACC and PACC+. The GCCA: PSIS component will supply rainwater capture and storage systems to 214 households in three communities: Tuapa, Alofi North and Alofi South. However, the combined projects (GCCA: PSIS, PACC and PACC+) will ensure coverage of the whole island, a total of 477 households in 14 villages.

The project has important sustainability elements. Infrastructure and training to manufacture water catchments systems in Niue is being provided as part of the project. Thus additional storage tanks (for water, garbage or septic storage) can be manufactured in Niue after the project finishes, representing a considerable cost saving for future projects.

The objective is consistent with increasing Niue's capacity to cope with extreme events especially tropical cyclones as described in Niue's JNAP (April 2012). This three year plan of action addresses existing gaps relating to vulnerability to climate change impacts and natural disasters. The project contributes to all five priority areas identified in the JNAP: strong and effective institutional basis for disaster risk reduction and climate change adaptation; strong public awareness of the cause and effects of climate change, climate variability and disasters; strengthened livelihoods, community resilience, natural resources and assets;

capacity to adapt renewable energy technologies and improve energy efficiencies; strengthened disaster preparedness for effective response.

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Project Purpose

The project purpose is t**o augment rainwater capture and storage in Niue.** The project will provide rainwater capture and storage systems to individual households in three communities and provide training on operation and maintenance. This will ensure that the newly installed rainwater capture and storage systems are effectively maintained during and after the project. Education and awareness is another very important part of the project although this is being funded by one of the other project partners (PACC project).

Key agencies include the Departments of Environment, Health and Public Works. Extensive consultation has been undertaken with the communities. A cost benefit analysis was conducted by SPREP in 2012 to size the storage tanks and household assessments were also conducted. The analysis recommended a tank size of 5,000 litres.

The project builds on the previous experience of the PACC project and has important elements of sustainability built in, such as developing individual and national ownership of the rainwater capture and storage systems by having each householder provide their own fascia boards, guttering and downpipes before receiving a storage tank. Similarly the design of the systems provides for a special cable tie-down system so as to safeguard the tanks during cyclones.

The project up-scaling, ownership and sustainability aspects will provide important lessons and best practices for rainwater capture and storage operation and maintenance especially for other GCCA: PSIS countries and elsewhere in the Pacific islands region.

Key Result Areas and Activities

The KRAs identified for this project are as follows.

KRA 1: Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced

The two activities under this KRA are very important for the success of the project. They are being funded directly by the PACC project, however, obviously these activities and tools will be applied in the three communities being directly funded by GCCA: PSIS.

1.1 Niue is currently implementing a communication strategy for the water sector developed under the PACC and IWRM projects. This existing strategy will be applied to the GCCA: PSIS project activities with full visibility given to the EU. At least three awareness workshops will be conducted in each of the three communities and will be combined with operation and maintenance training.

1.2 Niue has already produced a number of communication tools with the support of the PACC project. These tools will be expanded and used in the delivery of the GCCA: PSIS

project components. Awareness and information programmes on rainwater capture and storage will be disseminated through radio, TV, local newspaper, on billboards and also displayed at appropriate village show days or at other national events, e.g. constitution day.

KRA 2: Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities.

2.1 A technical adviser will be hired for 18 months to oversee construction, installation, and monitoring of all the rainwater capture and storage systems in Niue. This will ensure that a certain level of quality control is maintained. The technical adviser will be situated in the Department of Environment and will work closely with the Water Resources Division and the Department of Public Works.

2.2. Niue has already started the procurement of all material for the moulding and installation of rainwater capture and storage systems. Procurement started in March 2012 and followed Niue Government processes and six contractors submitted expressions of interest. Three contractors have been selected to provide different services. Galloway International, Auckland, New Zealand will build, mould and install the rainwater storage systems. Shop Exports and Freight Ltd, Auckland, New Zealand will handle the shipping and freight of materials. Mautama Construction Niue Ltd will build the shed where the building and moulding of tanks will take place. Separate contracts will be issued to companies to prepare the tank bases where they do not exist and provide labour for installation. The GCCA: PSIS project funding has been used to upscale these contracts so that the three additional communities of Alofi North, Alofi South and Tuapa (with 214 households) are included in the overall project.

2.3. Galloway International have been contracted to install the rainwater capture and storage systems in the identified households in the communities. Again this contract has been up-scaled to include the three additional communities of Alofi North, Alofi South and Tuapa, representing 45% of the total population, and representing the contribution of the GCCA: PSIS project. (A household assessment was conducted in 2012 to identify the households and assess their potential for water capture and storage systems).

2.4 During the installation process, at least one local worker from each of the three communities of Alofi North, Alofi South and Tuapa will receive on-the-job training to install the rainwater capture and storage systems in an approved manner. After the installation there will be a trained group of persons able to troubleshoot any issues or problems encountered relating to installation and maintenance.

KRA 3: Newly installed rainwater storage systems monitored and maintained regularly throughout Niue

3.1 Existing guidelines for operation and maintenance of rainwater tanks will be adapted to the Niue situation, translated into local vernacular and distributed to each and every household using rainwater capture and storage systems. While this activity is being

funded by the PACC project it will be extended to the three communities funded by GCCA: PSIS – Alofi North, Alofi South and Tuapa.

3.2 Three training workshops on operation and maintenance of the rainwater capture and storage systems will be held to train at least one person from each household in the communities on the effective operation of the systems.

3.3 The Department of Health will undertake regular monitoring of water quality in randomly selected rainwater capture and storage systems in the communities. This will be undertaken as part of their regular monitoring activities. The GCCA: PSIS project will support the purchase of necessary equipment.

The project log frame is presented below.

Project Log frame

Project title: Augmentation of Rainwater Capture and Storage in Niue			
Description	**Verifiable Indicators**	**Verification Sources**	**Assumptions**
Overall Objective To contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities	• Infrastructure and skills available in Niue by 06/2015* to mould tanks for storage of water or other purposes, e.g. septic tanks, beyond project life.	• Niue Island Strategic Plan, JNAP, Project Progress Reports, Climate Change Policy Document	
Purpose To augment rainwater capture and storage in Niue	• At least 60% of households in three communities have properly maintained and operational rainwater capture and storage systems by 03/2015. • 60% of inhabited households in three communities have made monetary contribution to installation of rainwater capture and storage systems by 12/2014.	• Project and progress reports from all partners (PACC, PACC+ and GCCA: PSIS). • Water quality monitoring data from Ministry of Health	• Accuracy of household usage survey • Householders understand and are willing to operate and maintain their rainwater capture and storage systems in accordance with guidelines during and beyond project life • Householders willing to contribute to cost of rainwater capture and storage systems
Key Result Area 1 Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced	• At least 1 awareness workshop conducted in each community by 12/2013 • At least three effective	• Communications strategy for water • Attendance record, workshop and progress reports • Billboards, posters, newspaper	• Interest in rainwater capture and storage continues in the medium term even if there are no extreme events (e.g. cyclones and droughts) affecting Niue.

	communication tools prepared and disseminated to communities by 07/2014. At least 40 primary aged school children engaged in extra-curricula activities relating to water conservation by 07/2014	articles, radio and TV slots and websites. Outputs from student competitions.	.
Key Result Area 2 Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities.	At least 60% of the households in the 3 communities effectively using the rainwater capture and storage systems by 12/2014 80% of newly installed tanks protected against future cyclones using a tried and tested tie-down system by 12/2014 At least 3 local people trained in installation of water capture and storage systems by 12/2014	Project and progress reports from all partners (PACC, PACC+ and GCCA: PSIS). Cost benefit analysis, and technical report, assessment report O&M Guideline M&E Guideline Workshop reports Training report	Well qualified staff available for timely recruitment. Rainwater capture and storage systems installed effectively and according to requirements and guidelines. Niue is not impacted by a cyclone during the 2013-2014 cyclone season. Availability of skilled labour to make and install rainwater capture and storage systems over the period September 2013 – June 2014.
Key Result Area 3 Newly installed rainwater storage systems monitored and maintained regularly throughout Niue	3 on-site operation and maintenance training workshops conducted by 12/2014 10% of newly installed tanks monitored for water quality by 12/2014	Workshop reports Ministry of Health water quality monitoring data Project reports Questionnaire survey report	Niueans from three target communities interested in attending workshops Niueans remain interested and motivated to regularly maintain the rainwater capture and storage systems

	✚ 30% of households are aware of and using the translated O & M guidelines for rainwater storage and capture by 12/2014		✚ Additional funding for water quality testing kits can be accessed to continue water quality monitoring beyond project life
Activities 1.1 Implement existing communication strategy for the water sector throughout Niue. 1.2 Develop communication tools: radio, TV, print, websites, workshops, billboards; link to national events e.g. constitution day, monthly village show days 2.1 Hire technical adviser to oversee construction, installation, monitoring and quality control (18 months). 2.2 Procure all materials for moulding and installation of rainwater tanks. 2.3. Install rainwater tanks in the identified households in the communities 2.4 Deliver on-the- job training in rain water catchment capture and storage installation 3.1 Adapt, translate and distribute Operation and Maintenance (O&M)	**Means:** Technical assistance Information sharing systems Missions to countries Meetings and consultations Training activities Procurement of equipment and transportation Media involvement Reporting and evaluation	**Indicative Budget** Indicative cost €0.5 million	

guidelines of the rainwater storage systems to the households. 3.2. Hold 3 training workshops for communities on operation and maintenance of the rainwater tanks. 3.3 Follow-up water quality monitoring of selected tanks by Department of Health.			

*The project finishes in November 2014, however SPC has requested an extension of the project.

4. PROJECT BUDGET

Total Budget with Contributions from GCCA: PSIS, PACC and PACC+ Projects

The total cost of the project covering KRA 1, 2, 3 from January 2013 to mid-2015 is NZ$ 1,813,870 and includes the components covered by GCCA: PSIS, PACC and PACC+ projects. The relative contribution from each project is shown in the table below.

	GCCA: PSIS Adaptation Project budget line	PACC Project	PACC+ Project
Activity	**Total (NZD)**	**Total (NZD)**	**Total (NZD)**
KRA 1 Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced		120,000	
KRA 2 Rainwater capture and storage systems procured, supplied and installed in Niue	760,700	329,300	500,000
KRA 3 Newly installed rainwater capture and storage systems monitored and maintained regularly throughout Niue	15,000	30,000	
5% contingency	39,870		
Overall Cost	**834,570**	**479,300**	**500,000**

Budget for GCCA: PSIS Components of the Project

	GCCA: PSIS Adaptation Project budget line		PACC Project
Activity	**Item**	**Total**	**Total**
	(NZD)	**(NZD)**	**(NZD)**
KRA 1 Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced			120,000
KRA 2 Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities.		760,700	
KRA 3 Newly installed rainwater storage systems monitored and maintained regularly throughout Niue		34,000	
Sub-Total	**794,700**	**794,700**	**150,000**
5% contingency	39,870	39,870	
Overall Cost	**834,570**	**834,570**	**150,000**

- The sum allocated to Niue for this project is the New Zealand Dollar equivalent of €500,000. The detailed budget has been displayed above in NZ dollars, however there may be some slight adjustments required due to currency fluctuations.

- Due to the special nature of the climate change adaptation project in Niue: (i) the collaboration with two ongoing projects to provide water catchment and storage systems for **all** occupied households in Niue; and (ii) the fact that the other two projects have already commenced so implementation is already underway, the funds for the adaptation project will be provided in one tranche.

- 80% of the one tranche less the contingency (NZD 635,760) will be paid to Niue once this Project Design Document is signed by all parties. Payments shall be made into the Government's account. All payments will be made in the currency of the Government of Niue. Once 80% of the NZD 635,760 has been fully acquitted, the final payment can be requested as well as the contingency if it can be justified. Acquittals must be supported by copies of all receipts. Annual government audits will be sufficient unless any accounting or financial problems

emerge. Any interest accruing from the 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.
- Copies of all substantiating documents relating to each financial transaction shall form part of the monthly acquittal.
- Reimbursements of funds shall only be made on receipt of the proper acquittal of the funds already advanced.
- Fixed Assets (equipment): All fixed assets (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.

5. PROJECT SCHEDULE

Key Result Areas/Activities	2013				2014				2015	
	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April
KRA1*:* Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced										
1.1 Implement existing communication strategy for the water sector throughout Niue.										
1.2 Develop communication tools: radio, TV, print, websites, workshops, billboards; link to national events e.g. constitution day, monthly village show days										
KRA 2: Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities.										
2.1 Hire technical adviser to oversee construction, installation, monitoring and quality control (18 months).										
2.2 Procure all materials for moulding and installation of rainwater tanks.										
2.3. Install rainwater tanks in the identified households in the communities										
2.4 Deliver on-the- job training in rain water catchment storage installation										
KRA 3: Newly installed rainwater storage systems monitored and maintained regularly throughout Niue										
3.1 Adapt, translate and distribute Operation and Maintenance (O&M)										

Key Result Areas/Activities	2013				2014				2015	
	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April	3Q July	4Q Oct	1Q Jan	2Q April
guidelines of the rainwater storage systems to the households.										
3.2. Hold 3 training workshops for communities on operation and maintenance of the rainwater tanks.										
3.3 Follow-up water quality monitoring of selected tanks by Department of Health.										

6. INSTITUTIONAL ARRANGEMENTS

The PACC Coordinator currently situated in the Department of the Environment under the national water sector programme will have overall responsibility for the SPC- GCCA: PSIS project together with other water related projects in Niue. The PACC Coordinator is responsible to the Director of Environment.

A Technical Adviser will be recruited under the SPC-GCCA: PSIS project. The Technical Adviser will carry out all work relating to the implementation of SPC-GCCA: PSIS climate change adaptation project in Niue.

The SPC-GCCA: PSIS project is being implemented under the ambit of the Letter of Agreement signed on 29th November 2013 by SPC and the Government of Niue. The Niuean signatories to the Letter of Agreement were the Director, Department of the Environment, and the Acting Financial Secretary, Department of Treasury.

Project Oversight Committee

The Niue Water Steering Committee will provide oversight to the project implementation and guidance on policy and technical issues relating to the implementation of the project. The SPC-GCCA: PSIS National Coordinator will provide secretariat services to the Niue Water Steering Committee for this project

Reporting

The Technical Adviser and the SPC-GCCA: PSIS National Coordinator will be responsible for providing quarterly narrative and financial progress reports to the Niue Water Steering Committee and the GCCA: PSIS project secretariat in Suva. A template for the quarterly narrative report is presented as Annex 1 and a template for financial reporting will be prepared once the project design document is signed.

Day to Day Implementation of the Project

The Technical Adviser based at the Department of Environment, assisted by the Niue-SPC GCCA: PSIS National Coordinator will implement and manage the project activities under the guidance of the PACC Coordinator and the Director of Environment.

7. RISK MANAGEMENT AND EXIT STRATEGY

Risk Management

Risk and mitigation measures are listed in the table below.

Risk and consequence	Likelihood	Seriousness (Impact)	Mitigation actions	Responsible Person
1. Natural hazards				
Cyclones and other extreme events may damage rainwater capture and storage systems during and after construction.	Medium	Medium	Sound early warning systems Special cable tie-down system designed and installed so that rainwater capture and storage systems are not damaged during cyclones	Niue-National Meteorological Services Contractor, Department of Environment
2. Remoteness				
High transport costs and shipping schedules may delay supply of materials	Medium	Medium	Project design has ensured the main component of the rainwater storage systems are manufactured in Niue.	Contractor and Department of Environment
3.Funding for water quality monitoring materials				
Funding needs to be accessed for water quality monitoring materials so monitoring can continue beyond project life	Medium	Medium	Monitoring supplies have been budgeted for over the project life; further funding will be sought at an early stage to continue the monitoring	Department of Environment, Works Department
4.Lack of stakeholder involvement				
Public interest in rainwater storage may wane if no cyclone threats are issues and people become complacent	Medium	High	Ensure high level of awareness is maintained at the community level and in schools.	Departments of Environment and Education

Risk and consequence	Likelihood	Seriousness (Impact)	Mitigation actions	Responsible Person
Staff turnover and loss of institutional memory			Staff motivation and documentation and record keeping for handover.	Niue Government Agencies
5. Duplication/Overlap with other ongoing development or climate change adaptation activities				
Inefficient use of resources, limited sustainability of initiatives beyond project life	Low	Medium	Continuous collaboration with other partners and sound project design Ensure project activities and results are shared widely with climate change funding partners	All Donors, SPC

Exit Strategy

The supply of rainwater capture and storage systems to all inhabited households in Niue, together with ensuring provisions are in place for monitoring and maintenance will provide Niueans with an additional source of water beyond the groundwater source presently being used. Particularly during periods when cyclones threaten and/or impact Niue, the new rainwater systems will provide residents with an assured source of potable water.

Since the project involved collaboration among three donors (EU, UNDP/GEF and AusAID) it has been possible to provide water capture and storage systems for all inhabited households in Niue. Furthermore, the project has been designed so that the infrastructure and skills to make additional water tanks (septic tanks and other storage tanks as well) now exists in Niue, providing for sustainability beyond project life.

Since each household has made (or will be making) a monetary contribution to the project through the purchase of facia boards, guttering and downpipes, each individual has a vested interest in maintaining their own rainwater capture and storage system. This, combined with the education and awareness activities, and the training in operation and maintenance will provide for well-maintained water capture and storage systems during and beyond project life.

In particular, the project's efforts to raise the level of awareness about water conservation and the wise use of water, especially in the face of climate variability and climate change, will assist all residents of Niue in planning for and coping with future changes.

As a broader part of the exit strategy, the project contributes to the implementation of the JNAP which combines climate change adaptation and disaster risk management measures.

Annex 1 Quarterly Reporting Template

Activities	Progress in Quarter X	Planned Activities in Quarter X+1
KRA 1: Education, awareness and understanding of rainwater capture and storage on Niue strengthened and enhanced		
1.1 Implement existing communication strategy for the water sector throughout Niue.		•
1.2 Develop communication tools: radio, TV, print, websites, workshops, billboards; link to national events e.g. constitution day, monthly village show days	•	•
KRA 2: Rainwater capture and storage systems procured, supplied and installed in occupied households in three communities.		
2.1 Hire technical adviser to oversee construction, installation, monitoring and quality control (18 months).	•	
2.2 Procure all materials for moulding and installation of rainwater tanks.	•	
2.3. Install rainwater tanks in the identified households in the communities	•	
2.4 Deliver on-the- job training in rain water catchment storage installation	•	
KRA 3: Newly installed rainwater storage systems monitored and maintained regularly throughout Niue		
3.1 Adapt, translate and distribute Operation and	•	

Activities	Progress in Quarter X	Planned Activities in Quarter X+1
Maintenance (O&M) guidelines of the rainwater storage systems to the households.		
3.2. Hold 3 training workshops for communities on operation and maintenance of the rainwater tanks.	•	
3.3 Follow-up water quality monitoring of selected tanks by Department of Health.	•	