Secretariat of the Pacific Community

Government of Nauru

GLOBAL CLIMATE CHANGE ALLIANCE: PACIFIC SMALL ISLAND STATES

PROJECT DESIGN DOCUMENT

Expanding national water storage capacity and improving water security in Nauru

Project Summary

The overall objective of the Euro 0.5 million project is to "Contribute to building resilience of communities in Nauru to climate change." The purpose is to "Improve water security in Nauru by expanding national water storage capacity." The key result areas (KRA) are: (1) Improvements to Nauru's national water storage designed with participation of all key stakeholders; (2) New national water storage tank(s) constructed and installed; and (3) Community awareness and capacity built to improve water conservation.

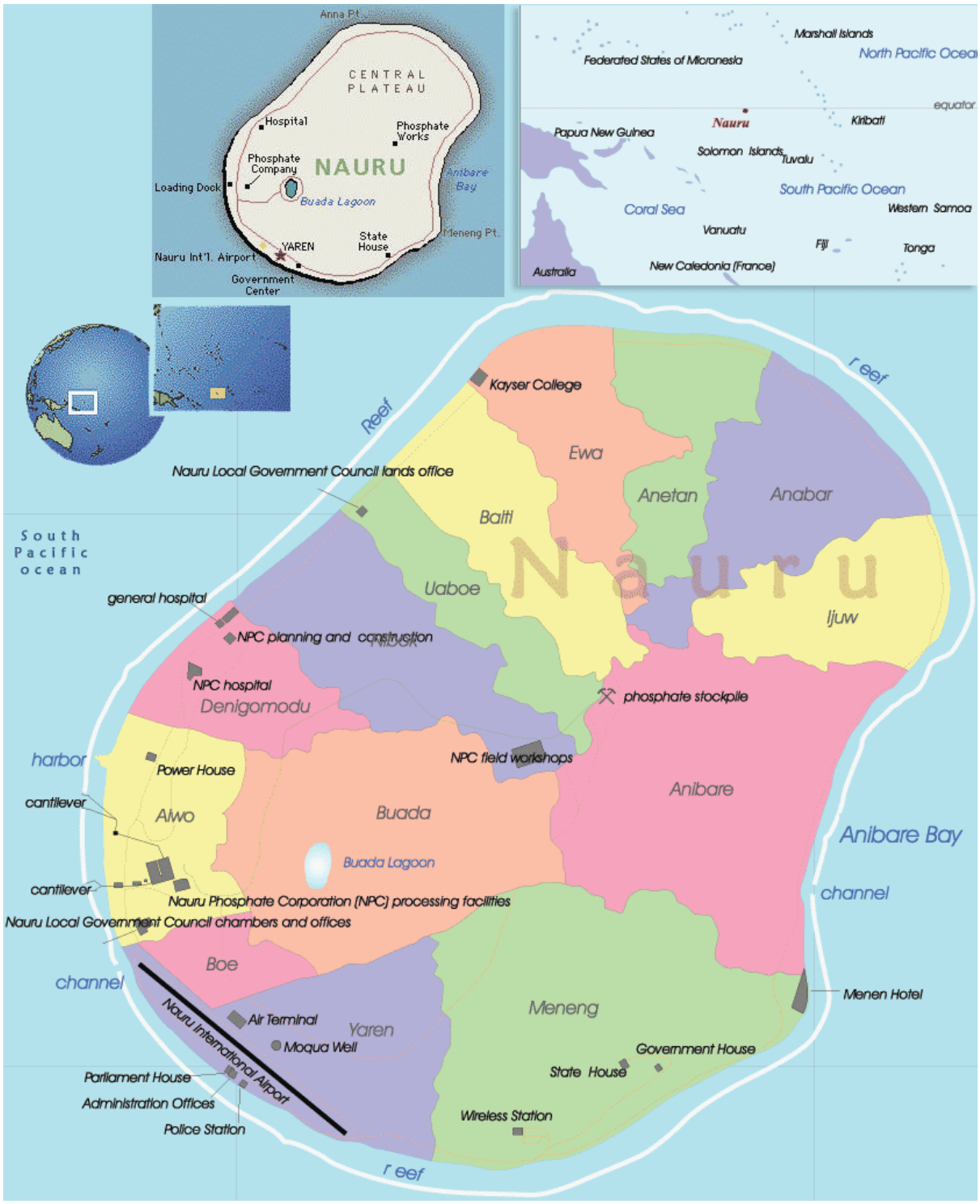
The project will improve storage capacity for Nauru's desalinated water by approximately 25%. This will benefit all of Nauru's approximately 10,000 residents. It will enhance water security particularly during times of drought when residents can no longer rely on rainwater harvesting for their water needs.

Nauru presently relies on desalinated water, rainwater harvesting, and (poor quality groundwater) for its water needs. There is no reticulation distribution system. Desalinated water is trucked to households on request.

The implementation period will commence on the date of signature of this project design document and end on 30 June 2015. It will be implemented by the Ministry of Commerce, Industry and Environment (CIE).

The project focuses on water security which is identified as a key concern in the Republic of Nauru's Climate Change Adaptation and Disaster Risk Management Plan (RONAdapt). This document, now completed, has been under preparation for several years and will shortly be presented to Cabinet for their endorsement. The project is also underpinned by the National Water, Sanitation and Hygiene Policy 2012, and the National Sustainable Development Strategy 2005-2025 (latest revision 2009).

Map of Nauru


Anna Pt.
CENTRAL PLATEAU
Hospital
Phosphate Works
Phosphate Company
NAURU
Loading Dock
Buada Lagoon
Anibare Bay
Meneng Pt.
YAREN
State House
Nauru Int'l. Airport
Government Center
Marshall Islands
North Pacific Ocean
Federated States of Micronesia
equator
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Kiribati
Papua New Guinea
Solomon Islands
Tuvalu
South Pacific Ocean
Coral Sea
Western Samoa
Vanuatu
Fiji
Tonga
Australia
New Caledonia (France)
Kayser College
Ewa
Anetan
Anabar
Nauru Local Government Council lands office
Baiti
Uaboe
Nauru
Ijuw
South Pacific ocean
general hospital
NPC planning and construction
NPC hospital
Denigomodu
phosphate stockpile
harbor
Power House
NPC field workshops
Anibare
cantilever
Aiwo
Buada
Anibare Bay
Buada Lagoon
cantilever
channel
Nauru Phosphate Corporation (NPC) processing facilities
Nauru Local Government Council chambers and offices
Boe
channel
Menen Hotel
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Government House
State House
Parliament House
Nauru International Airport
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Wireless Station
Police Station
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2. INTRODUCTION

The Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project is a four-year project funded by the European Union and executed 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) of the GCCA: PSIS project are:

1. Climate change mainstreamed into national and/or sector response strategies.

2. Countries better equipped to access climate change funds through different financing modalities.

3. National climate change adaptation projects implemented

4. Streamlined technical assistance that supports national adaptation responses delivered by regional organizations in a collaborative manner

Nauru has identified **Expanding national water storage capacity and improving water security in Nauru** as the focus for its adaptation project to be implemented under the GCCA: PSIS project. There is a strong rationale for focusing on the water sector. The government of Nauru has already highlighted many of its development and climate change adaptation priorities in various policies, strategies and reports (described in more detail below), from its First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) in 1999, through to the National Sustainable Development Strategy 2005-2025 (NSDS, most recently revised in 2009) and development of its Framework for Climate Change Adaptation and Disaster Risk Reduction (RONAdapt, due for completion in early 2014). Concerns about water supply and water security have consistently been identified as among the country's greatest challenges, and climate change is expected to exacerbate water-related challenges.

Although there is still scientific uncertainty about what specific effects climate change will generate for water resources in Nauru, this project's focus on improving national water storage capacity as well as on improving awareness about water conservation measures offers a "no regrets" approach. Water security and access is already a development challenge, and addressing this helps progress on the country's development agenda. Further, by reducing water stress and improving capacity to manage water resources, the project also helps reduce the vulnerability of Nauru's communities to future shocks, including those associated with climate change.

This project design document (PDD) outlines the overall objective, purpose, key result areas and activities that comprise the project. The project design follows the logical framework

approach. This first section of the PDD outlines the background of the project, its rationale and related projects. Section two describes how the project was identified. The third section describes the project's overall objectives, 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 six and seven respectively.

Background

Nauru is a small island developing state with a land area of 21km^2. The population of just over 10,000 people is mostly settled on the coastal perimeter of the island, in a thin strip between the reef and the elevated interior. Most of the island's raised interior has been mined for phosphorous over several decades, with the result that the land surface is severely degraded. Phosphate rock has provided Nauru's main export income, and although primary mining is winding up there are plans to continue secondary mining (removing rock pillars at the surface followed by extraction of deeper phosphates). At one time mining created a wealthy society, during which the government provided most basic services – housing, electricity, water – free of charge. However mining revenues are now in decline, and so too is the government's ability to provide or maintain infrastructure.

This situation is enhanced by Nauru's need to import all basic necessities. With virtually no agriculture, almost all food is imported with the exception of fish. Similarly, with virtually no renewable energy capacity all energy resources are imported in the form of fossil fuels, including those needed to run the power station. Consequently, Nauru is highly vulnerable to external market shocks which raise the price of food or fuel.

Prior to 1995 drinking water was also imported. Since then, however, a succession of desalination plants has provided treated water which is delivered, on request, to household tanks by trucks. The other main sources of water are rainfall captured in household or small community tanks and in some areas brackish groundwater which has become increasingly contaminated and is not suitable for drinking

Climate and climate change projections for Nauru

Climate variability already significantly affects Nauru. The El Niño Southern Oscillation (ENSO) is the main influence on inter-annual variability, oscillating between El Niño events which tend to bring warmer, wetter conditions than normal, while La Niña events are associated with drier than normal conditions often resulting in an extended drought. When droughts occur they can last as long as 36 months. Droughts place severe stress on the limited groundwater resources and on natural species, and can lead to the death of non-coastal exotics and fruit trees (such as breadfruit). This impacts heavily on the health and food security of communities, as well as on the economy as additional water from the energy-intensive desalination plant is needed to meet water demands. Drought periods also increase the adverse effects of fires, which are a major hazard in Nauru.

The impacts of longer term climate change are very likely to exacerbate some of the country's existing development challenges and vulnerabilities. Direct changes to the country's biophysical environment are projected to occur in the form of an altered rate and distribution of precipitation, sea level rise and increased storm surges, higher air temperatures, higher ocean temperature and increasing ocean acidification. These changes

will place greater stress on, for example, the quality and quantity of water resources, on health, and on domestic food production.

It is not only these direct changes in Nauru's biophysical environment that pose a threat. Climate change will also create changes elsewhere on the planet that will indirectly affect Nauru. For instance, changing water regimes and temperatures globally will change the global market for food, upon which Nauru is dependent for imports. In a similar vein, oil market prices are highly susceptible to change as a result of changing geopolitics, an increasing scarcity of fossil fuels over the coming decades and international policies to restrict greenhouse gas emissions. This will in turn have consequences for Nauru's ability to access energy resources, since almost all energy is currently imported in the form of fossil fuels. It is therefore important to be aware of, and plan for, both *direct* and *indirect* effects that could undermine the country's development.

Rationale

Water availability and stress

Water insecurity is a major and frequent concern in Nauru. Household water supply to Nauru's fifteen communities is a mix of treated water delivered by truck from reverse osmosis desalination plants, rainwater harvested from roofs, and for some communities, brackish groundwater drawn from household wells.

Prior to the first desalination plant coming on line in 1995, fresh water was imported to Nauru by ship. Since then, a variety of desalination plants have been commissioned and decommissioned. Presently there are four reverse osmosis (RO) plants, which are containerised units commissioned from 2003 onwards. Total production capacity under normal conditions (i.e. when sufficient power is available and plants are working at capacity) is estimated at 460,000 litres per day (three units of 120 kL/day, and one of 100 kL/day). However, the plants are not always able to operate at capacity, either because of problems with the units themselves or power supply problems associated with breakdowns at the adjacent power station. Australia has recently provided two new larger units which are in the process of being set up – in part to serve its own needs for the Regional Processing Centre (RPC) for asylum seekers – however there is some concern in Nauru about whether the country will be able to afford to run these. If they are commissioned, they are likely to replace existing plants which have just been refurbished in late 2013.

The Nauru Utilities Commission (NUC) runs both the power plant and the desalination plants, and is responsible for production, storage and delivery of water for households.

There is no household reticulation system, so treated water from the desalination plants is transported by trucks to households and to community storage tanks for a minimal fee (discussed further below). The desalination plant has six interim storage tanks on site (however two of these are currently being used by the Australian RPC, so for most of the time are unavailable to Nauru). Treated water is transferred intermittently from these storage tanks to a single large storage tank (approximately 4 million litres capacity), from which six delivery trucks make deliveries to households and commercial premises.

Most households have access to a water tank, and they order re-fills by truck deliveries when water levels are drawn down. Some households have no tank, but may still order water deliveries and instead fill up small containers around the house. According to the

NUC, deliveries during the dry season are typically in the range of 300,000-400,000 litres daily, compared to around 80,000-100,000 during the wet season.

These same tanks are also used for rainwater storage. The variation in wet and dry season treated water deliveries indicates that – when available – rainwater makes an important contribution to household water supplies. During wet periods, rooftop rainwater collection and use can reduce the burden on the desalination plants.

The desalination plants may continue to run at capacity during these times and be used to top up the large national storage tank, in order to build up a reservoir of supply. The extent to which a supply can be accumulated is currently restricted by there being only one working large community storage tank, and NUC have indicated an interest in rehabilitating or replacing several other existing 4 million litre tanks that are in disrepair.

The NUC currently has a total storage capacity of 6,150kl with a current available storage capacity of 5,570kl. This consists of four 290kl concrete holding tanks located at NUC beneath a steel frame roof structure with individual canvas roof covers. These are supplied from the desalinated reverse osmosis units. (There are two further concrete holding tanks used exclusively by the Regional Processing Centre and excluded from NUC's jurisdiction). NUC also has one 4,410kl steel panel tank. There are also several other concrete and steel panel storage tanks that are not in use. Anecdotal evidence suggests some of these date back to the 1950s.

Some households have access to brackish groundwater, accessed by pumping from private wells. This is not usually used for drinking, more commonly as "grey water" for flushing of toilets, washing and bathing. Groundwater is contaminated mainly as a result of poor sanitation practices/facilities (note that the Nauru Integrated Water Resources Management (IWRM) project is introducing new cesspit design guidelines, in an effort to reduce groundwater contamination).

According to 2011 census data, of the 1647 households on Nauru:

- 15% have no water storage (tank), and just under half (48%) share their main water supply with other households;
- Nearly 500 use rainwater as their main source of drinking water, when available;
- Around 320 utilise groundwater as their main water supply, though only a small number (26) use it as their main drinking water supply; and
- During dry season when water is scarce, around 75% depend on the government's desalination plants for their primary supply, with most of the remaining 25% reliant on groundwater.

Maintenance of household water fixtures is the responsibility of individual households. However, householders have little or no incentive to maintain their fixtures as the tariff on water is low and components such as water tanks are often donated rather than bought by households themselves.

All households pay for treated water delivered by truck, currently $30 per 10,000 litres, plus $10 for delivery. It is worth noting that water is sold to households at highly subsidised rates (NUC production costs are subsidised by free fuel from the government). This means that any reductions in household demand for desalinated water – such as through increased

access to rainwater – result in financial savings for government, in addition to savings for householders themselves.

In general, the various components of rooftop rainwater harvesting systems are not well maintained or in good condition. It is common to see tanks that are rusting or broken, and guttering that is not connected to the roof, the downpipes and/or tanks.

Similarly, household roofs are in various states of damage or disrepair, which affects their rainwater harvesting potential. A 2008 assessment by SOPAC of Nauru's rainwater harvesting infrastructure across five districts concluded that only 75% of available rainwater capacity is being utilised. The remaining 25% is lost due to the poor condition of roofing and other components. This has prompted a number of externally funded projects to support actions aimed at improving supply of potable rainwater, including recent support from AusAID for water tanks and from the European Union (EDF 9) for guttering and downpipes.

A related problem concerns the management of drinking water quality, since poorly maintained water tanks can be problematic. There is no rigorous environmental health monitoring of water quality. The Health Ministry conducts testing for E.coli once per month, of community tanks, and of household tanks only if they have had specific requests, using the testing facilities at the RON Hospital. NUC does not currently undertake testing.

In 2013 a project was designed to improve rainwater catchment systems in particular household roof systems. However, the Nauru Government determined that there was insufficient time to deliver all the components of this project in the time available. So the Government decided instead to focus the project on improving storage capacity for the desalinated water. The rationale being that the lack of national capacity for storing water limits the ability of Nauru to build up a supply reservoir that can be drawn upon during dry periods. This project will increase the island's capacity for clean, safe storage of fresh water and in so doing it will contribute towards the overall objective of building climate change resilience and reducing Nauru's vulnerability to water stress.

Nauru's adaptation priorities

In its first National Communication to the UNFCCC in 1999, Nauru identified the impacts of climate change on water availability as a key concern, not only in terms of community use but also in terms of changes to health (increase of water borne diseases such as typhoid) and increasing risks of fires during droughts. Effects on fisheries, agriculture, changes to the environment and extreme events were also identified.

The National Sustainable Development Strategy 2005-2025 (NSDS, last revised in 2009) highlights that climate change will impose costs on Nauru related to impacts on food security, coastal erosion, marine ecosystems and public health, and this will strain the federal budget and divert resources away from other important activities like education and economic development. Although there are no specific climate change-related targets articulated in the NSDS, it does include targets relating to energy and water. Priorities for the water sector include refurbishment of national water storage tanks, installation of new household water tanks (a target of 100 per year), and expansion of water storage capacity by 2015. These water sector priorities are also visible in the National Water, Sanitation and Hygiene Policy 2012.

With assistance from this project under its mainstreaming KRA and the Coping with Climate Change in the Pacific Islands Region (CCCPIR) project, Nauru is finalising its Framework for Climate Change Adaptation and Disaster Risk Reduction (RONAdapt), due for completion in 2014. In developing this document, a series of stakeholder workshops were held between 2010 and 2014 to articulate national priorities. This process also enhanced Nauru's water security. The draft RONAdapt highlighted the enhancement of water security as a key priority, and prioritises specific actions including expansion of national storage capacity, improved water conservation measures, increased rainwater harvesting, and improvements in groundwater management and in the overall management of water resources.

Related projects

A range of other climate adaptation and/or water sector projects have already been initiated (and in some cases completed) in Nauru. The GCCA: PSIS project will build on these other activities. Specifically:

1. AusAID (now Australian Ministry of Foreign Affairs and Trade) has committed funds for the purchase of 250 new household water tanks. There have been major delays in delivering these tanks, but the Department of Commerce, Industry and Environment (CIE) have advised that tank delivery is now expected in early 2014.
2. The EU (through EDF 9, Envelope B) funded procurement of guttering and downpipes for houses, with the actual installation being supported by funding from the Italian Government through the PACC project. The same envelope of EU funding was also used to build a new roof over the six large water tanks adjacent to the desalination plants at Nauru Utilities Commission (NUC), to refurbish the six tanks, as well as to construct small roof catchments over 45 community tanks (the tanks themselves were donated by Japan). These activities were implemented by SPC.
3. Japan's *Grant Assistance for Grassroots Projects* (GGP) has funded upgrading of water supply systems, the provision of solar water pumps, tanks and accessories for brackish water wells in the communities, communal portable water tanks and water delivery trucks. It has funded 45 new community water tanks (under the "Project for Community Water Supply in Nauru Island", 2006), many of which appear to be in reasonably good condition, although in some cases the roofing has been destroyed so they no longer catch rainwater.
4. The *Pacific Adaptation to Climate Change* (PACC) project in Nauru focuses on providing solar-powered reticulation systems to pump groundwater to elevated communities that usually have no groundwater access. This is being implemented in collaboration with the Secretariat of the Pacific Regional Environment Programme (SPREP) and the United Nations Development Programme (UNDP).
5. *Enhancing water security for Nauru: Integrated water resources management* (IWRM) is a Global Environment Facility (GEF)-funded project on improving water management and reducing groundwater contamination from cesspits. This is being implemented with support from SPC.
6. The *University of the South Pacific – EU - ACP Global Climate Change Alliance* project is installing water pumps and reticulation systems to convey groundwater to two

elevated communities that have no groundwater access and are not included in the PACC project.

3. PROJECT SELECTION PROCESS

This section describes how the water sector, and increasing national water storage capacity, was selected as the focus of this project. It provides a timeline of planning activities to date, and then summarises the process by which individual households were selected to participate in the project.

Timeline of planning activities

As described under the section dealing with Nauru's adaptation priorities a series of stakeholder workshops were held between 2010 and 2013 as part of the RONAdapt process to articulate national priorities. This process resulted in the highest priority from a climate change adaptation and disaster risk perspective being given to enhancing Nauru's water security. During project missions in 2012, Nauru identified rainwater catchments as the area where they needed support and this was identified as the focus of the GCCA: PSIS adaptation project.

Activities to date are listed below in chronological order.

February to April 2012 - Review of Background Information

A literature review was conducted of recent and ongoing projects, programmes and activities in Nauru relating to climate change. Information was compiled into a climate change profile for Nauru, now available at:

http://www.spc.int/images/publications/en/Divisions/CC/Nauru.pdf. This document highlights current activities and challenges and was revised in 2013.

May to August 2012 – Selection of adaptation project by Nauru

During a project mission to Nauru in May 2012, the government identified rainwater harvesting as the focus of the adaptation activity. The project concept note was prepared together with CIE and was approved by the EU in June. During a second project mission in August the focus of the project was formally endorsed by letter from CIE.

September 2012 – February 2013 – Endorsement of adaptation project concept by Cabinet

The rainwater harvesting project concept note and focus was endorsed by Cabinet in February 2013. The long delay between project selection and official endorsement was due, at least in part to intense government activity associated with Australia's decision in 2012 to re-open on Nauru its Regional Processing Facility for asylum seekers.

March 2013 – Project planning workshop and meetings

A project planning workshop was held in Nauru, attended by 17 people including government representatives from CIE and other ministries as well as seven community representatives. The project concept was introduced to key stakeholders, including the specific activities and the roles and responsibilities of different stakeholders. The workshop participants put forward suggestions for ensuring community acceptance and ownership of the project, and hence for improving the likelihood of the benefits being sustained over the longer term. These included: financial and/or in-kind contributions towards the project's costs; educating and raising awareness among the community on maintenance of rainwater harvesting systems, on the health benefits of proper water management, and on practices that could boost efficiency of water use; and ensuring the materials and designs used for

replacement roofs are robust. A draft log frame was prepared, along with a draft schedule of activities.

It was decided at the project planning workshop that before the project activities could be costed there was a need for an engineering review of roof conditions in Nauru.

April – November 2013 – Engineering review of roof conditions and selection of households for refurbishment

An engineering consultant was recruited to undertake an assessment of roof conditions in Nauru. The first step was to conduct a community-led assessment of 1077 households in July and August 2013. Three criteria were then used to further shortlist the houses:

- Houses requiring roofing repairs/ replacement that have workable guttering, downpipes and catchment tanks.
- Houses requiring roofing repairs/ replacement that have workable gutters and tanks, but have damaged downpipes.
- Houses requiring roofing repairs/ replacement that have workable tanks but damaged gutters and downpipes.

Those 399 houses that met one of these criteria were then surveyed by the technical team.

December 2013 – June 2014 preparation of Project Design Document

During a mission to Nauru in November 2013, a consultation was held with the Water Technical Working Group (comprising NUC, Health, Aid Management Unit, Statistics, CIE) and the PACC project to finalise selection criteria for choosing which households will be invited to participate in the project, as well as the model for household contributions.

Criteria were developed to select the most vulnerable households and people and to maximise the number of beneficiaries. Using these criteria and the technical survey a prioritised list of households was prepared.

The Project Design Document was prepared early in 2014 and finalised with partners in Nauru during a visit in April 2014.

At the Fourth GCCA: PSIS Steering Committee Meeting in Niue in June 2014, the Nauru Government decided to change the scope of the project from household rainwater harvesting to national water storage systems since the original project could not be completed within the project timeframe.

July – August 2014 - Revision of Project Scope and Re-design

In July 2014, the services of a water engineering firm was procured to conduct a feasibility and design study for increasing national water storage capacity in Nauru. An assessment visit was conducted in August 2014 and a feasibility report prepared. This report identified several different options for increasing the national water storage capacity in Nauru. These options were than presented on 13th August at a Technical Working Group (TWG) workshop for their review and guidance on the feasibility of these options with the objective of nominating a preferred design solution. Two options were identified and nominated by the TWG as below using a selection criteria based on time, budget, improving resilience and the constraints of each option:

Option A: Demolish existing tank B10 and construct a new storage tank with overhead fill point with reticulation from tank B13;

Option C: Rehabilitate tanks C7 to C12 and construct new reticulation from NUC with new overhead fill point and transfer pump.

It was decided in the first TWG workshop 13th August 2014 that these two preferred options should be investigated more thoroughly in a second TWG workshop. However, the feasibility or preliminary report recommended Option A to be prioritised as the design solution for improving national water storage systems.

With the support of the TWG and preliminary report prepared by the engineering firm (CAT Projects) for the preferred options, SPC and CIE prepared a project proposal document for the Government of Nauru cabinet approval.This decision to change the scope of the project to national water storage systems was approved by Cabinet decision on 26th August 2014.

August – September 2014 – Project planning workshop and design option review

On September 5th 2014 the two preferred options – Option A and Option C were presented by CIE to the TWG in a second meeting where the TWG after thoroughly investigating the two preferred design solutions, approved Option A. CIE have subsequently informed and advised the Project Steering Committee on the two preferred option which they are currently reviewing to later make a decision in selecting a preferred design solution. Once a selection is made, final design documents will be prepared.

4. PROJECT DESCRIPTION

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

Overall objective

The overall objective of the project is to "Contribute to building resilience of communities in Nauru to the impacts of climate change". The objective is consistent with the priority needs identified in Nauru's First National Communication under the UNFCCC, its Water, Sanitation and Hygiene Policy (2012) and it's RONAdapt, each of which identified major vulnerabilities within the water sector and which have stressed the need to enhance water security.

The project will directly benefit the entire population of Nauru of just over 10,000 people.

Project purpose

The project purpose is to "Improve water security in Nauru by expanding national water storage capacity". The project aims to improve water storage capacity by installing one large 2,000 kl storage tank and demolishing an existing tank. This involves a number of steps, described below under each Key Result Area.

In addition to physical improvements to national water storage, the project also has a focus on improving community engagement with water management generally. Specifically, it includes a number of activities designed to create awareness about water security and conservation and boost knowledge about the links between water and climate change.

Improved national water storage capacity will enable the NUC to produce and store more treated water for community use, which will then be available during drought periods, thereby improving Nauru's overall water security.

Key result areas and activities

The KRAs for this project are as follows.

Key Result Area 1: Improvements to Nauru's national water storage designed with participation of all key stakeholders.

The activities for this component comprise the following:

1.1 In order to develop this project from concept to design, technical assistance was provided by the GCCA: PSIS project to contract a water engineering company to assess options and design improvements to national water storage capacity in Nauru, in consultation with key stakeholders in Nauru. This work was undertaken in August 2014.

1.2 The engineer identified six options and together with key stakeholders narrowed these down to two main options. The two options have been reviewed by the Technical Working Group and one option has been selected. The selected option has been approved by the Projects Steering Committee and final engineering designs and tender documents are being prepared. The final design report will include full

maintenance requirements and present a whole-of-life maintenance programme for the water storage tank. It will also include basic operating procedures, in relation to both existing and the new infrastructure, and during periods of drought. The implementation of the maintenance and operation plan will be carried out by the Nauru Utilities Corporation who will later be inheriting the water storage tank. In the meantime a paper has been presented to Cabinet explaining the change of project scope and this has been endorsed.

Key Result Area 2: New national water storage tank(s) constructed and installed.

This component will involve the following activities:

2.1 The services of a water engineering company will be procured to (i) prepare a schedule for undertaking the work; (ii) undertake demolition of existing infrastructure and disposal of material in an appropriate manner; (iii) construct new water storage tank(s) and the connection of the new storage tank(s) to the existing water storage system. Land tenure issues are such that the RONPhos company holds the current land and lease to NUC, the duration of that lease expires in 2020. In response to the land lease issue the Nauru Government has issued a Letter of Assurance to SPC, dated 03.10.14, assuring the continuation of the land lease agreement beyond the current expiration date to house the new water storage tank. The demolition of the existing tank provides possible opportunities for a local company. The need to complete these activities within the project time frame will be a key criterion in assessing tenders. Proper storage and disposal of the old tank materials will be given special consideration. The NUC will inherit the water storage tank and will also be responsible for its maintenance – see maintenance schedule in Annex 2.

2.2 Particularly in view of the short time frame for project completion, the services of a local contractor will be procured to assist with liaison between the selected supplier and local on-the-ground entities.

Key Result Area 3: Community awareness and capacity built to improve water conservation.

3.1 Recognising the importance of education and awareness activities but also understanding the time constraints, these will be kept as simple and direct as possible. One activity at present under discussion is the design and implementation of a programme on water conservation and climate change aimed at young people and delivered as part of the life skills trainings held by the Youth Affairs Department. Application of the SPC-SOPAC WASH programme is also under discussion.

3.2 At least two other awareness and education activities relating to water security and climate change will be conducted, possibly including local media campaigns in collaboration with other initiatives.

Project Log Frame

Project Title: Expanding national water storage capacity and improving water security in Nauru

Description	Verifiable Indicators	Verification Sources	Assumptions	Activities
Overall Objective: Contribute to building resilience of communities in Nauru to the impacts of climate change.	• Climate variability and change incorporated into RONAdapt (Republic of Nauru Joint Climate Change Adaptation and Disaster Risk Management Plan) by 12/2014	• Published RONAdapt document • Annual departmental plans		
Purpose: Improve water security in Nauru by expanding national water storage capacity.	• Capacity of national water storage systems improved by 25% by 09/2015	• Roof and rainwater harvesting assessment report (2013) • Project progress reports • Post-project assessment • Annual reports • Annual budget submissions • Annual work plans	• Infrastructure work can be completed within project timeframe • Communities receptive to improved national water storage proposal.	
Key Result Area 1: Improvements to Nauru's national water storage designed with participation of all key stakeholders.	• Assessment of Nauru's water storage capacity completed by 09/14. • Key stakeholders, including Cabinet and technical experts, involved in design process by 09/14 • Lessons learnt shared via video with other countries by 09/2014.	• Water storage assessment report • Workshop and meeting reports • Project reports • Cabinet minutes • Lessons learnt video	• Householders receptive to improved water storage capacity • Suitable technical and engineering assistance available	1.1 Contract technical assistance to work with CIE to assess, select and design water storage options. 1.2 In consultation with Cabinet, technical working groups and other key stakeholders, review and confirm selection of preferred option.

Description	Verifiable Indicators	Verification Sources	Assumptions	Activities
Key Result Area 2: New national water storage tank(s) constructed and installed.	• New water storage tank installed by 09/15 • Old tank demolished and material disposed of appropriately by 06/15	• Site reports • Project reports • CIE annual reports	• Land agreements for use of selected water storage site can be extended for a 30 year period • Sufficient technical and construction expertise available in Nauru • Waste material can be effectively disposed in a safe and environmentally responsible manner • Natural hazards or other emergencies do not divert attention from the project	2.1 Procure services of a building contractor(s) to (i) prepare a schedule for undertaking the work; (ii) undertake demolition of existing infrastructure and disposal of material in an appropriate manner and (iii) construction of new water storage tank(s) and connection of new storage tank(s) to existing water storage system. 2.2 Hire local engineering contractor for assistance with for local arrangements and liaison
Key Result Area 3: Community awareness and capacity built to improve water conservation .	• At least 2 awareness and education activities relating to water security and climate change conducted by 06/2015	• Project reports • Awareness raising reports • Awareness materials	• Householders willing to adopt sound water conservation practices • Communities receptive to information and willing to take proactive action.	3.1 Design and implement a youth skills programme on water conservation and climate change for inclusion in the life skills training of the Youth Affairs Department. 3.2 Conduct at least 2 awareness and education activities relating to water security and climate change.
Overall means	**Indicative Budget**			
Technical assistance Information sharing	€0.5 million			

Description	Verifiable Indicators	Verification Sources	Assumptions	Activities
systems Missions to countries Meetings and consultations Training activities Procurement of equipment Media involvement Reporting and evaluation				

5. PROJECT BUDGET

4.1 Project Budget: The total cost of the project is €500,000 (approximately **AUD 728,000)**.

Activity	**Total (AUD)**
KRA 1: Improvements to Nauru's national water storage designed with participation of all key stakeholders	37,000
KRA 2: New national water storage tank(s) constructed and installed	594,000
KRA 3: Community awareness and capacity built to improve water conservation	34,000
Sub-total	665,000
Contingency	63,000
Overall Cost	**728,000**

4.2 Payment Schedule

The sum allocated to Nauru for this project is €500,000. The detailed budget displayed above is in AUD and there may be some slight adjustments in the amounts due to currency fluctuations.

The funds for this project will be provided in two tranches. The first payment of AUD 38,000 will be paid once this Project Design Document is signed by all parties. Payments shall be made into the Government's account, and all payments will be made in AUD, the currency of Nauru. The second payment can be requested once 80% of the first payment has been fully acquitted.

Reimbursements of funds shall only be made on receipt of the proper acquittal of the funds already advanced. Acquittals must be supported by copies of all receipts. Copies of all substantiating documents relating to each financial transaction shall form part of the quarterly acquittal.

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.

Fixed Assets (equipment): 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.

Procurement of the national water storage tanks will be done using SPC procurement procedures. Government of Nauru representatives will be involved in the procurement process including the review of tenders committee.

5. PROJECT SCHEDULE

Activity	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015
KRA 1: Improvements to Nauru's national water storage designed with participation of all key stakeholders						
1.1 Contract technical assistance to work with CIE to assess, select and design water storage options						
1.2 In consultation with Cabinet, technical working groups and other key stakeholders, review and confirm selection of preferred option (no specific budget items)						
KRA 2: New national water storage tank(s) constructed and installed						
2.1 Procure services of a building contractor(s) to (i) prepare a schedule for undertaking the work; (ii) undertake demolition of existing infrastructure and disposal of material in an appropriate manner and (iii) construction of new water storage tank(s) and connection of new storage tank(s) to existing system.						
2.2 Hire local engineering contractor for local arrangements and liaison						
KRA 3: Community awareness and capacity built to improve water conservation						
3.1 Design and implement a youth skills programme on water conservation and climate change for inclusion in the life skills training of the Youth Affairs Department.						
3.2 Conduct at least 2 awareness and education activities relating to water security and climate change						

6. INSTITUTIONAL ARRANGEMENTS

CIE will be responsible for the implementation of this project. The GCCA: PSIS project is being implemented under the ambit of the Letter of Agreement signed on 8 November 2012 by SPC and the Government of Nauru. The Nauruan signatories to the Letter of Agreement were Mr Russ Kun, Secretary, CIE and Mr Javan Tamakin, Secretary, Department of Finance.

Project Oversight Committee

Nauru already has a Water Technical Working Group (TWG) established under the lead and coordination of CIE. The role of the TWG is to provide guidance on water-related initiatives. The TWG will provide oversight to the project implementation and guidance on policy and technical issues relating to the implementation of the project. The GCCA: PSIS National Coordinator will provide secretariat services to the TWG for this project, as needed. This will mainly be in the form of providing updates on progress and for discussing unforseen issues that may arise during the project and which require guidance.

Reporting

The GCCA: PSIS National Coordinator will be responsible for providing quarterly narrative and financial progress reports to the TWG 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 GCCA: PSIS National Coordinator currently situated in CIE under the Projects Division will have responsibility for day-to-day management of the GCCA: PSIS project. The National Coordinator is responsible to the Director of Projects, CIE.

7. RISK MANAGEMENT AND EXIT STRATEGY

Risk Management

Risk and mitigation measures are listed in the table below.

Risk and consequence	Likelihood	Seriousness	Mitigation actions	Responsible Person(s)
1. Disaster emergencies				
National emergencies such as severe droughts and fires are a risk in Nauru, By distracting attention from the project, this would lead to delays.	Medium	Medium	• Hiring of a dedicated national coordinator should reduce the risk of key staff being diverted from the project. • Hiring of a local contractor to assist with local arrangements and liaison will assist with mitigating this risk.	GCCA:PSIS national coordinator, CIE
2. Remoteness				
High transport costs and shipping schedules may delay supply of materials. Remoteness and the large number of support staff running the Australian Government Regional Processing Centre for asylum seekers restrict the availability of accommodation which impacts utilisation of external expertise where needed	Medium	Medium	• Particular attention to transportation and shipping schedules will be paid during the review of the contractors' bids • Schedule well in advance trips for external expertise and contractors.	Contractors, CIE, GCCA: PSIS staff
3. Households engaged in former project design misunderstand nature of this re-designed project				
House owners engaged in the roof assessments and engagement for the previous project may misunderstand this redesigned project.	Medium	Low	• National Coordinator to hold meetings with the communities involved in the previous project design to explain change of focus.	GCCA:PSIS national coordinator, CIE
4. 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	All

Risk and consequence	Likelihood	Seriousness	Mitigation actions	Responsible Person(s)
			are shared widely with climate change funding partners • Ensure project design for the previous project design available to other donors.	
5. Staff turnover and loss of institutional memory				
Critical staff leaving CIE could seriously delay implementation and also lose capacity for future activities to build on this project.	High	High	• Staff motivation • Documentation and record keeping for handover. • Flexibility with the project budget should it become necessary to hire additional staff to implement this project	GCCA:PSIS national coordinator, CIE SPC

Exit Strategy

Improving national water storage capacity in Nauru will have long-lasting benefits in terms of household water access and overall water security, provided the systems are maintained well. The project includes education and awareness elements designed specifically to ensure youth and other groups are made aware of the impacts of climate change and variability and the need to adopt wise water conservation measures.

Enhancing national water storage will benefit all residents of Nauru for years to come. The additional tank(s) will provide expanded water storage which will be of particular benefit during times of drought.

RONADAPT documents activities that all sectors can adopt to address climate change and disaster risk management. It is hoped that a 20-year investment Master Plan for the Water and Sanitation sector can be finalised within the project timeframe and this will provide a long-term planning framework for the water sector.

ANNEX 1. QUARTERLY REPORTING TEMPLATE

Activities	Progress in Quarter X	Planned Activities in Quarter X+1
KRA 1: Improvements to Nauru's national water storage designed with participation of all key stakeholders		
1.1 Contract technical assistance to work with CIE to assess, select and design water storage options		
1.2 In consultation with Cabinet, technical working groups and other key stakeholders, review and confirm selection of preferred option (no specific budget items)		
KRA 2: New national water storage tank(s) constructed and installed		
2.1 Procure services of a building contractor(s) to (i) prepare a schedule for undertaking the work; (ii) undertake demolition of existing infrastructure and disposal of material in an appropriate manner and (iii) construction of new water storage tank(s) and connection of new storage tank(s) to existing water storage system.		
2.2 Hire local engineering contractor for local arrangements and liaison		
KRA 3: Community awareness and capacity built to improve water conservation		
3.1 Design and implement a youth skills programme on water conservation and climate change for inclusion in the life skills training of the Youth Affairs Department.		
3.2 Conduct at least 2 awareness and education activities relating to water security and climate change		

ANNEX 2. MAINTENANCE SCHEDULE

Preventative maintenance of water storage assets, such as the new storage water tank, is a critical part of on-going operations by Nauru Utilities Corporation (NUC) to provide safe and secure potable water. NUC, as the water authority for Republic of Nauru will own, operate and be responsible for maintenance of the new storage tank. The design life of 40 years will be achieved through on-going maintenance and regular inspection of such infrastructure assets. Routine maintenance of storage tanks would include the following items which would be documented by NUC:

Daily	Record and document water meter to record volume distributed
	Inspect tank for any leaks, vandalism or damage. Report any observations immediately to NUC operations manager for prompt response.
	Ensure access ladder and security lighting is secure and operational
Weekly	Conduct a visual inspection of tank from access cover at tank's roof level. Remove any foreign objects found and report immediately to NUC operations manager for prompt response.
	Ensure access cover(s) are secured and locked
	Ensure mechanical ventilation fans are operating
Monthly	Clear any debris vegetation at base of tank and surrounding pipes or appurtenances
	Ensure inlet, outlet, drain and overflow valves are functioning by opening/closing
	Ensure overflow one-way valve is in place and discharges to clear area in case of emergency
	Check water level tank gauge is operating and displays accurate level of water volume
Annual	Flush and disinfect tank. Using potable water to clean all surfaces in contact with water using high-pressure hose. Refill tank and disinfect with chlorine and ensure sufficient contact time is allowed before using the tank
	Water analysis samples should be collected to verify residual chlorine is present in water from tank before putting back into service

In addition a full inspection and assessment of all storage assets should occur after any significant storm or cyclone event.

A full asset management plan, including water production, distribution (pumps and pipes), storage and water cart fleet using a risk management strategy would allow NUC to prioritise the maintenance issues.

ANNEX 3. AGREEMENT TO MAINTENANCE SCHEDULE

After the Secretary of the Department of Commerce, Industry and Environment and the Secretary of the Ministry of Finance and Sustainable Development signed the Project Design Document on 03.10.14, changes were made to the sections of the Project Design Document relating to the maintenance of the water storage tank.

These changes were agreed by email with the Secretary of the Department of Commerce, Industry and Environment and the Secretary of the Ministry of Finance and Sustainable Development as shown below.

Agreement from Secretary of Department of Commerce, Industry and Environment

From: Elkoga Gadabu [mailto:elkoga28@gmail.com]
Sent: Tuesday, 25 November 2014 4:46 PM
To: Sanivalati Tubuna
Subject: Re: FW: Revised PDD

I have seen the PDD and have no objection to the additional paragraphs included.

You may proceed with the necessary action in order to get this Project started and completed.

Best regards,

Elkoga Gadabu

Secretary of CIE

Department of Commerce Industry and Environment

Government Office, Yaren district

REPUBLIC OF NAURU

On 24 November 2014 at 13:49, Sanivalati Tubuna <sanivalati@spc.int> wrote:

Dear Secretary Elkoga,

As per our discussion today re: Final Project Design Document (PDD) for your approval, please find attached the Final PDD with paragraph mentioning long term maintenance of the national water storage infrastructure as requested by the EU. See page 15 - 16 and Annex 2 highlighted text for the specific addition to the signed PDD.

Grateful for your kind response and approval of the addition to the PDD mentioned before we can proceed.

Thank you

Sani

Agreement from Secretary of Finance and Sustainable Development

From: Andy Cain [mailto:andy.cain@naurugov.nr]
Sent: Thursday, 27 November 2014 4:49 PM
To: Sanivalati Tubuna
Cc: 'Elkoga Gadabu'; 'Bryan Star'; claude.s.wharton@gmail.com
Subject: RE: FW: Revised PDD

Sani,

I'm fine with the amendments please proceed.

Regards,

Andy

---------- Forwarded message ----------
From: **Sanivalati Tubuna** <sanivalati@spc.int>
Date: Wed, Nov 26, 2014 at 11:14 AM
Subject: FW: Revised PDD
To: andy.k@naurugov.nr
Cc: claude.s.wharton@gmail.com, elkoga28@gmail.com, bryanstar007@gmail.com

Dear Secretary,

Please find attached a revised PDD to the version that you signed in 3.10.14. Please note page 15 – 16 and Annex 2 highlighted text for the specific addition to the current PDD. The addition was a request from EU which basically asks that the PDD says something on long term maintenance of the infrastructure. Otherwise everything still remains the same.

We have sent the same attached version to the Secretary of CIE who has endorsed it. Please if you could also let us know if you are fine with the changes too.

Kind regards

Sani