

GCCA +

THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE



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Case Study Nr. 14 - Pacific (SPC)



IMPACT AND SUSTAINABILITY STUDY

PACIFIC (SPC)

SECRETARIAT OF THE PACIFIC COMMUNITY – GLOBAL CLIMATE CHANGE ALLIANCE:
PACIFIC SMALL ISLAND STATES

CRIS CODE: DCI-ENV/2010/022-473

JUNE 2021

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List of Acronyms

ADB	Asian Development Bank
CC	Climate Change
CCCI	Climate Change Cook Islands
CDSC	Communicable Disease Surveillance Committee (Kiribati)
CMAC	Coastal Management Advisory Council (Marshall Islands)
DoA	Department of Agriculture (Tuvalu)
DoE	Department of Environment (Tuvalu)
EPA	Environmental Protection Agency (of Yap State, FSM; of Marshall Islands)
EU	European Union
EUR	Euro
FSM	Federated States of Micronesia
GCCA+	Global Climate Change Alliance Plus
GCF	Green Climate Fund
JNAP	Joint National Action Plan (Tonga)
KNEG	Kiribati National Expert Group
M&E	Monitoring and Evaluation
MCIE	Ministry of Commerce, Industry and Environment (Nauru)
MHMS	Ministry of Health and Medical Services (Kiribati)
MLECCNR	Ministry of Lands, Environment, Climate Change, and Natural Resources (Tonga)
MMR	Ministry of Marine Resources (Cook Islands)
MPW	Ministry of Public Works (Marshall Islands)
NGO	Non-Government Organisation
NIE	National Implementing Entity (Cook Islands)
NUC	Nauru Utilities Corporation
NWSC	Niue Water Steering Committee
OEEM	Office of Environment and Emergency Management (of Yap State, FSM)
OO	Overall Objective
OP	Office of the President (Kiribati)
PIFS	Pacific Islands Forum Secretariat
PPUC	Palau Public Utilities Corporation
PSIS	Pacific Small Island States
RMI	Republic of Marshall Islands
SO	Specific Objective
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
TA	Technical Assistance
TWG	Technical Working Group
UNDP	United Nations Development Programme
YSPSC	Yap State Public Service Corporation

1. Project Details and Outputs Delivered

PROJECT TITLE: Increasing climate resilience of Pacific Small Islands States through the Global Climate Change Alliance¹ (GCCA:PSIS)

CRIS CODE: DCI-ENV/2010/022-473

The 9 national CC Adaptation projects implemented under the overall regional GCCA: PSIS are:

1. Environmental monitoring to enhance community livelihoods and build resilience to CC in low-lying atolls of the **Cook Islands**
2. Increasing coastal water security for climate change in selected outlying islands of the **Federated States of Micronesia (FSM)**
3. Improving implementation of environmental health surveillance and response to climate sensitive health risks in **Kiribati**
4. Building capacity to address coastal protection in the **Marshall Islands**
5. Expanding national water storage capacity and improving water security in **Nauru**
6. Augmentation of rainwater harvesting in **Niue**
7. Addressing water sector climate change vulnerabilities in the outlying states of **Palau**
8. Trialling coastal protection measures in eastern Tongatapu, **Tonga**
9. Improving agroforestry systems to enhance food security and build resilience to climate change in **Tuvalu**

AAP YEAR: 2010

DURATION: The implementation period was 64 months, starting from the date of signature of the Contribution Agreement²

DATE OF COMPLETION:

11/2016

TOTAL PROJECT COST: 11,400,000 EUR

GCCA ALLOCATION: 11,400,000 EUR³⁴

Budget breakdown:

- 4,000,000 EUR for technical assistance and participation of regional and national counterparts;
- 1,050,000 EUR for trainings
- 4,600,000 EUR for pilot projects at national level;
- 1,620,000 EUR for operational costs
- 130,000 EUR for external evaluations.

¹ The project's working title for use within the Pacific was: "Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS)"

² The Contribution Agreement was signed on 18 July 2011 and envisaged an *implementation period* of 40 months, i.e. until 19 November 2014. Addendum 2 to the CA, signed on 26 March 2014, approved a no cost extension of two years, hence until 19 November 2016. The *execution period* ended at the moment final payments were settled between the concerned Parties, being the EC and SPC.

³ Addendum 1 to the CA, signed on 23 December 2011, approved an increase of the budget from the initial 10,983,550 EUR to 11,400,000 EUR, being the total project cost. It was decided that the Secretariat of the Pacific Community (SPC) would also manage the funds foreseen for external evaluations and for contingencies. The distribution of the costs presented above is the one following internal budget re-allocations as approved by Addendum 4 to the CA, signed on 19 July 2016.

⁴ The final independently audited financial acquittal report showed that 99.77 per cent (EUR 11,373,602) of the EUR 11.4 million budget was expended.

AID MODALITY: Project Approach

MANAGEMENT ARRANGEMENTS:

- Joint management with the Secretariat of the Pacific Community (SPC) through a Contribution Agreement with CRIS Code DCI-ENV/2011/269-297.
- Centralised
- Letters of Agreement between SPC and each of the beneficiary countries

GEOGRAPHICAL COVERAGE:

The programme operates across 9 Pacific Small Islands States (Cook Islands, Federated States of Micronesia (FSM), Kiribati, Nauru, Niue, Palau, Republic of Marshall Islands (RMI), Tonga and Tuvalu) and includes a regional component.

The geographical coverage of the 9 national CC adaptation projects:

1. **Cook Islands:** Manihiki Lagoon
2. **Federated States of Micronesia (FSM):** the islands Fais, Ifalik, Eauripik, Satawaal and Ulithi of Yap State and its capital city Colonia; the islands Eot and Udot of Chuuk State.
3. **Kiribati:** nation-wide
4. **Marshall Islands:** community education over the entire Ailinglaplap Atoll ; construction of a new causeway at Woja Island, a remote outer island of the Ailinglaplap Atoll
5. **Nauru:** nationwide
6. **Niue:** nationwide
7. **Palau:** Projects were implemented in five outlying states. They included: Angaur (development of a concrete water storage tank and solar pump at the Koska well; addition of rainwater storage at the community centre; replacement of pumps at the main well for water distribution, and leak testing and repairs); Peleliu (leak testing and repairs at the household level); Kayangel (installation of new pumps and three water storage tanks at the community centre); Hatohebei (Tobi) (installation of 13 stand-alone rain catchments and storage tanks); and Sonsorol (installation of six stand-alone rain catchments and storage tanks, and refurbishment of one community cistern)
8. **Tonga:** three coastal villages on the eastern side of Tongatapu
9. **Tuvalu:** Funafuti, Nukufetau, and Vaitupu

MAIN STAKEHOLDERS (implementers, beneficiaries):

The main implementing agency was the Secretariat of the Pacific Community (SPC). The SPC was assisted by a long-term TA team, including national coordinators in the 9 beneficiary countries. Important partners for coordination and interagency dialogue were the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Pacific Islands Forum Secretariat (PIFS).

Implementing partners in the 9 national CC adaptation projects:

1. **Cook Islands:** The Ministry of Marine Resources (MMR) was the main implementing institution and beneficiary. Key partners were the CC Cook Islands (CCCI) Office of the Prime Minister's Office and the CC Cook Islands CC (CICC) Platform consisting of the MMR, the CCCI Office, the Ministry of Health and several NGOs.

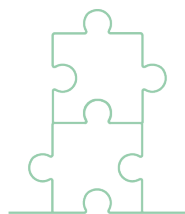
2. **FSM:** The implementing entity was the Yap State Resources & Development (Energy, Water, Agriculture) Department. Key partners were the Yap State Environmental Protection Agency (EPA), the Yap State Public Works Department and the Yap State Public Service Corporation (YSPSC). The Yap State Office of Environment and Emergency Management (OEEM) provided technical facilitation and coordination.
3. **Kiribati:** The technical implementing entity was the Communicable Disease Surveillance Committee (CDSC) of the Ministry of Health & Medical Services (MHMS), while the Office of the President (OP) with the Kiribati National Expert Group (KNEG) had responsibility for overall project management and cross-ministry coordination. The project attracted cross-ministry support (e.g. from the OP, Public Works, Education and Foreign Affairs), and from multiple departments within the MHMS (health information, health promotion, medical lab).
4. **Marshall Islands:** Key implementers were the Office of Environmental Policy Planning and Coordination (OEPPC), the Ministry of Public Works (MPW), the Environmental Protection Authority (EPA) and the national Coastal Management Advisory Council (CMAC).
5. **Nauru:** The main implementing entity was the Department of Environment under the Ministry of Commerce, Industry and Environment (MCIE). Implementing partners were the existing water Technical Working Group (TWG) which included the Nauru Utilities Corporation (NUC) and the Department of Health.
6. **Niue:** The project was implemented by Niue's Department of Environment. The Niue Water Steering Committee (NWSC) - consisting of the Department of Environment, the Department of Public Works, private sector actors, the Department of Finance and Non-Governmental Organisations (NGOs) - provided project oversight.
7. **Palau:** The implementing entity for the on-ground project was the Palau Public Utilities Corporation (PPUC), a public corporation. The Office of Environmental Response and Coordination (OERC) provided cross-government coordination for all GCCA: PSIS project activities in Palau.
8. **Tonga:** The implementing entity was the Ministry of Lands, Environment, Climate Change, and Natural Resources (MLECCNR); the Ministry of Infrastructure was a key implementing partner. The Joint National Action Plan (JNAP) Technical Working Group (TWG) provided project oversight.
9. **Tuvalu:** The implementing entity of the on-ground project was the Department of Agriculture (DoA). The Department of Environment (DoE) was the overall coordinator for the GCCA: PSIS project in Tuvalu.

DIRECT BENEFICIARIES:

Population⁵ and governments receiving institutional support in the 9 countries.

GCCA PRIORITY AREA(S):

Mainstreaming, Adaptation



MAIN SECTOR(S):

Overall development and poverty reduction, Water and Sanitation (Micronesia, Nauru, Niue; Palau), Agriculture (Tuvalu), Coastal Protection (Marshall Islands, Tonga), Marine resources (Cook Islands), Public Health (Kiribati).

⁵ Quantified per country in the project's final report.

OVERALL OBJECTIVE⁶:

OVERALL REGIONAL PROJECT

To support the Governments of nine Pacific Small Islands States (Cook Islands, Kiribati, Marshall Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Tonga, and Tuvalu) in their efforts to tackle the adverse effects of climate change

THE 9 NATIONAL CC ADAPTATION PROJECTS:

1. **Cook Islands:** To build resilience to climate change in the Cook Islands
2. **Micronesia:** To contribute to water security as a climate change adaptation strategy for FSM
3. **Kiribati:** To increase resilience of Kiribati to the adverse health impacts of climate change
4. **Marshall Islands:** To improve resilience to coastal climate change impacts in RMI
5. **Nauru:** To contribute to building resilience of communities in Nauru to the impacts of climate change
6. **Niue:** To contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities
7. **Palau:** To increase the resilience of the water sector to climate change impacts in Palau
8. **Tonga:** To increase resilience to climate change impacts in Tonga
9. **Tuvalu:** To increase resilience to climate change impacts in Tuvalu

SPECIFIC OBJECTIVE(S)⁷:

OVERALL REGIONAL PROJECT

To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level.

The 9 national adaptation projects

1. **Cook Islands:** To strengthen environmental monitoring and its relevance to the communities of the northern atolls
2. **Micronesia:** To contribute to increased access and sustainable use of quality water in the outlying islands of FSM states
3. **Kiribati:** To contribute to the prevention and control of climate sensitive diseases through improving environmental health surveillance and response
4. **Marshall Islands:** To increase capacity of RMI stakeholders to plan and implement effective coastal protection measures that reduce vulnerability to climate change
5. **Nauru:** To improve planning for water security in Nauru
6. **Niue:** To augment rainwater capture and storage in Niue
7. **Palau:** To help ensure water quality and supply meets the needs of the people in the outlying island states of Palau
8. **Tonga:** To trial coastal protection measures in eastern Tongatapu
9. **Tuvalu:** To enhance food security in Tuvalu

⁶ As per logframe revised in 2014 and used by the project team and project evaluators. The logframe revision did not affect the essence of the Overall Objective. In the Action Fiche, the following was added to the OO: "...to tackle the adverse effects of climate change *in line with the Pacific Islands Framework for Action in CC – PIFACC*".

⁷ As per logframe revised in 2014 and used by the project team and project evaluators.

EXPECTED RESULTS⁸⁹:

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 organisations in a collaborative manner

OUTPUTS DELIVERED¹⁰:

KEY RESULT AREA (KRA) 1: CLIMATE CHANGE MAINSTREAMED INTO NATIONAL AND/OR SECTOR RESPONSE STRATEGIES.

- Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development and action plan developed and endorsed by Government November 2015 (20,643 beneficiaries)
- Nauru Framework for Climate Change Adaptation and Disaster Risk Reduction (RONAdapt) - including a corresponding action plan – developed and launched on 31st January 2015 (10,084 beneficiaries)
- Kiribati Joint Implementation Plan for Climate Change Adaptation and Disaster Risk Management developed and endorsed (103,466 beneficiaries)
- Kiribati Climate Change and Climate Risk Communications Strategy (2014–2018) developed and implementation started
- Micronesia National Integrated Climate Change and Disaster Risk Management Policy developed
- Micronesia Climate Change Policy Act developed and endorsed by Congress in 2013.
- Institutional framework for a new Climate Change division in Niue developed and endorsed by Cabinet
- Climate Change Policy for Tonga revised and endorsed by Cabinet 24 February 2016.
- New regulations for the Public Health Ordinance in Kiribati developed, November 2015.
- A 20-year water and sanitation master plan developed for Nauru, November 2015 (10,084 beneficiaries)
- A Diagnostic study of coastal characteristics and issues in Tongatapu, Tonga (2014)
- Coastal management plan for Tongatapu, Tonga developed.
- An Agricultural Strategic Marketing Plan 2016-2025¹¹ for Tuvalu developed and endorsed by Cabinet on 11 February 2016.
- Cook Islands Manihiki Pearl Farming Management Plan 2016–2026 developed

KRA 2: COUNTRIES BETTER EQUIPPED TO ACCESS CLIMATE CHANGE FUNDS THROUGH DIFFERENT FINANCING MODALITIES.

- 304 people (167 men and 137 women) from the 9 countries trained in proposal preparation and ways to address specific donor needs
- 124 people (55 men and 69 women) from Cook Islands, Kiribati, Niue, Palau, Tonga, Tuvalu trained in planning, budgeting and selecting indicators for CC projects
- Assessment reports on budget support readiness (2013) for the 9 countries
- National climate change finance assessments conducted in Nauru (2013) and the Marshall Islands (2014)
- Cook Islands' Ministry of Finance and Economic Management accredited as National Implementing Entity (NIE) to the Adaptation Fund (July 2016) (15,708 beneficiaries)

⁸ Called “Key Result Areas – KRA” in the project documents.

⁹ As per logframe revised in 2014 and used by the project team and project evaluators.

¹⁰ As per project final report volumes 1 & 2, 2016

¹¹ To promote the use of local produce and to enhance food security in the face of climate change

KRA 3: NATIONAL CLIMATE CHANGE ADAPTATION PROJECTS IMPLEMENTED

Cook Islands, project on marine resources (243 beneficiaries)

- Two laboratories of the Ministry of Marine Resources (MMR) (in Rarotonga and Manihiki) refurbished and equipped for nutrient analysis
- Two MMR officers trained in water monitoring (nutrient analysis work)
- Ministry of Marine Resources in Penrhyn equipped with a boat
- Water quality monitoring buoy refurbished and deployed
- System for transfer of water quality data (generated by the monitoring buoy) to pearl farmers via mobile phones set up
- People in Manihiki trained in maintenance of monitoring equipment
- Five farmers from Tukao and one from Tauhunu trained in water quality monitoring with the equipment provided – Secchi-disks (for water clarity) and Forel-ule kits (for chlorophyll).
- 10 farmers trained in environmental change and climate resilience
- 137 senior citizens trained in IT and climate change

Micronesia, project on water security, accessibility to clean and fresh water (294 beneficiaries)

- 1,200 gallon water tanks and accessories installed in 40 households and 5 government buildings in 3 villages on Fais Island
- 23 existing water tanks refurbished on Fais Island
- The Sahagow groundwater well on Fais Island refurbished by installing a solar powered pump and storage system
- A rainwater harvesting demonstration site set up in Colonia, Yap State
- Hydrological study assessing the available water resources

Kiribati, project on climate-sensitive health risks (58,086 beneficiaries)

- A health database established, linking data from the Environmental Health Unit (EHU) of the MHMS and the Health Information Unit of the medical clinic using Geographic Information System (GIS) software
- Computers supplied to 13 clinics in South Tarawa
- Public health laboratory equipped and operational for environmental health monitoring
- Solar disinfection (SODIS) system installed in Kawan Bairiki community
- 150 teachers sensitised on health risks related to climate change and on the benefits of the installed SODIS system (solar disinfection)
- 26 staff trained on water quality monitoring
- 9 staff trained on food safety monitoring
- 12 staff trained on vector-borne disease surveillance and control
- 28 staff trained on epidemiology data for decision making

Marshall Islands, project on coastal protection (1,729 beneficiaries)

- Heavy duty equipment (compactor, large rock truck and excavator) acquired by the Ministry of Public Works and available for coastal protection works
- Community members and school students of Woja Island trained in home gardening
- Community members and school students of Woja Island trained in planting trees and shrubs to protect the shorelines from erosion
- Ministry of Public Works (MPW) staff trained in planning, designing, implementing and monitoring coastal protection measures in the outer islands.
- Construction of Woja Causeway completed

Nauru, project on water security (10,084 beneficiaries)

- Feasibility and design study for increasing the national water storage capacity
- A large obsolete 4,000 KL water storage tank demolished
- 20 trainers trained on water conservation practices
- 20 trainers trained on awareness raising in schools and communities
- 1 CIE officer trained in water quality assessment via south-south collaboration (Nauru/Kiribati)

Niue, project on water security (1,611 beneficiaries)

- Plastic storage tank manufacturing facility constructed
- 20 people trained in construction of storage tanks (10 in moulding, 7 in tank base construction, 3 in connections)
- 10 persons trained in water quality testing (7 men, 3 women)
- 520 5,000 litre water storage tanks manufactured
- 312 5,000 litre water storage tanks installed in the villages
- All beneficiaries of tanks trained in the maintenance of the equipment
- 200 primary school children sensitised on the need of water conservation and engaged in specific activities relating to water conservation

Palau, project on water security (711 beneficiaries)

- 1 water reservoir refurbished on Sonsorol
- 19 stand-alone water catchment systems installed (6 on Sonsorol; 12 on Tobl; 1 on Helen's Reef)
- Existing wells in Kayangel upgraded (leaks repaired and 2 new pumps installed)
- 3 public water tanks and accessories installed in community buildings in Kayangel
- 1 community water catchment system installed in Angaur (as demonstration) (includes a Koska Well, a pressure pump, a storage tank and 2 rainwater harvesting tanks)
- Palau population sensitised on water conservation measures
- 36 staff of Palau Public Utilities Corporation (PPUC) trained in financial management for water operators
- 19 private sector contractors trained in the installation of rainwater harvesting systems
- 7 people trained in coastal protection measures (joint training with people from Tonga)

Tonga, project on coastal protection (3,367 beneficiaries)

- 15 groynes and 10 breakwaters constructed, including recreation areas (coastal protection)
- Children of 2 schools sensitised on coastal protection through active involvement in coastal monitoring
- 18 people trained in coastal protection measures (joint training with people from Palau)

Tuvalu, project on food security (6,780 beneficiaries)

- 48 women trained in home gardening (design, grafting techniques, planting techniques)
- Home gardening women's groups provided with equipment
- 3 agroforestry demonstration sites established (2 in the capital of Funafuti and 1 in the outer island of Nukufetau)
- 2 nurseries established (1 in the capital of Funafuti and 1 in the outer island of Nukufetau)
- 171 farmers and landowners trained in agroforestry (design, methods, compost-making, plant grafting, breeding techniques, new crops)
- 64 men trained in the installation of rainwater harvesting systems in the project sites of Micronesia, Niue and Palau

KRA 4: STREAMLINED TECHNICAL ASSISTANCE THAT SUPPORTS NATIONAL ADAPTATION RESPONSES DELIVERED BY REGIONAL ORGANIZATIONS IN A COLLABORATIVE MANNER

- Framework for Resilient Development in the Pacific (FRDP) developed and endorsed by Pacific leaders in September 2016
- Pacific Climate Change Portal (PCCP) created as the regional information hub on CC
- 47 people trained on climate change finance and project proposal writing
- 34 people trained on the Adaptation Fund
- Pacific Compendium of Case Studies on Climate and Disaster Resilient Development in the Pacific developed and published

III. Analysis of impact¹²

2.1. Impact expected as per logframe objectives and their indicators:

OVERALL REGIONAL PROJECT

OVERALL OBJECTIVE (OO): To support the Governments of nine Pacific Small Islands States (Cook Islands, Kiribati, Marshall Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Tonga, and Tuvalu) in their efforts to tackle the adverse effects of climate change.

- OO indicator 1: Ten new activities that address country requests for climate change adaptation undertaken in an effective and sustainable manner.
- OO indicator 2: Capacity of a minimum of 40 national sector specialists for integrating climate change adaptation into at least three sectors built from minimal level to moderate level.



SPECIFIC OBJECTIVE (SO): To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level.

- SO indicator 1: At least one new formal mechanism in SPC to coordinate four different donors/partners engaged in delivery of climate change resilience by 09/2015.
- SO indicator 2: National climate change policy that integrates disaster risk management and includes a budgeted action plan prepared in a minimum of two countries by 12/2015.

THE 9 NATIONAL CC ADAPTATION PROJECTS

COOK ISLANDS: ENVIRONMENTAL MONITORING TO ENHANCE COMMUNITY LIVELIHOODS AND BUILD RESILIENCE TO CLIMATE CHANGE IN LOW-LYING ATOLLS OF THE COOK ISLANDS

OO: To build resilience to climate change in the Cook Islands

- OO indicator 1: Climate change issues are included in at least four island community development plans by December 2014

SO: To strengthen environmental monitoring and its relevance to the communities of the northern atolls

- SO indicator 1: At least one northern atoll community is engaged in environmental monitoring by December 2014
- SO indicator 2: At least two communities in the northern atolls are publicly displaying the results of the environmental monitoring by June 2015
- SO indicator 3: At least one school in the northern atolls is involved in monitoring water quality by June 2015

¹² The field phase only covered 6 countries: Cook Islands, Federated States of Micronesia (FSM), Marshall Islands, Niue, Palau, and Tuvalu

MICRONESIA: INCREASING COASTAL WATER SECURITY FOR CLIMATE CHANGE IN SELECTED FEDERATED STATES OF MICRONESIA (FSM) STATE OUTLYING ISLANDS:

OO: To contribute to water security as a climate change adaptation strategy for FSM

- OO indicator 1: Document on lessons learnt in FSM outlying islands about sustainable use of quality water in the context of climate change
- OO indicator 2: Checklist for the planning of water infrastructure installation, monitoring and maintenance available by 09/2015

SO: To contribute to increased access and sustainable use of quality water in the outlying islands of FSM states

- SO indicator 1: Demonstration model showing implementation of water security measures for climate change adaptation and disaster risk management in place in one outlying island by 06/2015
- SO indicator 2: 5% of Yap State population adopt a long term water conservation measure by 06/2015

KIRIBATI: IMPROVING IMPLEMENTATION OF ENVIRONMENTAL HEALTH SURVEILLANCE AND RESPONSE TO CLIMATE SENSITIVE HEALTH RISKS IN KIRIBATI

OO: To increase resilience of Kiribati to the adverse health impacts of climate change

- OO indicator 1: More than 50% of the population of Kiribati covered by environmental health surveillance and appropriate response mechanisms by 09/2015

SO: To contribute to the prevention and control of climate sensitive diseases through improving environmental health surveillance and response

- SO indicator 1: One laboratory equipped and functioning for environmental health monitoring by 06/2014
- SO indicator 2: Minimum 2 technical trainings by 09/2015.
- SO indicator 3: Attachments for 6 environmental health staff for surveillance and response to climate sensitive diseases by 09/2015

MARSHALL ISLANDS: BUILDING CAPACITY TO ADDRESS COASTAL PROTECTION IN THE MARSHALL ISLANDS

OO: To improve resilience to coastal climate change impacts in RMI

- OO indicator 1: Use of integrated coastal management tools demonstrated as effective resilience building approach

SO: To increase capacity of RMI stakeholders to plan and implement effective coastal protection measures that reduce vulnerability to climate change

- SO indicator 1: Skills and capacity of MPW enhanced to implement coastal protection measures, especially in outer islands by 10/2015

NAURU: EXPANDING NATIONAL WATER STORAGE CAPACITY AND IMPROVING WATER SECURITY IN NAURU

OO: To contribute to building resilience of communities in Nauru to the impacts of climate change

- OO indicator 1: Climate variability and change incorporated into RONAdapt (Republic of Nauru Joint Climate Change Adaptation and Disaster Risk Management Plan) by 12/2014

SO: To improve planning for water security in Nauru

- SO indicator 1: 20-year Water and Sanitation Master Plan prepared by 12/15

NIUE: AUGMENTATION OF RAINWATER HARVESTING IN NIUE

OO: To contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities

- OO indicator 1: 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

SO: To augment rainwater capture and storage in Niue

- SO indicator 1: At least 60% of households have properly maintained and operational rainwater capture and storage systems by 06/2015
- SO indicator 2: 40% of inhabited households in Niue have made monetary contribution to installation of rainwater capture and storage systems by 12/2014

PALAU: ADDRESSING WATER SECTOR CLIMATE CHANGE VULNERABILITIES IN THE OUTLYING STATES OF PALAU

OO: To increase the resilience of the water sector to climate change impacts in Palau

- OO indicator 1: Climate variability and change incorporated into PPUC long term planning and operations by 06/2015

SO: To help ensure water quality and supply meets the needs of the people in the outlying island states of Palau

- SO indicator 1: More than 20% of the population of two of the outlying states of Palau have improved water storage capacity by 06/2015.
- SO indicator 2: Community water catchments area increased by 10% in one outlying island state by 06/2015
- SO indicator 3: 10% of population adopt a long term water conservation measure by 09/2015

TONGA: TRIALLING COASTAL PROTECTION MEASURES IN EASTERN TONGATAPU

OO: To increase resilience to climate change impacts in Tonga

- OO indicator 1: Minimum 2 new modes of delivery available for climate change adaptation and coastal management by 06/2015
- OO indicator 2: Climate change adaptation / disaster risk reduction measures incorporated into a diagnostic study that informs an integrated coastal management plan by 06/2015

SO: To trial coastal protection measures in eastern Tongatapu

- SO indicator 1: Lessons learnt from these coastal protection interventions shared with other Pacific island nations and stakeholders in Tonga by 12/2015
- SO indicator 2: At least 50 stakeholders from national government, local government and communities provide input (written or verbal) to the diagnostic study to inform an integrated coastal management plan by 03/2015

TUVALU: IMPROVING AGROFORESTRY SYSTEMS TO ENHANCE FOOD SECURITY AND BUILD RESILIENCE TO CLIMATE CHANGE IN TUVALU

OO: To increase resilience to climate change impacts in Tuvalu

- OO indicator 1: Lessons learnt from food security initiatives compiled, analysed and shared with other atoll countries by 12/2015

SO: Enhance food security in Tuvalu

- SO indicator 1: At least two demonstration sites operational in 2 different islands by 12/2015
- SO indicator 2: Operation and maintenance of demonstration sites are incorporated into the 2015/2016 work plan for the Department of Agriculture by 12/2015

2.2. Direct and indirect impact as reported in the available documents and/or gathered through remote consulting:

OVERALL REGIONAL PROJECT

◆ From the final report, 2016:

Related to the achievement of OO indicator 1, being “Ten new activities that address country requests for climate change adaptation undertaken in an effective and sustainable manner”:

- Support to the Ministry of Finance and Economic Management of the Cook Islands to gain National Implementing Entity status to the Adaptation Fund; status granted by the Adaptation Fund in 2016.
- Support to the Ministry of Finance and Economic Management of the Cook Islands to prepare a national activity management and monitoring system (Te Tarai Vaka).
- Support to Cook Islands to train 137 senior citizens (71 men and 66 women) in the outer islands in climate change and IT skills.
- Support to Niue to design an institutional framework for the climate change division in Niue 2014.
- Support to Palau and Tonga to facilitate a south-south exchange on experiences with coastal protection measures, involving 16 men and 13 women.
- Support to Tonga to develop the Tonga National Climate Fund and accompanying legislation.
- Support to Nauru for an exchange visit (1 man) to Kiribati to share experiences on water quality management (2015–2016).
- Support to Tuvalu for the training of 12 men and 6 women – all national planners – in environmental impact assessment (together with SPREP).
- Support to Cook Islands, Kiribati and Tonga to participate in the UNFCCC COP 19 and COP 20, particularly to follow the climate finance discussions.
- Support to Nauru (2012) and Marshall Islands (2014) to prepare climate finance assessments together with other partners.

Related to the achievement of OO indicator 2, being “Capacity of a minimum of 40 national sector specialists for integrating climate change adaptation into at least three sectors built from minimal level to moderate level”:

- 102 men and 97 women trained in food safety, vector control and water quality monitoring in Kiribati
- 124 men and 45 women trained in agroforestry practices in Tuvalu; an additional 48 women trained in home gardening
- 64 men trained in installation of rainwater harvesting systems in FSM, Niue, Palau

Related to the achievement of SO indicator 1, being “At least one new formal mechanism in SPC to coordinate four different donors/partners engaged in delivery of climate change resilience by 09/2015”:

- SPC monthly climate change project coordination meetings
- CROP CEO Working Arm on Climate and Disaster Resilient Development (bi-annual meetings)

Related to the achievement of SO indicator 2, being “National climate change policy that integrates disaster risk management and includes a budgeted action plan prepared in a minimum of two countries by 12/2015”:

- Republic of Nauru Framework for Adaptation to Climate Change and Disaster Risk Reduction (2014)



- Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development (2015)

◆ **From the end-of-project evaluation report, 2016:**

The evaluators rated project impact as 'very good' whereby the impact was assessed against the extent to which the project had supported the Governments of the 9 Pacific Island states in their efforts to tackle the adverse effects of climate change.

PSIS face many negative impacts from climate change. The GCCA: PSIS project has greatly supported the nine participating countries to tackle one or more of the adverse effects of climate change identified by their project.

Considering the limited time since the completion of country projects, the GCCA: PSIS project has shown a good degree of positive impact to date. The development of the national and sectoral policies mainstreaming climate change has helped countries identify priority projects for funding. The mainstreaming process has also led to some countries restructuring their institutional arrangements to facilitate climate change mainstreaming into the future (e.g. development of a Climate Change Office in Palau).

Whilst no countries to date have been successful in accessing new climate change finance modalities to implement adaptation projects, support provided to the Cook Islands to become an NIE under the Adaptation Fund has led to increased governance and financial accountability and provided important lessons to other countries. Additionally, both Cook Islands and FSM have obtained GCF Readiness Programme funding to support their future engagement with the GCF. Whilst this outcome cannot be attributed to the GCCA projects, it does validate the project's focus on climate change funding.

Stakeholders have noted that SPC has been proactive in collaborating with other CROP agencies and development partners through both formal and informal means. The GCCA project has collaborated with SPREP extensively in delivering regional training, and through the PCCP.

The GCCA: PSIS project has been proactive in capturing and sharing lessons learnt at the national and regional level. This has influenced the design and implementation arrangements of other projects (e.g. EU GIZ-ACSE programme). Overall, the project had a good level of impact, considering the short period of time post-implementation for these impacts to emerge and be observed. Impact evaluations two to three years after project completion would be useful in identifying longer term impacts and to better clarify the effectiveness of climate change adaptation projects.

The project's impact will take time to bear fruit, but there are numerous examples of immediate benefits from both on-ground and mainstreaming activities. The absorption of most of the national coordinators and other GCCA funded staff at the national level into government positions means that the skills and experience gained from the project will be available to countries.

Measured against the revised regional logframe matrix, the project achieved all but one of its targets (result level) which further demonstrates the successful implementation of the project. The indicator whose target was not achieved related to national coordinators uploading documents to the Pacific Climate Change Portal.

Overall objective: To support the governments of nine small island states of the Pacific in their efforts to tackle the adverse effects of climate change

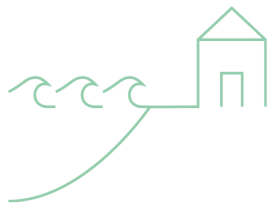
- Over ten new activities addressed country requests for climate change adaptation

- 200 national sector specialists trained to integrating climate change adaptation into key sectors (Training provided in media, finance, Pacific Climate Change Portal)
- 396 people trained in proposal preparation using the Logical Framework Approach (LFA)
- Additional 992 people trained on various subject (Food security, water security, vector borne disease, agroforestry and home vegetable gardening, tractor maintenance, media, epidemiology, WASH, GIS, food safety, behaviour change etc.)
- 1,407 community members in Tarawa, Kiribati trained in the use of SODIS

Specific Objective: To promote long term strategies and approaches to adaptation planning and to pave the way for more effective and coordinated aid delivery on climate change at the national and regional level

- New formal mechanisms in SPC to coordinate four different donors/partners engaged in delivery of climate change resilience
- GCCA: PSIS officer embedded in SPREP
- National climate change policy that integrates disaster risk management in three countries

Unintended impacts:



There were some cases of unintended positive impacts arising. The coastal works in Tonga created a number of headlands, upon which three playgrounds were created following community requests. The playgrounds have provided new recreational activities for local children, and there is a reduced need to drive to the capital to access play equipment. Unfortunately, increased patronage of the playground by children has led to one accident involving a car and a child. Temporary measures have been put in place to warn vehicles for children crossing, whilst more permanent measures are being planned.

The impacts from the policy development, capacity building, and on-ground projects will become more apparent over time. Full consideration of these impacts would require a longitudinal (impact) evaluation, and attribution can become more difficult over time. This is especially true for capacity building activities.

THE 9 NATIONAL CC ADAPTATION PROJECTS

Cook Islands: Environmental monitoring to enhance community livelihoods and build resilience to CC in low-lying atolls

▪ From the project final report, volume 2 (country reports)

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Pearl farms are better managed in Manihiki, and pearl production and quality for individual farmers is improved
- Pearl research farm in Manihiki is a viable public/private enterprise
- Senior citizens in the outer islands are more informed about climate change and able to contribute proactively to climate change adaptation measures on their islands
- Cook Islands can directly access funds for climate change adaptation measures from the Adaptation Fund (and potentially the Green Climate Fund)

■ **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall the project was found to be effective with the project SO being achieved.

Related to the achievement of OO indicator 1: Not achieved.

The island community development plans were not revised to incorporate climate change issues. Plans are not scheduled for revision until 2017. A report titled 'Using local knowledge to understand climate variability in the Cook Islands' produced by this project will be used to inform future revisions.

Related to the achievement of SO indicator 1: Achieved.

The Manihiki atoll community (pearl farmers and school) is participating in water quality monitoring (water clarity, chlorophyll levels). Water quality test kits were distributed to support the monitoring. Monitoring is voluntary. The Marine Biologist on Manihiki conducted weekly water quality analysis and reporting.

Related to the achievement of SO indicator 2: Achieved.

Community notice boards in Manihiki and Pukapuka display water quality monitoring results and climate change information in English and Cook Islands Maori.

Related to the achievement of SO indicator 3: Exceeded.

Two schools in Manihiki are participating in water quality monitoring through an amended curriculum. The local Penryhn community (youth) is engaged in marine survey work.

Overall assessment of impact:

- Increased economic resilience of pearl farmers in Manihiki through increased ability to reduce the negative impacts of climate variability on their pearl shells:
 - ♦ Increased monitoring of water quality provides pearl farmers with timely water quality information that enables them to take action to respond to changes in water quality. Such action involves altering the depth of pearl shells in the water column or choosing not to work on their shells to reduce stress. Pearl farmers have been trained in climate change adaptation techniques as they relate to pearl farming. They have also been up-skilled in best-practice pearl farm management skills. The MMR Pearl Biologist has been instrumental in raising awareness and helping the farmers to relate the science to practical application.
 - ♦ More timely water quality monitoring results to pearl farmers and fishermen
The new laboratory equipment installed at three laboratories has enabled to speed up water quality testing and to reduce the long backlog (up to 3 years behind for Rarotonga and Aitutaki data analysis).
 - ♦ Improved government governance
The Cook Islands government NIE (National Implementing Entity) application to AF has advanced it one step closer to being able to directly access new multilateral climate change adaptation funds. Going through the application process has increased institutional capacity across a number of areas (audit, procurement, anti-corruption, environment and social safeguard, project management).

Federated States of Micronesia: Increasing coastal water security for climate change in selected outlying islands of the FSM

■ **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Communities in Fais Island are better able to effectively cope with droughts and extreme events, without help from Yap State
- World Water Day continues to be a major event in Yap State
- The hydrological assessment of the outer islands of Yap State is effectively used to plan and implement improved water infrastructure measures (an example indicator would be the uptake of the first flush diverter)
- State water-sector plans are prepared and implemented

■ **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall, the project was most effective in providing new rainwater capture and storage infrastructure to the outlying island of Fais.

Related to the achievement of OO indicator 1: Achieved.

The lessons have been shared with all four states of FSM during a 2-day lessons learnt workshop. Lessons included, the need for baseline data and the use of the logical framework approach to inform project selection; and the importance of accurate cost estimates to inform project design, as well as a high contingency budget for outer island activities. Participants identified 'outer islands need special attention' as a key lesson to share at the regional lessons learnt meeting.

Related to the achievement of OO indicator 2: Partially achieved.

A checklist for the planning of rainwater harvesting systems has been drafted. It currently covers regulatory requirements, site conditions. It has not yet been finalised.

Related to the achievement of SO indicator 1: Achieved.

The project installed 1,200 gallon rainwater tanks in 40 households and five government buildings in three villages in Fais, Yap State, providing an additional 54,000 gallons of rainwater storage. The project also funded fascia boards and guttering. (17 homes improved roofing through assistance from AusAID). An additional 23 existing tanks were refurbished. The project also refurbished a groundwater well with a solar pump on Fais.

Related to the achievement of SO indicator 2: Achieved.

Fais population is approximately 5 % of Yap State total, all 65 households now have improved rainwater harvesting systems, including first flush diverters which reduce the need to manually divert water at the commencement of rain events.

The education and awareness programmes on the radio and events such as the World Water Day, as well as community training in water tank maintenance reached a significant proportion of the population. The education and awareness consultant indicated an approximately 18-19% increase in awareness from the baseline and end-line surveys. The current Yap State of Emergency (due to drought) has resulted in water rationing and increased uptake of tanks nationally.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed:

- An additional 54,000 gallons of rainwater storage was provided in Fais

Sixty-three of the 65 residential compounds in Fais now have access to new or upgraded water storage infrastructure. A total of 54,000 gallons of additional rainwater storage was provided by the project. People no longer have to walk long distances to access water. All tanks have leaf eaters and first flush diverters which have been shown to reduce bacterial contaminants entering the water from the roof by over 95%. As Fais is located next to Ulithi, one of the most populated islands in Yap, Fais can in cases of emergency be used as a water source.

- The project built local capacity and skills in maintenance of tanks in the installation of FFDs (First Flush Diverters). This means that there is no longer a need to call on experts, and the people trained can be used to train others in FSM.
- The Sahagow groundwater well is providing a valuable back up supply of water during drought. The installation of a solar pump at the Sahagow Well means that there is a back-up supply of water during times of water rationing and droughts, as is currently occurring. It was reported that the community was happy about getting the pump at the Sahagow Well, as the well had been in place for many years but the government never had funds to put in a pump. As such the well was never really used prior to the GCCA project's support.

Kiribati: Improving implementation of environmental health surveillance and response to climate sensitive health risks in Kiribati

▪ **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Decreased outbreaks of climate-sensitive diseases due to surveillance and response programmes for food, water and vector-borne diseases set up at the environmental health laboratory
- Quicker response to outbreaks and identification of the source of outbreaks through the environmental health surveillance data and the medical clinic data being entered into the GIS health database established through the project
- Cleaner communities as a result of the new public health regulations that allow Public Health to enforce community clean-ups to prevent diseases
- Decrease in child mortality and diarrhoeal disease due to the SODIS method being used to disinfect water as an alternative to boiling, and due to increased hand washing using tippy taps
- A more educated, organised, and efficient environmental health team as a result of trainings and attachments completed ; completion of the five-year National Environmental Health Action Plan ; and the vehicle for monitoring and response work is in place
- More awareness on clean drinking water, hand washing, and SODIS in schools leads to healthier students and youth

▪ **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall the project was found to be highly effective with the project SO being achieved.

Related to the achievement of OO indicator 1: Achieved.

More than half of the population of Kiribati lives in South Tarawa where project activities and surveillance work are focused. The majority of the population will benefit from the strengthened Public Health Ordinance Regulations (drafted, awaiting endorsement) and from the actions prioritized in the NEHAP.

Related to the achievement of SO indicator 1: Exceeded.

The Environmental Health Unit laboratory and medical laboratory have been renovated with new laboratory equipment purchased, installed and operational. Field kits for quality testing of water were purchased and in use. The capacity to undertake climate sensitive disease surveillance has greatly increased.

Related to the achievement of SO indicator 2: Exceeded.

Approximately 20 technical trainings were conducted (water quality testing, vector-borne disease surveillance, food-borne disease surveillance, media training).

Related to the achievement of SO indicator 3: Partially achieved.

Five staff attended training attachments with SPC-GIS, Pasteur Institute and Fiji Ministry of Health. A sixth attachment was planned in Guam for food safety, however, due to a last minute family illness the participant was unable to attend. Capabilities to undertake climate sensitive disease surveillance and identify disease outbreaks have greatly increased from the trainings and attachments.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed.

- **Improved health and environmental benefits through using SODIS**

Bairiki health clinic data indicate a reduction in reported cases of diarrhoea (baseline: 235 cases per month baseline; with the intervention: 163 cases per month) around the time of the project's SODIS communications campaign. Interview data backs up the general finding of reduced water-borne illness (especially diarrhoea and skin rashes) in the Bairiki community. Whilst these positive results are promising, it is not possible to attribute this decrease solely to the GCCA project activities of promoting SODIS and tippy taps as there are other health and water improvement projects being implemented in Kiribati and several of these include Kawan Bairiki in their target areas. Interview data indicate that the use of SODIS has reduced the need to boil water using kerosene or wood fuel. This has resulted in less air pollution and it has been reported that this has reduced respiratory diseases (coughing) in children and increased eye health for the elderly women who are often tasked with boiling water.

- **Reduced household expenditure**

Switching from boiling water using kerosene to using SODIS to disinfect water can save a household up to AUD \$1 per day in fuel costs. Small savings are valued by Bairiki's community which can be categorised as a low socioeconomic group with high rates of unemployment. As SODIS has been launched nationally, these benefits are also expected in other communities.

- **Improved decision making**

The new Health Information System with GIS functionality has allowed the Environmental Health Unit to quickly identify disease outbreaks and locate the potential sources of these outbreaks for faster targeting and response. For example, in March 2016, an outbreak of diarrhoea and Acute Respiratory Infection (ARI) was identified and traced to a location which allowed for specific disease response targeting.

- **Public Utility Board (PUB) and communities are better informed about water quality**

Community rain and well water quality is being tested on a request basis to determine if it is safe to drink or boil/use with SODIS. PUB receives more frequent water quality test results that enable it to respond faster to poor water quality test results. This monitoring over the past three years is likely to have caused the improvement in regular chlorination of PUB water.

Marshall Islands: Building capacity to address coastal protection in the Marshall Islands

▪ **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Communities in Woja continue to have safe access to community facilities regardless of tide levels
- Communities in Woja maintain the coastal planting near the causeway so as to build ecosystem resilience
- MPW (Ministry of Public Works) plans (and possibly implements) additional large-scale coastal protection projects in the outlying atolls using a similar approach to the one adopted in Woja Island
- The Marshallese Climate Change Glossary becomes a recognised tool for use in primary and secondary schools in the Marshall Islands, and as a result more young people and community members have an in-depth understanding of climate change and what it means for the Marshall Islands

▪ **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall the project was found to be highly effective with the project SO being achieved.

Related to the achievement of OO indicator 1: Achieved.

Combination of hard (elevated causeway constructed) and soft (coastal replanting) engineering methods applied to Woja causeway. Integrated approach also achieved through collaboration between the Ministry of Public Works (MPW), the Office of Environmental policy Planning and Coordination (OEPPC) and the Environmental Protection Authority (EPA).

Related to the achievement of SO indicator 1: Achieved.

MPW capacity has been enhanced through managing the planning, design, implementation and monitoring of the project. Capacity to undertake future hard coastal protection works (and maintenance) has also been increased through the purchase of used machinery- excavator with claw attachment, a compactor and a rock truck.

Overall assessment of impact:

▪ **Increased access to essential services on Ailinglaplap Atoll**

The Woja causeway can now be crossed at all hours of the day (including high tide) which has increased the community's access to a school and a pharmaceutical drug dispensary. It has also enabled uninterrupted travel for friends and family members visiting homes on either side of Woja Island. Without the Woja causeway project, the trade and transport of copra would likely have been impacted in the medium to long term.

▪ **Increased capacity of MPW to undertake coastal protection work**

The MPW now has three additional items of heavy machinery in their inventory to undertake capital works (including but not limited to coastal protection work). The additional experience they gained by implementing the capital works component as well as observing the consultation, feasibility study and detailed design work serves as a model for them to replicate in future projects.

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

▪ **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- The Government of Nauru accesses new funding for some of the major infrastructure improvements identified in the 20-year Water and Sanitation Master Plan
- WASH training expanded to communities throughout Nauru thereby decreasing the incidence of diarrhoea and other disease outbreaks
- A new water storage tank is constructed to replace the old B10 tank

▪ **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall, the project was most effective in its mainstreaming component, with the development of the W&S Master Plan. The demonstration project was less effective, as the project did not increase water storage due to a shortage of time and insufficient funds to build a new water storage tank. The detailed feasibility and design documents as well as the request for proposals are all available for when Nauru approaches another donor to complete the work. Similarly the engineering survey of the 317 households is available for when Nauru approaches another donor.

However, against the revised logframe, the indicator for the demolition of the old tank is still likely to be achieved, though beyond the planned timeframe. This will lay the groundwork for another project to construct the new storage tank. The increased community awareness through delivering WASH workshops to the community has not occurred, though community trainers have been trained. The attachment of a MCIE¹³ Officer to Kiribati has resulted in the transfer of knowledge on the management of the Kiribati water quality monitoring programme to the CIE Unit.

Related to the achievement of OO indicator 1: Achieved.
RONAdapt endorsed by Cabinet (October 2014).

Related to the achievement of SO indicator 1: Achieved.

The Master Plan was finalised in November 2015 and three proposals have been prepared to approach donors for assistance with priority projects.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed.

- Impact greatest through mainstreaming activities: The project's impact will be greatest at the mainstreaming level, with RONAdapt and the Water and Sanitation Master Plan guiding future actions. Nauru Utilities Corporation (NUC) is looking at obtaining funds for three priority projects in the Master Plan. The GCCA: PSIS project has funded the development of three draft funding proposals for the priority projects.
- Though the original demonstration project (roof restoration) was not endorsed by Cabinet (despite Cabinet having been informed throughout the planning phase), a stakeholder noted that the Government of Nauru is implementing a Household Maintenance Upgrade project that builds on the

¹³ Ministry of Commerce, Industry and Environment

original PDD. It is understood that the maintenance project will seek to replace or restore roofs, making them safe for rainwater capture and storage.

- The demolition of the old large water storage tank paves the way for the building of a new tank in the future. As noted previously, USAID, through its C-CAP programme, was looking to build a new 4 million litre water storage tank adjacent to the B10 site. However, cost over-runs have led to a further revision in the scope and a household water tank project is now planned.

Niue: Augmentation of Rainwater Harvesting in Niue

- **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- The tank moulding facility is operated in an efficient and business-like manner either by the Government of Niue or the private sector
- The groundwater supply system is better maintained, with regular shut-down periods for maintenance, since households have an alternative supply of water
- Householders are better prepared for future cyclones when electricity supplies are disrupted.
- A government division responsible for climate change is in place and adequately staffed

- **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

Overall, the project was effective in building the capacity and capability to mould and install rainwater tanks in Niue. As a result of the project, most residents now have new rainwater tanks installed, thereby providing them with an alternative water supply in case of disruptions to the main supply during cyclones or maintenance work.

Related to the achievement of OO indicator 1: Achieved.

The tank moulding facility is built and operational. Agreement to retain tank moulding equipment for 6 months post-project. Funding secured under EU-funded ACSE programme to manufacture septic tanks (2016-17) using the existing infrastructure and moulding machine (though new mould required). 10 men trained in moulding; 7 men trained in tank base construction; 3 men trained in installation/connections.

Related to the achievement of SO indicator 1: Achieved late.

By Jan 2015, 188 tanks (44%) were installed, 96% of the tank bases constructed and 93% of the tanks delivered to the households.

Related to the achievement of SO indicator 2: Achieved.

Owners have to have fascia board and guttering installed at own cost before tank is installed. This delayed installation as some households were slow in undertaking their required contribution.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed.

- The project's immediate impact is most visible in establishing a moulding facility in Niue. The moulding facility (warehouse and moulding machine) established for the rainwater tank project will be used to mould septic tanks for the EU-funded ACSE project (noting that a new mould is required). The rainwater

mould will be kept in Niue over the short term future at least, so that further rainwater tanks can be manufactured if required.

- Households have an independent water supply during disruptions to the reticulated supply. The project provided an alternative water supply during disruptions to the main reticulated supply (e.g. during power disruptions associated with cyclones and which can last for days/weeks, or during routine maintenance of the main system). The project also offers a back-up supply in case of pollution of the groundwater lens.
- The concept note made reference to other benefits such as reduced consumption of fossil fuels (to pump water), and reduced pressure on the groundwater supply. However, it is unlikely that rainwater tanks will provide a day-to-day alternative to the reticulated water supply as they are not plumbed into homes. If the tanks were to be plumbed into homes at a future time, and other incentives were introduced (e.g. price signals, metering), a more regular use of the rainwater supply could lead to reduced consumption of fossil fuels and reduced pressure on groundwater supply.

Palau: Addressing water sector climate change vulnerabilities in the outlying states of Palau

- **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Prioritised sector action plans (included in the Palau Climate Change Policy) and use of the LFA in project proposals, enable the preparation of more country-led proposals to access new climate funding
- Strengthened project procurement, financial reporting and management, particularly at PPUC (Palau Public Utilities Corporation), leading to increased funding
- Lessons learned through the NDBP water conservation incentives program provide guidance for the development of further public-private partnerships
- Communities in Angaur, Kayangel, Peleliu, Sonsorol, Hatohobei, and Palau are better able to effectively cope with droughts and extreme events
- Hydrogeological assessment implemented and effectively used to advise on the prevention of over-extraction or contamination of ground water
- Progressive water operators' certification and application of standard operating procedures for maintenance of systems, leads to improved water supply

- **From the end-of-project evaluation report, 2016**

The project was effective in providing rainwater harvesting systems in two outer island States, and in developing a Climate Change Policy.

Related to the achievement of OO indicator 1: Achieved.

PPUC has provided input into the Climate Change Policy, specifically Intervention G.5 to 'Undertake a comprehensive water resource inventory and develop an integrated water resource management plan'. PPUC is also in process of preparing a strategic plan which includes using core budget for conducting hydrological assessments (based on KRA 3 output).

Related to the achievement of SO indicator 1: Achieved.

The whole population of Tobi and Sonsorol now has access to improved water storage. 13 stand-alone systems with two 750 gallon tanks are installed; six community water harvesting systems are installed, 1200 gallons each, and one existing cistern has been refurbished.

Related to the achievement of SO indicator 2: Achieved.

Upgrade of roof catchment (two new storage tanks and roof improvements) at Angaur community centre; three 750 gallon tanks installed at community buildings in Kayangel; and provision of plastic roofing for one large community tank at Tobi.

Related to the achievement of SO indicator 3: Achieved.

Though difficult to determine the actual 'adoption of water conservation measures', the following can be reported: Household water audits indicated that all 150 homes in Peleliu are connected to the water reticulation system. 60 homes had external leaks fixed. Water rationing respected in Peleliu and Angaur due to low water level in wells. Water conservation strategies are in place on Tobi and Sonsorol due to reliance on rainwater storage. Household leak detection planned for Kayangel was cancelled after Typhoon Haiyan damaged most homes, and a Taiwanese funded project provided new kit homes with stainless steel water tanks.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed.

- The biggest impact in terms of long term climate change adaptation is likely to result from the implementation of sector actions identified in the 'Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development'. The Climate Change Policy brought 10 sectors together for the first time to work towards a common goal of climate change adaptation, disaster risk reduction and low carbon emission development. The sector consultation process raised a lot of awareness on climate change with sector representatives. The policy was endorsed by both Houses of Government in November 2015 and forms the basis of Palau's Intended Nationally Determined Contribution (INDC) submitted to the UNFCCC in November 2015.
- The action plan contained in the policy is already being advanced. The food security sector has integrated climate change into their sector plan through the PACC project. Public Health has developed a climate change and health action plan but not a sector-wide policy. Other sectors are being encouraged to take the top three actions from the Climate Change Policy and turn these into grant proposals. The new Climate Change Office will be critical in the policy implementation process, as will the NEPC to ensure that sectors are involved in developing sector-specific climate change adaptation policies and plans. An issue raised by four stakeholders during interviews concerned the risk of the Climate Change Policy losing momentum. Suggested actions included a formal launch of the policy, or reconvening the sector stakeholders.
- The GCCA project provided an opportunity to re-establish relationships and improve the OERC's (Office of Environmental Response and Coordination) institutional set-up. The project has also led the national government to fund the establishment of a Climate Change Office.
- The project introduced First Flush Diverters (FFD) to Palau, ensuring better quality water being captured and stored. FFD were installed in all the project's rainwater capture and storage systems (Tobi, Sonsorol, Angaur, Kayangel, PWCI). This device has received very positive feedback from PPUC as well as other stakeholders. Whilst rainwater capture and storage systems often had leaf screens, FFD divert a specified volume of water that includes debris, as well as other finer or soluble contaminants. This means that the water that is captured and stored is cleaner, and of better quality. A future project could see the roll out of FFDs to all states.
- The project also used HDPE tanks, rather than the more commonly available stainless steel tanks. There were numerous reports of stainless steel tanks rusting. There was also one report from a resident of the welds in stainless steel tanks leaching lead into the water.

- The impacts from the on-ground projects are greatest in Tobi and Sonsorol, with residents in these two states having increased their total water supply, and having secured a potable water supply. The project provided homes in Tobi with two 750 gallon tanks (with roof catchments and first flush diverters) to provide potable water. These tanks replace 800 gallon fibreglass tanks declared unsuitable for drinking water. The project nearly doubles the amount of drinking water available for households (from 800 gallons to 1500 gallons), and provides a further 800 gallons (fibreglass tanks) for cleaning and washing purposes. An agreement exists between the state and households for water to be shared with others in the community if it is needed.
- The community water tanks in Sonsorol have also provided the community with potable water. The new water tanks in Sonsorol were full at the time of the evaluation visit.
- The project added 31,350 gallons in extra rainwater storage across five states. The project has added considerable 32,500 gallons (approximately 125 KL) of rainwater storage (Table 1) plus 20,000 gallons of groundwater storage at the Koska well.

Table 1. Rainwater storage capacity added by the GCCA project in Palau*

PROJECT SITE AND WATER CAPACITY	GALLONS ADDED
Tobi (13 systems, 2x750 gallons each)	19,500
Sonsorol (6x1200 gallons)	7200
Angaur (community centre, 2 x 1200 gallons)	2400
Kayangel (2x750 gallons, 1 x 1200 gallons)	2700
NDBP demonstration tank (1 x 750 gallons)	750
TOTAL (GALLONS)**	32,550

* *Excluding PWCI household loan programme.*

** *32,550 gallons is equivalent to 123,215 litres.*

The Governor of Kayangel noted that the GCCA: PSIS project came at a very opportune time, straight after Typhoon Haiyan, and helped improve the existing water system. Kayangel residents are used to obtaining potable water from community building storage tanks, so the addition of the three tanks, with first flush diverters, will be effective in increasing potable water supply.

- The Koska Well provides a closer source of potable water for Angaur's northern community. The impact of the Angaur project is likely to be high over the shorter term, as the northern community has a closer source of clean water. Over the long term, the impact is likely to be less once the UAE-funded water treatment plant comes online.
- Leak testing has increased water pressure in Peleliu but more needs to be done. The impact from the leak testing and repair in Peleliu is limited as there are still leaks inside homes, and untreated groundwater is still added to boost the pressure of the main water reticulation system in times outside water rationing. The water leak testing and repairs have increased water pressure, from around 10-15 PSI at the end of the line in 2014, to around 24 PSI following the water audits. The PPUC is aiming at 30 PSI. Despite the household testing, groundwater is still being pumped into the system, leading to a sulphide-like smell emanating from the water. PPUC indicated that they have not detected any leaks in the main line. At the time of the evaluation (February 2016), a resident interviewed indicated that because of water rationing (limited hours of water supply), there was less smell in the water. PPUC indicated that this was because there was no need to boost the main line with groundwater.
- The introduction of the metered water tariff should help drive behaviour change at the household level. It would be beneficial to time future community engagement activities targeting water

conservation with the introduction of the water meters and tariff. PPUC should also undertake further investigations into ways to ensure there is sufficient pressure to ensure that the treated water from the reverse osmosis plant is delivered to households without resorting to adding groundwater.

- The PWCI provides households with a reliable independent water supply when the main water supply system is not available. The impact from the PWCI is limited in terms of numbers, but for those households that took out a loan, the benefits are immediate, especially during cuts to the main water supply. One Koror resident indicated that there could be water cuts of up to three days when pipes were broken, but since the water tank installation (plumbed into the house), the household had a reliable water supply. The resident indicated that they “felt safe even when there is no water from the mains” as the tank provided up to one week’s supply. It was also reported that the system design provided better quality water and better water pressure.
- There were differing views as to the suitability of the ‘design’ of the rainwater capture and storage system used in the PWCI. Some stakeholders considered the system too complicated (in terms of being plumbed into the home, and using HDPE tanks) and too costly. It was suggested that those most in need of rainwater storage (poorer households not connected to the mains’ water) would not be eligible for getting a loan. Another viewpoint is that the system is right for Palau, as people want the convenience of running water in their homes, and they would less likely use the system if it was not plumbed in and pressurised. The PWCI may consider offering different system designs (not plumbed, and plumbed in) to cater to different budgets.
- The water operator’s training programme raises the overall skill level of PPUC field staff. The impact of the water operators’ training will be felt over time as all water operators are trained to a basic level. Each state will have standard operating procedures for their water systems developed as a result of training.

Tonga: Trialling Coastal Protection Measures in eastern Tongatapu

- **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Three coastal communities have beaches that have extended seawards and are better protected from the impact of storms and storm surges
- The population of Tongatapu benefits from the three coastal recreation areas established by the project and the coastline in that area is kept clean
- The process established through the project for effectively implementing coastal protection measures is successfully duplicated by other projects in Tonga and Palau
- Tonga to have continual access to funds for small-scale projects, both for communities and to fill the gap between larger project cycles through the Tonga Climate Change Fund
- Tonga’s Climate Change Policy and Joint National Action Plan II are aligned and implemented jointly
- More proposals are funded as a result of the proposal preparation trainings

- **From the end-of-project evaluation report, 2016:**

Achievement of objectives and objective indicators:

The project has been most effective in implementing two coastal protections measures in eastern Tongatapu that were informed through best practice feasibility studies, research and design phases. Overall, the project was found to be highly effective with the project SO being achieved.

Related to the achievement of OO indicator 1: Achieved.

Groynes and detached breakwaters were constructed and complemented with sand recharge and coastal planting.

Related to the achievement of OO indicator 2: Achieved.

The diagnostic study was completed (August 2014) and is ready to inform the Integrated Coastal Management plan.

Related to the achievement of SO indicator 1: Achieved.

A national lessons-learnt workshop was held in Tonga (October 2015). The lessons were shared with future projects (GIZ ACSE and ADB SPCR). The lessons were also shared at the regional lessons-learnt workshop in Yap (August 2015). Two videos were produced to share lessons. Palau delegation visit occurred (February 2015) to learn about Tonga's coastal protection measures.

Related to the achievement of SO indicator 2: Exceeded.

Over 58 stakeholders from the Government and the community informed the diagnostic study via three workshops held in May – July 2014. 18% of the 43 community members contributing were women.

Whilst it will take several years to determine the true effectiveness of the coastal protection measures, initial monitoring data and observations can provide an indication of likely success. Beach profiling data captured between March 2014 and January 2016 indicate that the groynes have been effective in retaining the sand that was recharged to the area and additionally accumulating new sand to extend the depth of the beach further seaward. A summary statement from August 2015 noted that 'this indicates that this design is working in terms of coastal protection'. Positive results were also seen for the detached breakwaters. However, the incorrect representation of the data in some charts does not allow for their accurate interpretation. Observations at the site show small rock sedimentation deposits occurring behind the breakwater and close to the foreshore. It is anticipated that this process of sediment accumulation will continue with time.

Mangroves and coastal plants were planted on the foreshore area at the breakwater site but most of them had died. Plant die off was likely due to the mangroves being planted directly after the site works were completed instead of holding off for 12 months as outlined in the design. This oversight was acknowledged by the project team.

In February 2015, the Ministry of Lands, Environment, Climate Change and Natural Resources (MLECCNR) hosted a visit by six representatives from the Palau National Government and the Koror State Government (one of the states of Palau) to share experiences about Tonga's coastal protection project and the procedures used in its implementation. This exchange was extremely successful for both Palauan and Tongan stakeholders.

Overall assessment of impact:

- Resilience of coastal communities to the impacts of storm surges and sea level rise increased
The coastal protection measures will require long term monitoring to determine what sustained impact they have on communities. To date, three strong storm events have demonstrated that the protected areas did not suffer from debris and waves overtopping the coastal road, compared to unprotected areas close by where debris was deposited onto the road by strong waves. As a result of the intervention, community members (based on the small numbers interviewed) feel more protected from storms and sea level rise.
- Playgrounds provide increased recreation opportunities for the broader community and economic development opportunities for women. Playgrounds are being used by children from pilot communities and neighbouring villages. Children are now playing on the beaches that were previously void of sand and in a marsh-like state. Parents no longer need to drive their children to

Nuku'alofa to play at beach parks. Local village women occasionally set up stalls to sell peanuts and snacks which provide a new economic development opportunity for women (a positive unintended consequence). The replenished beaches may in the future attract more locals and tourists. On the flip side, toilets are required at the playgrounds to accommodate sanitation needs of visitors. Additionally, safety measures are required to increase the safety of children crossing the road to get to the playground. There has already been one reported incident of a child being hit by a car crossing the road. This is an unintended negative consequence of the playgrounds being established. Warning cones have been positioned to act as a temporary crossing whilst MLECCNR waits for proper signage and road painting to occur.

- Fish species and numbers have reportedly increased. Whilst not yet proven by a marine survey, some local residents have reported that since the site construction works, more fish are in the area and species of fish that had disappeared in recent years have returned. Such evidence is anecdotal and the impact may be short-term as a result of disturbances to other habitats or of the increased nutrients release into the area by the coastal works. This is another positive unintended consequence from the project.

Tuvalu: Improving agroforestry systems to enhance food security and build resilience to climate change in Tuvalu

- **From the project final report, volume 2 (country reports)**

The report lists the following anticipated potential impacts to be generated in the period 2016-2020:

- Intensive agroforestry farming methods result in more sustainable farming (in terms of maintaining soil quality), making use of underutilised land, and increased variety of crops planted
- For specific farmers in Funafuti and for the farmer's association on Nukufetau, incomes are increased through selling crops from newly intensive farming practices
- The Tuvalu Agriculture Strategic Marketing Plan results in a local and international market for specific crops
- Successful climate-ready crop varieties are planted around Tuvalu, increasing resilience
- Home gardens on all islands result in more fruits and vegetables being available
- More proposals are funded as a result of the proposal preparation trainings

- **From the end-of-project evaluation report, 2016**

Achievement of objectives and objective indicators:

The project was most effective in establishing three agroforestry sites and in providing the foundations for enhanced food security in Tuvalu. The Tuvalu GCCA: PSIS project was effective in achieving its SO.

Related to the achievement of OO indicator 1: Achieved.

A lessons-learned video on 'Promoting Local Food Production in Tuvalu' was completed and shared. A national lessons-learned workshop was held at the end of the project (November 2015) with all project partners including the farmers and representatives from other projects. A crop database is established to evaluate the crops' effectiveness at an ongoing basis and is shared with different projects.

Related to the achievement of SO indicator 1: Achieved.

Two sites are completed on Funafuti, and one in Nukufetau (on Funaoa islet).

Related to the achievement of SO indicator 2: Achieved.

Funds for the maintenance of the demonstration sites and for the wages of two of the projects' temporary workers are allocated in the Department of Agriculture's 2016 budget.

Overall assessment of impact:

Whilst some project impacts will not be known or proven until one or more years into the future, some noted short term impacts have been observed.

- **The first agroforestry site has had its first harvest**

The first harvest of kumala, banana, yam and coconut, was reaped at the first agroforestry site on Funafuti by December 2015. The crops were showcased at the Go Local Campaign Fair. The crops belong to the landholders, and any excess is encouraged to be sold to the community. Annual food crops, mainly root crops such as sweet potatoes, xanthosoma and cassava, are in their second cropping stage. The agroforestry project's impact for perennial food crops will be in a better position to be assessed in two years or more once more plants become established and bear fruit. Interestingly, mature coconut palms that were left behind during the thinning out process at the demonstration sites are reported to be in full production, and providing the landowners with a consistent supply of more than 100 coconuts per week. Such production levels are reported to be much greater than before the land was converted to agroforestry. Data on crops and crop yield will continue to be collected and compiled by the Department of Agriculture, and shared nationally and with other Pacific island nations. The demonstration project is likely to contribute to food security through a more resilient food supply.

- **Farmers on Funafuti have taken up agroforestry practices**

The training of farmers was important as it provided hands-on demonstration of new farming methods. Results from the farmer survey indicate that farmers have increased knowledge on agroforestry and have implemented measures on their farms. At present, most of the farmers do not sell the produce they grow, so the likelihood that the food security benefits are spread to non-farming households will depend on an increase in farmers selling produce over time, though sharing of produce through the informal economy will also lead to increased food security for a greater number of people. The implementation of the Tuvalu Agricultural Strategic Marketing Plan (TASMP) 2016-2026 will help promote the marketing of locally produced food. The TASMP will also build on the 'Go Local' campaign that was supported by the GCCA: PSIS project. The TASMP will also help in the planned export of breadfruit and banana to New Zealand. The project's PDD notes that the project will benefit Funafuti's population (over 6,000 people). This may occur if more unused land on Funafuti is put into agroforestry production.

- **Skills learnt through attachments are being put to use.**

The three training attachments have built the skills of Tuvalu government staff, particularly in tissue culture and biosecurity, which will have positive impacts on food security and resilience. Two staff members that benefited from training attachments are back working in Tuvalu.

2.3 Summary findings from the desk phase and specific issues to be further explored during the field phase:

THE OVERALL REGIONAL PROJECT

The final project report provides an assessment of the impact through addressing the achievement of the several indicators associated with the overall and specific objectives. Though there is no explicit conclusion on whether and to what extent these indicators were achieved, the listed activities that were implemented and/or outputs that were achieved allow us to confirm a 100% achievement of all 4 indicators.

The end-of-project evaluation report rates the generated / potential impact as very good. Apart from a general narrative on impact, the report discusses the achievement of the objectives by listing contributing activities/outputs/outcomes and by stating that all indicators/targets but one had been achieved.

THE 9 NATIONAL ADAPTATION PROJECTS

All 9 national adaptation projects have logframes with indicators at the overall and specific objective levels. Many of the indicators include a clear target by the way they are formulated. The end-of-project evaluation report provides information on the achievement of each of these indicators at the time of the evaluation study (2016). In summary, of the 11 indicators at OO level, 9 were achieved, 1 was partially achieved and 1 was not achieved and of the 19 indicators at SO level, 14 were achieved, 4 were exceeded and 1 was partially achieved. The results are thus mainly positive, indicating that the expected impacts were achieved in the 9 national adaptation projects.

It must be noted, however, that the above findings have limited value for the present impact study as almost all of the indicators are output-based, and in some cases outcome-based, but certainly not impact-based as they should have been.

The project final report provides for each of the 9 national projects a list of anticipated potential impacts that are expected to have been generated over the period 2016-2020. **The consultant conducting the field assessment will use these as checklists to support the assessment of impact, in addition to the indicators.**

RECOMMENDATION FROM THE END-OF-PROJECT EVALUATORS:

Conduct impact evaluations (3 years after project end). Such impact evaluations should be undertaken for a sample of key projects to assess the longer-term effectiveness and impact of key outputs (e.g. coastal or water infrastructure, new agricultural methods and crops, and policies).

Additional donor funding is needed to support the impact evaluation for this project. In future, PMU should include as part of its project management costs an allocation for impact evaluation

2.4. Achievement of the logframe indicators at overall and specific objectives levels (direct impact)

The assessment of the PSIS project's impact was made difficult due to the implementation over nine Pacific small island countries, with many activities centred on remote outlying islands that are not easily accessible. In addition, the Covid-19 pandemic made planning for any field inspections of project sites impossible. Interviews with representatives from national and regional stakeholders were considered as the 'best of the worst' option for gaining relevant information on the impact and sustainability of project outputs and outcomes. This involved many repeated efforts to establish contact with at least two key stakeholders in each of the countries and arranging online interviews over 4 time zones. In the end, interviews were made with representatives from six countries¹⁴.

¹⁴ The representatives for three countries (Kiribati; and Tonga and Nauru) could not be interviewed

INDICATOR	LEVEL OF ACHIEVEMENT (%)	EXPLANATORY NOTES
Overall Objective: Overall regional project To support the Governments of nine Pacific Small Islands States (Cook Islands, Kiribati, Marshall Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Tonga, and Tuvalu) in their efforts to tackle the adverse effects of climate change		
OO indicator 1: Ten new activities that address country requests for climate change adaptation undertaken in an effective and sustainable manner.	100%	Several new activities were implemented in each of the nine target countries, as well as several activities as the regional level.
OO indicator 2: Capacity of a minimum of 40 national sector specialists for integrating climate change adaptation into at least three sectors built from minimal level to moderate level.	100%	Several capacity building workshops (log frame analysis, tablet training, planning, etc.) were held in each of the 9 countries, with well over 10 participants for each. Even though this indicator has not been assessed in each country, it can be stated from the analysis of the SO that this number has been exceeded.
Specific Objective(s): Overall regional project To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level.		
SO indicator 1: At least one new formal mechanism in SPC to coordinate four different donors/partners engaged in delivery of climate change resilience by 09/2015.	100%	The relationship between SPC and the Secretariat of the Pacific Environment Programme, based in Samoa, was strengthened through the incorporation into the project of a SPREP-based adviser (from the Final Report).
SO indicator 2: National climate change policy that integrates disaster risk management and includes a budgeted action plan prepared in a minimum of two countries by 12/2015.	100%	National policies were developed in 4 countries: Nauru, Palau, Kiribati and Tonga (from the Final Report)
Overall and Specific Objective(s) of the national CC adaptation projects for the six countries that were consulted during the field phase:		
Cook Islands: Overall Objective: To build resilience to climate change in the Cook Islands		
OO indicator 1: Climate change issues are included in at least four island community development plans by December 2014.	0%	This indicator had not been achieved by the stipulated time. The project final report states this was ' <i>mainly because of scheduling issues</i> '. It further details ' <i>The existing island development plans run from 2012–</i>

		2017, and their review will not start until 2016, thereby falling outside the project's timeframe. However, a firm foundation has been laid, through the collection and analysis of data on local changes to the environment and climate over the past 50 years, the resource assessment surveys, and the pearl management plan. This information is already being used in the design of project activities in the SRIC-CC project in the Northern Group'.
Specific Objective(s): To strengthen environmental monitoring and its relevance to the communities of the northern atolls		
SO indicator 1: At least one northern atoll community is engaged in environmental monitoring by December 2014.	100%	The Manihiki atoll community was engaged in monitoring of environmental parameters, especially related to water quality, in their lagoon by December 2014.
SO indicator 2: At least two communities in the northern atolls are publicly displaying the results of the environmental monitoring by June 2015.	100%	Results of environmental monitoring were publicly displayed in two communities (located on separate islets) in Manihiki by June 2015.
SO indicator 3: At least one school in the northern atolls is involved in monitoring water quality by June 2015.	100%	Two schools in Manihiki were involved in monitoring water quality by June 2015.
Micronesia:		
Overall Objective: To contribute to water security as a climate change adaptation strategy for FSM		
OO indicator 1: Document on lessons learnt in FSM outlying islands about sustainable use of quality water in the context of climate change.	100%	A 'national lessons learned' workshop on sustainable use of quality water in outlying islands of FSM was held in July 2015 and determined the model that was then adopted by other GCCA PSIS countries. This indicator was fully achieved.
OO indicator 2: Checklist for the planning of water infrastructure installation, monitoring and maintenance available by 09/2015.	30%	The Project's Final Report (October 2016) states that this was achieved, however the 2016 Final Evaluation report finds that a checklist for the regulatory requirements and site conditions for rainwaters harvesting systems (only) had been drafted. Nevertheless, it lacks details on monitoring and maintenance, and had not been completed nor finalized by the specified date. Considering that monitoring and maintenance are key aspects for sustainability, and that the checklist had not been finalized (and hence could not be formally endorsed

		and instituted – a process which commonly involves extensive stakeholder consultations), a score of 30% is considered appropriate.
Specific Objective(s): To contribute to increased access and sustainable use of quality water in the outlying islands of FSM states		
SO indicator 1: Demonstration model showing implementation of water security measures for climate change adaptation and disaster risk management in place in one outlying island by 06/2015.	100%	This was achieved - the demonstration model was in place in Yap Proper by 06/2015 and was still in operation in 03/2019.
SO indicator 2: 5% of Yap State population adopt a long term water conservation measure by 06/2015.	100%	<p><u>Various reports confirm that water collection and storage systems were already in use in several households prior to the project.</u></p> <p>Considering that the project has helped households to <u>improve or sustain</u> their long-term water conservation measures, the indicator would better reflect the objectives and targets of this project activity in FSM reformulated as: 'Percentage of the population of Yap State that has adopted long term water conservation measures increased by 5% by 06/2015', enabling 100% achievement of this indicator.</p>
Marshall Islands: Overall Objective: To improve resilience to coastal climate change impacts in RMI		
OO indicator 1: Use of integrated coastal management tools demonstrated as effective resilience building approach	100%	The OO indicator reflects the completion of an activity, and not an intended impact as a contribution to the overall objective. Considering however the OO, the project has made a considerable contribution to improve resilience to coastal climate change impacts in RMI. The OO is considered achieved.
Specific Objective(s): To increase capacity of RMI stakeholders to plan and implement effective coastal protection measures that reduce vulnerability to climate change		
SO indicator 1: Skills and capacity of MPW enhanced to implement coastal protection measures, especially in outer islands by 10/2015	100%	Considerable capacity of MPW to implement coastal protection measures was already there prior to the project, however the financial means and equipment provided by the project to local authorities for the construction works did enhance its capacity by 10/2015. SO1 is considered achieved.

Niue:

Overall Objective: To contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities

OO indicator 1: 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.	100%	The project-supported infrastructure and skills were locally available by that target date, and continue to be deployed for moulding rainwater tanks, septic tanks. The facility was used by a recent GIZ project to produce septic tanks for households, and it will again be used to supply rainwater storage tanks for the remainder of the population under the current GCCA+ SUPA project. The moulding facility has solar panels installed and has been strengthened and retrofitted but has not yet been assessed by building inspectors for Cyclone Rating. Materials and resources have been secured for some additional work on the roller doors and the rear ramp which will be done after the current (2020-2021) cyclone season.
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Specific Objective(s): To augment rainwater capture and storage in Niue

SO indicator 1: At least 60% of households have properly maintained and operational rainwater capture and storage systems by 06/2015.	60%	The target of 60% was not achieved, as stated by the interviewee, as a significant number of households (exact number could not be confirmed) were unable to timely make their financial contribution; and therefore, did not receive their water storage tanks and installation support by the target date. However, in the years after the stipulated date, the number of households with properly maintained and operational systems grew to exceed 60%.
SO indicator 2: 40% of inhabited households in Niue have made monetary contribution to installation of rainwater capture and storage systems by 12/2014	80%	<p>In view of the failure to achieve the SO1 target of 60% of households having properly maintained and operational rainwater capture and storage systems, and the information obtained during interviews and written comments during the 'field phase', a significant number of households were unable to timely make their financial contribution; and therefore did not receive their water storage tanks and installation support by the target date.</p> <p>The assessment takes into account the comment from the interviewee that a 'significant' number of households did not make their contribution in time, hence provides for an estimate of 80% achievement of the target. It is however noted that some 60-70% of households did eventually make their contributions –</p>

		thus well exceeding the targets – but this was well after the target date of 12/2014.
Palau: Overall Objective: To increase the resilience of the water sector to climate change impacts in Palau		
OO indicator 1: Climate variability and change incorporated into PPUC long term planning and operations by 06/2015.	100%	The Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development and the respective Action Plan that arose from it guided PPUC in incorporating the relevant aspects in their long-term planning and operations by 06/2015. This was fully achieved.
Specific Objective(s): To help ensure water quality and supply meets the needs of the people in the outlying island states of Palau		
SO indicator 1: More than 20% of the population of two of the outlying states of Palau have improved water storage capacity by 06/2015.	100%	The project supported the improvement of water supply and storage systems in six outlying states that have a combined population of 722 people ¹⁵ . Considering these extremely small populations, the project targeted to improve water storage capacity for at least 145 people, or an estimated 30-odd households. Apportioned over the respective outlying islands, this indicator sought to provide water supply and storage systems to 8 inhabitants of Sonsorol; 5 of Hatohebei; 97 of Peleliu; 24 of Angaur, and 11 of Kayangel. With the project adding a capacity of 32,550 gallons this project certainly achieved this indicator by 06/2015.
SO indicator 2: Community water catchments area increased by 10% in one outlying island state by 06/2015.	NA	No information on baseline data reflecting water catchment surface area at the start of the project is provided, which makes it impossible to determine if and to what extent the project has led to any improvements. The 2016 Project's Final Report and the 2016 Final Evaluation report state that these results were achieved, but do not provide any details on how this conclusion was reached, nor information on the implementation of baseline studies. In the absence of such data, no conclusion can be drawn from the information that was made available to the impact assessment exercise.

¹⁵ Source: Wikipedia data of 2015: Sonsorol (40 inhabitants), Hatohebei (which comprises of the islands of Tobi and Helen's Reef – 25 inhabitants), Peleliu (484 inhabitants), Angaur (119 inhabitants) and Kayangel (54 inhabitants)

SO indicator 3: 10% of population adopt a long term water conservation measure by 09/2015.	100%	This indicator would have required a baseline of the status of the population's adoption of such measures at the start of the project. In any case, a target of 10% of population seems easily achievable, particularly if the indicator is assumed to measure the project's impact on the population of the outlying islands only. Moreover, the outlying islands has always depended on the inhabitants' concerted actions to conserve and safeguard water supplies, hence a target of 10% of the population adopting such measures may have been achieved prior to the project. In assessing this score, the indicator's formulation is considered literally.
Tuvalu: Overall Objective: To increase resilience to climate change impacts in Tuvalu		
SO indicator 3: 10% of population adopt a long term water conservation measure by 09/2015.	100%	This indicator would have required a baseline of the status of the population's adoption of such measures at the start of the project. In any case, a target of 10% of population seems easily achievable, particularly if the indicator is assumed to measure the project's impact on the population of the outlying islands only. Moreover, the outlying islands has always depended on the inhabitants' concerted actions to conserve and safeguard water supplies, hence a target of 10% of the population adopting such measures may have been achieved prior to the project. In assessing this score, the indicator's formulation is considered literally.
Specific Objective(s): To enhance food security in Tuvalu		
SO indicator 1: At least two demonstration sites operational in 2 different islands by 12/2015.	100%	Three demonstration sites were operational in 2 different islands (2 sites in Funafuti; 1 in Nukufetau) by 12/2015.
SO indicator 2: Operation and maintenance of demonstration sites are incorporated into the 2015/2016 work plan for the Department of Agriculture by 12/2015.	100%	DoA had included maintenance and operational funds for the demonstration sites in its 2015/2016 workplan.

2.5. Achievement of the overall and specific objectives (direct impact, exceeding the scope of the indicators)

Note: only for the six countries that were consulted during the field phase

OVERALL OBJECTIVE: OVERALL REGIONAL PROJECT

To support the Governments of nine Pacific Small Islands States (Cook Islands, Kiribati, Marshall Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Tonga, and Tuvalu) in their efforts to tackle the adverse effects of climate change

Achievement: “2” (between 50% and 75%)

EXPLANATORY NOTE:

Project activities in the nine countries have helped build national capacity among key government agencies, which contributed to propel, and maintain and address Climate Change issues as a key national policy focus in each of the nine Pacific Island Countries that participated in this project. Several countries (Palau, Tuvalu) have confirmed that this has contributed to changes in national planning of development plans and budgets to help them better mitigate, adapt and take account of CC impacts.

In most of the states interviewed during the ‘Field Phase’ (Palau, RMI, FSM, Tuvalu and Cook Islands) the impact from material supplies provided through the pilot initiatives has been quite small. Also, the limited duration in each country of the project activities in the field may affect the overall degree of sustainability of impacts as efforts to ensure maintenance of project outputs may not have been adequate.

It is considered that all nine countries have serious issues concerning developing, and certainly maintaining, adequate national technical skills and levels of institutional and financial resources that would enable long term sustainability of the outputs, and the impacts. In other words: all countries will to a considerable degree remain dependent on development assistance support not only to maintain many of the services provided by the project outputs, but also in wider rolling out over the country of the pilot initiatives started by the project. The pilot initiatives may therefore have demonstrated their suitability to each individual country, however it's wider application in other communities will likely be affected by the above constraints.

SPECIFIC OBJECTIVE(S): OVERALL REGIONAL PROJECT

To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level.

Achievement: “2” (between 50% and 75%)

EXPLANATORY NOTE:

The project has helped promote the development of policies to address and mitigate CC, that led to the incorporation of appropriate planning mechanisms at national and agencies' levels. In Palau the impact has been one of the most significant as the project helped induce the government to reorganize existing and set up new key agencies to ensure their alignment and improve CC planning and include specific funding in its annual budgets to support them in implementing these CC policies and action plans.

The long term sustainability of these changes remains somewhat unclear, as tackling CC in each of the nine countries requires significant resources in countries where financial, technical, and material resources (are limited). Support to the prioritisation of climate action is therefore crucial in the nine countries to make the most efficient and effective use of available resources.

Capacity building initiatives have been implemented in all nine countries, and these have further strengthened planning and management capacity in national institutions, as well as local capacity in helping sustain the benefits from the physical improvements delivered under the project. The sharing of information on the foci and approaches to implement country specific activities have further widened the knowledge and experiences of key government institutions in the participating countries.

At the regional level, the project has helped strengthen and improve collaboration between SPC, SPREP and PIFS – major intergovernmental institutions that are mandated to address regional and international CC policies and regional mitigation and adaptation efforts – to improve coordination and provide a common voice in international fora and conventions on CC. This is beneficial to the whole region, including the larger Pacific island countries that did not directly participate in this project, as well as countries around the Pacific rim and beyond that have interests in a better coordinated agenda for climate change matters for the Pacific and its island states.

OVERALL AND SPECIFIC OBJECTIVE(S) FOR THE 9 NATIONAL CC ADAPTATION PROJECTS:

As stated in 3.3, the field assessment of impact of the project for the national projects was based on the lists of anticipated potential impacts mentioned in the project final report, that were expected to have been generated over the period 2016-2020 as a direct result from the project. This approach in assessing the impact as stated in the Overall Objectives and Specific Objectives in each of the participating countries' specific logical frameworks was deemed necessary as almost all of the indicators are output-based, and in some cases outcome-based, but certainly not impact-based as they should have been, being selected as indicators at the objective levels. This reflects a major flaw in the project's design.

However, the anticipated potential impacts mentioned above are often not adequate to reflect on the anticipated and wider impacts of the project as formulated in the OOs and the SOs stated in each country's logical frameworks. Where this was deemed to be the case, the assessment reflected on the overall information gathered from the interviews during the field phase to determine an appropriate score, and which may not be fully reflective of the range of individual scores given to each anticipated potential impact mentioned in the project's final report.

The detailed assessments for each of the six countries consulted during the 'field' phase are reflected in Annex 2

Cook Islands:

OVERALL OBJECTIVE: To build resilience to climate change in the Cook Islands

Achievement OO: '3'

Whereas this Objective if taken literally could be considered as fully achieved (and thus eligible for a '1'score, there are several considerations that do not warrant this score and suggest the award of a '3' score

Firstly, the collapse of the pearl farming industry has minimized any of the intended impacts in improving the industry's resilience to CC; with the viability and revival of the industry now in doubt the economic impact has not only been island-wide, but as well country-wide. Water quality information provided by the project-refurbished buoy has not been forthcoming for several years now; If such information would be important for the pearl industry one could think that the buoy would have been quickly replaced shortly after it became defunct (which happened already a few months after its installation). The collapse affected the relevance of the buoy; and similarly of the viability of the pearl research farm.

In regard to Cook Islands accessing funds directly for CC adaptation measures, the country succeeded in securing USD 12m from ADB (for a project on renewable energy). Although the GCCA project contributed, it seems that UNDP has provided a major boost to this achievement, which gives an impression of diluting the project's efforts. Moreover, it is somewhat remarkable that Cook Islands has not accessed any funds from GCCA, which would seem to be one of the likely opportunities that could arise from this project

SPECIFIC OBJECTIVE(S): To strengthen environmental monitoring and its relevance to the communities of the northern atolls

Achievement SO: '3'

The population of the Cook Islands is generally well informed about CC issues thanks to an active NGO community that strongly promotes environmental protection, including in the media .It is realistic to assume that the project has contributed to further emphasizing CC information and mitigation and adaptation issues, even though a wide range of donor agencies and NGOs are implementing relatively similar initiatives. As a specific example, testing of water samples from all islands is done on the main island of Rarotonga, but the project-supported effort to conduct such tests by the laboratory on Manihiki has not provided sustainable results. Basic water quality monitoring by schools on Manihiki that was promoted by the project, has continued however, and provides an important contribution to educating children and youth.

Additional information related to the lists of anticipated potential impacts mentioned in the project final report, that were expected to have been generated over the period 2016-2020:

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
Pearls farms are better managed in Manihiki, and pearl production and quality for individual farmers is improved	4	Since the project's conclusion, the pearl industry in Manihiki has collapsed due to international (worldwide oversupply causing a world market slump) and national factors (overproduction; and industry governance issues). These issues continue to affect the recovery of the industry, both internationally as well as nationally. Any positive effects instituted as a result of the project are at risk of becoming lost – if not already – as a consequence of this crisis.

Pearl research farm in Manihiki is a viable public/private enterprise	4	The viability of the pearl research farm depends on the support of both the private sector and the government. Following the decline of the pearl industry for reasons stated under 1., it is unlikely that under the prevailing conditions the research farm is not a viable public/private enterprise
Senior citizens in the outer islands are more informed about climate change and able to contribute proactively to CC adaptation measures on their islands	1	The impact of training for senior citizens in the outer islands in using tablets to access and share information has certainly created a lasting impact. Many are now on social media and actively share information.
Cook Islands can directly access funds for CC adaptation measures from the Adaptation Fund (and potentially the Green Climate Fund).	3	Cook Islands has been able to directly access funds from the Adaptation Fund as well as the Green Climate Fund. Funding of USD 12m has also been secured from ADB for a project on renewable energy. Although the GCCA project has helped with this, the UNDP project provided the larger contribution to this achievement. In determining the assessment score for wider impact as a direct result of the GCCA project, due consideration has been given to the larger role the UNDP project played in supporting CI to access these funds, and the support from external as well as Fund staff in identifying and developing proposals.
<p>Micronesia:</p> <p>OVERALL OBJECTIVE: To contribute to water security as a climate change adaptation strategy for FSM</p> <p>Achievement OO: ‘2’</p> <p>The project is considered to have made some contribution to the Overall Objective, and has demonstrated the effectiveness and impact of rainwater collection and safe storage in communities in small outlying islands where water scarcity is likely to occur from time to time. However, the extent to which the FSM and State Governments have accepted their responsibilities in rolling out such initiatives on other islands could not be assessed. It is expected however that the high costs of implementing such projects in aspects of procurement, logistics and maintenance, are a constraining factor that affects the widespread implementation, and therefore increases the dependency on development partners’ support.</p> <p>SPECIFIC OBJECTIVE(S): To contribute to increased access and sustainable use of quality water in the outlying islands of FSM states</p> <p>Achievement SO: “3”</p>		

Noting here that although the Indicators have been assessed favourably, they poorly reflect the project's SO. In determining the score, it is considered that the project focused on improving access to good quality water on Fais island only; although a community on a nearby island greatly benefited from the sharing of water by Fais island's households that they had been able to collect and store as a direct result of the project. Notwithstanding this impact, it does not appear justified to consider that the SO's impact has been fully achieved as only 0.27% (294 people) of the FSM population directly benefited from the Euro 0.5m pilot project: Instead, it appears to have been a very costly exercise.

Additional information related to the lists of anticipated potential impacts mentioned in the project final report, that were expected to have been generated over the period 2016-2020:

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
Communities in Fais Island are better able to effectively cope with droughts and extreme events, without help from Yap State	1	The project supported the installation of rainwater collection tanks with households on Fais Island, and training in the application of flush converters and regular maintenance of the systems. This has certainly enabled communities to better cope with droughts without significant help from Yap State services. This was clearly demonstrated during typhoon Wutip in February 2019 when beneficiary households had sufficient quantities of good quality water, and even provided water to communities on nearby islets.
World Water Day continues to be a major event in Yap State	1	This special day continues to be used each year to promote water collection and storage, and conservation among Yap communities
Hydrological assessment of the outer islands of Yap State effectively used to plan and implement improved water infrastructure measures (an example indicator would be the uptake of the first flush diverter)	1	Hydrogeological assessments of water resources was completed in 5 outer islands, as per the project's Final Report (October 2016). This could not be verified by the interviewee during the 'field' phase.
State water sector plans prepared and implemented	NA	Pohnpei State has a Water Sector Plan, but the interviewee could not confirm if other states had such plans.

Marshall Islands:

OVERALL OBJECTIVE: To improve resilience to coastal climate change impacts in RMI

Assessment: '4'

The construction of only one of the two required causeways prevents the Woja communities from gaining the anticipated benefits as well as wider advantages, as their access to services remains severely constrained as they continue to require boats to cross the 2nd area at high tide.

SPECIFIC OBJECTIVE(S): To increase capacity of RMI stakeholders to plan and implement effective coastal protection measures that reduce vulnerability to climate change

Assessment '2'

The interviewee confirmed that a substantial skillset for such construction projects was already present within the Ministry of Public Works, to which the project provided additional support through the services of a dedicated TA. The project's contribution of equipment further helped improve and sustain capacity of RMI stakeholders to plan and implement effective coastal protection measures. However this increased capacity in HR does not seem to have been sustained by MPW after the project's conclusion; if it had, a score of '4' would have been warranted.

Additional information related to the lists of anticipated potential impacts mentioned in the project final report, that were expected to have been generated over the period 2016-2020:

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
Communities in Woja continue to have safe access to community facilities regardless of tide levels	3	This has not been achieved as intended. The Marshall Islands partners including the Woja communities had actually requested for the construction of two causeways that were required to ensure access to essential services on Ailinglaplap Atoll. The project only constructed the causeway that had the lowest cost estimate; hence, the 2 nd causeway was not constructed. Although MPW noted that without this 2 nd causeway the project would not be beneficial, the Woja communities are happy with the delivery of the first causeway, even though they will still need to use boats at high tides to access the services, although these boats now have a shorter distance to cross.
Communities in Woja maintain the coastal planting near the causeway so as to build ecosystem resilience	4	The Woja community participated in 4 separate trainings on coastal planting during 2015. It appears that the coastal planting near the causeway was discontinued following the completion of the project. No details on the status of the vegetation planted as a component of the

		<p>project, nor on the reasons for this discontinuation were obtained. Noting the Country Report for the Marshall Islands that is included in the Final Report Vol 2 – Country Reports, the chapter's title page (p. 45) shows a photograph presumable of part of the causeway that was constructed with support from the GCCA project. This photo however does not appear to show any clear signs of coastal plantings as a result of human activities (and thereby, the project).</p> <p>In making the assessment, it is considered that little coastal planting took place, and even less to maintain the planted vegetation, to help protect the causeway from tidal and wave action.</p>
MPW plans (and possibly implements) additional large scale coastal protection projects in the outlying atolls using a similar approach to the one adopted in Woja Island	4	<p>MPW is responsible for planning of and providing oversight to – and at times implement - large scale coastal protection projects in the country. MPW already had much of the required capacity to plan such projects; as for its implementation the project provided a TA as well as funding and equipment to MPW that helped prioritise the Woja causeway construction. Whilst there are plans for the construction of the 2nd causeway on Woja, the process from planning to implementation and completion of similar causeway projects elsewhere requires a firm budget allocation of a substantial amount of funding, as well as qualified and skilled TA, both are difficult to secure in RMI. MPW staff maintains airstrips on an ongoing basis, and currently implements the Ebeye island seawall project.</p> <p>As for the incorporation of coastal planting into plans for similar construction projects to build and improve coastal ecosystem resilience, no information was obtained.</p> <p>In making the assessment, the lack of information on the incorporation of coastal planting in the planning and design of large scale coastal protection projects has been the determining factor.</p>
The Marshallese Climate Change Glossary becomes a recognized tool for use in primary and secondary	1	<p>The Glossary was developed in consultation with a wide range of Marshallese stakeholders, and completed in 2016. Although its use as a</p>

schools in the Marshall Islands, and as a result more young people and community members have an in-depth understanding of CC and what it means for the Marshall Islands

recognised tool in primary and secondary schools could not be confirmed by the interviewee (who is an employee with the Department of Public Works), it is reasonable to assume that the Glossary is used for its intended purposes.

Niue:

OVERALL OBJECTIVE: To contribute to building climate change resilience and reducing vulnerability in the water sector for Niue communities

Assessment: '1'

Climate change resilience has improved and water vulnerability among Niuean households has been significantly reduced as a result of the project's efforts in supporting rainwater collection and storage as an alternative source of quality water. A government-owned tank moulding enterprise continues to operate and has increased its products to include septic tanks. A dedicated and adequately staffed government Division for Climate Change has been set up and is functioning well.

SPECIFIC OBJECTIVE(S): To augment rainwater capture and storage in Niue

Assessment '1'

The number of households that have taken advantage from the project are benefiting from the increased availability of water of good quality that helps them overcome periods of water disruption without any major issues.

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
The tank moulding facility is operated in an efficient and business-like manner either by the Government of Niue or the private sector	1	The facility remains owned and operated by the Government of Niue, and does so as efficiently and effectively under the circumstances that define such operations in a small island state. The facility supplies rainwater storage tanks and septic tanks to projects funded by GIZ and the current GCCA+SUPA.
The groundwater system is better maintained, with regular shut-down periods for maintenance since households now have an alternative supply of water	2	The groundwater system is still experiencing problems, in particular related to equipment failures and unscheduled power outages, which affect the scheduling of water system shutdowns. Hence, works are mostly directed at addressing any malfunctioning of the water supply system, and not for planned and purposeful maintenance that would help prevent many of the breakdowns. However, the rainwater tanks now provide the

		<p>beneficiaries with an alternative source of water to give immediate relief during the water shutdowns, and has contributed to a significant reduction in the number of complaints. Also, it is commonly observed that during such times those households that have rainwater tanks often share their water with neighbours and other in the community who don't have rainwater storage.</p> <p>A recent inspection survey showed that approximately 90% of the rainwater storage and supply systems installed by the project are in good condition. Those 10% that are defunct are mainly so as a result of poor maintenance (mostly not cleaning the filters) by the households; some were damaged when the house burnt down; and some are not in use as the owners have passed away. Households have been advised by department staff to maintain their systems. Since the project's conclusion the number of connections increased further, with the Department providing the components to the plumbers who made arrangements with the households. The 100 tanks that were excess production during the project were made available for private purchase by a.o. business operators and for newly constructed homes.</p>
Householders are better prepared for future cyclones when electricity supplies are disrupted	1	<p>This Indicator does not infer a relationship between cyclones and water supply. However the rainwater stored in tanks owned by households does enhance the availability of a reliable source of good quality drinking water (which may require boiling before consumption). As it is, Niue has not been affected by a cyclone since the end of the project, hence this achievement can only be assumed.</p>
A government division responsible for climate change is in place and adequately staffed.	1	<p>A Division has been set up and is headed by a Director with 2 staff. Simultaneous development of an institutional framework for the Division was not presented to Cabinet due to ongoing Government restructuring processes. The Framework will now need revision and updating to reflect the current Government systems.</p>
Palau:		

OVERALL OBJECTIVE: To increase the resilience of the water sector to climate change impacts in Palau

Assessment '1'

Improvement of the resilience of the water sector features highly among the various Palau government institutions that are responsible for addressing climate change impacts. The project has made a significant contribution to raising awareness of CC and the need for adaptation and mitigation measures among government and its institutions, and has been a catalyst in improving the state's organizational governance and implementation structures to plan, coordinate and implement these. As such, the project's impact has been much wider than 'just' the water sector stated in the OO.

SPECIFIC OBJECTIVE(S): To help ensure water quality and supply meets the needs of the people in the outlying island states of Palau

Assessment: '3'

The specific formulation of the SO intends to meet the needs of people in the outlying states, and in this it has only partially succeeded. Whereas it has contributed to improving water quality and supply on several islands, in particular the low lying ones, it has made these improvements for only 711 people (or 4.6%) of the population of Palau and at a high cost. In this the project has not demonstrated that the equipment and infrastructure provided by the project is affordable and readily rolled out to other remote islands, and that the necessary maintenance and water testing services that require more than simple tap-fixing skills and tank cleaning operations, can be sustained by the state's agencies whose service those remote communities are highly dependent on.

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
Prioritised sector action plans (included in the Palau Climate Change Policy) and application of the use of the LFA in project proposals, enable the preparation of more country-led proposals to access new climate funding	1	The Action Plan that was prepared as part of the Palau Climate Change Policy has helped in the restructuring of the government agencies tasked to address specific aspects of CC; this has markedly improved the efficiency of these agencies. This has also supported the annual allocation by Government of specific budgets for these agencies to work on CC initiatives, strengthening their long term sustainability. The Green Climate Fund recently approved a grant that will support the review of the policy and an update of the Action Plan.
Strengthened project procurement, financial reporting and management,	2	The restructuring of Government agencies and their mandates, has provided the institutions dealing with addressing CC with much clearer mandates. The CC Policy and Action Plan

particularly at PPUC, leading to increased funding.		identifies specific roles and responsibilities to each agency, and has led to a much stronger inter-agency collaboration that has much improved the effectiveness of each agency as well as the overall implementation of the CC Policy and Action Plan. No information could be obtained from PPUC.
Lessons learned through the NDBP water conservations incentives program provide guidance for the development of further public-private partnerships	NA	No information was obtained that demonstrates a wider impact.
Communities in Angaur, Kayangel, Peleliu, Sonsorol, Hatohobei and Palau are better able to effectively cope with droughts and extreme events	1	The delivery of new water storage and supply systems, the efforts in instituting regular leak detection checks, and the improved maintenance of existing water collection, storage and supply systems by the project have certainly enhanced the capabilities and capacities of the outer island communities to better cope with droughts and extreme events.
Hydrogeological assessment implemented and effectively used to advise on the prevention of over-extraction or contamination of groundwater	1	The scope of the hydrogeological assessments in the outlying islands was significantly reduced early on in the project due to their relatively high costs; and suggested for funding through another project. This activity was therefore not implemented as initially planned.
Progressive water operators' certification and application of standard operating procedures for maintenance of systems, leads to improved water supply	NA	The project assisted with the formal training in water operations certification of four water technicians. In addition, 24 men received certificates in maintenance of a wide range of water supply systems. However, no information was obtained to confirm that PPUC has continued the certification programme as a standard for all water operators.
<p>Tuvalu:</p> <p>OVERALL OBJECTIVE: To increase resilience to climate change impacts in Tuvalu</p> <p>Assessment: '2'</p>		

The project's promotion of agroforestry techniques, in combination with the introduction of a range of improved and widened range of crops has demonstrated that there are considerable benefits for farmers who adopt them. In this aspect, it helps increase the resilience of especially people residing on the outer islands, where there is less pressure on land and where agriculture is the mainstay of their, mostly subsistence livelihoods.

Specific Objective(s): To enhance food security in Tuvalu

Assessment: '2'

Subsistence and some semi-subsistence farming practices on small family plots prevail in Funafuti and the outer islands. The project's approach to promote agroforestry involved the introduction of a wider range of better adapted, higher yielding crop varieties that are more resilient to changing environmental conditions, and thereby can contribute significantly to enhancing food security for semi-subsistence and subsistence small scale farmers in the outer islands. However, these crops also provide more opportunities for these farmers to improve their production in volume and quality, and ship their produce to Funafuti, home to Tuvalu's largest population by far, where it will fetch a higher price. To do so however, the critical issue of a regular, reliable and affordable shipping service between the outer islands and Funafuti must be resolved, as this continues to be one of the major constraints to the widening the project benefits, and in particular its impact and sustainability.

INDICATOR	ASSESSMENT SCORE OF WIDER IMPACT	EXPLANATORY NOTES
Intensive agroforestry farming methods result in more sustainable farming (in terms of maintaining soil quality), making use of underutilized land, and increased variety of crops planted	3	The impact in this area has been mixed. Agroforestry farming methods are widely known to improve the sustainability of farming, through increasing soil organic matter, water retention, and improving soil fertility, and this certainly applies to an atoll environment like that of Tuvalu. Moreover, the adoption of agroforestry practices focuses on providing the appropriate spacing between tree and perennial crops to seek an optimal range of crop harvests. These improvements demonstrate themselves earlier with perennial crops, but for tree crops may take several years before they become obvious. The coconut trees in the demonstration plots did show remarkable yield increases following the thinning of less productive trees, and these gains are highly sustainable. However, there is no link between agroforestry farming methods and 'making use of underutilized land'; in Tuvalu's

		<p>case this must be seen in two different contexts – on Funafuti where land is scarce and increasingly converted into residential areas, and thus less land is available for farming; and those on Nukufetau where there is room for such practices but where opportunities to ship agricultural produce to Funafuti are limited and unreliable, which affects the motivation of farmers to grow more crops. The interviewee reported that the project has helped increase the planting of a wider variety of crops throughout the islands, including sweet potato, banana, breadfruit, pumpkin, corn, cabbage, tomato.</p> <p>In assessing the impact attributed to this project, it should be considered that there have been a number of earlier donor-supported attempts (incl. several by SPC) that involved similar approaches (homegardening, women's groups, new varieties, etc.) over the previous decades, which dilutes the effects of this project. Similarly, the Taiwan Technical Mission on Funafuti has for the past decade been providing seedlings and other planting materials to Tuvaluan farmers.</p>
For specific farmers in Funafuti and for the farmers' association on Nukufetau, incomes are increased through selling crops from newly intensive farming practices	3	<p>Without quantifying the number of 'specific farmers', it is easily concluded that the project has had some positive impacts on some farmers. The Department of Agriculture working with the Funafuti Island Council has been organizing market days twice a week at the Council's premises; however no data on the number of farmers who supply produce, nor were the volume and value of sales obtained. It is also unclear as to the number of farmers who apply the 'newly intensive farming practices' and whose incomes are increased as a result of that. It is also found that the older generations have a strong preference for local staples and food crops, whereas the younger generations seem to have a strong preference for imported rice.</p> <p>The lack of up to date and accurate data complicated the assessment of the wider impact of the project. In determining the score the above factors are considered, resulting in an estimate</p>

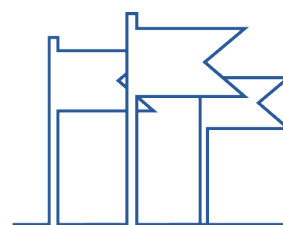
		based on information from the interview and past personal experiences in Tuvalu.
The Tuvalu Agriculture Strategic Marketing Plan results in local and international markets for specific crops	3	<p>All of the DoA multi-annual Strategic Plans from the past few decades have included the promotion of local markets for selling island produce grown on Funafuti and the outer islands, and past efforts have included the Funafuti Island Council to support market infrastructure. Whereas the intentions have largely been there for support, there have been factors that have largely prevented the development of such local markets. The most restrictive factor being the unreliability and infrequency of shipping between the islands and Funafuti, which prevents outer island farmers from delivering a regular supply of produce to the larger Funafuti market. The project however seems to have provided new impetus to DoA and the Funafuti Island Council in developing a Funafuti marketplace for local produce, which to an extent seems to have sustained itself.</p> <p>Similarly, the DoA plans over the past years have also provided for the development of export markets, however have always failed. For any export initiative to be successful and sustainable, it must address biosecurity requirements from the importing countries (which inevitably require extensive, long term research efforts that require dedicated technology and skills – which generally are not available in Tuvalu), and, following that, a serious and concerted effort to create a sufficiently large farmer base that is trained and educated in crop production and quality standards and market requirements, and can deliver adequate volumes of produce on a regular basis. Critically, shipping and export storage facilities must be instituted and maintained. So far, addressing and instituting all these aspects has not been attempted; and even then, synchronising these for products like breadfruit and banana seems a farfetched task.</p> <p>In assessing the score, consideration has been given to the continued functionality of the Funafuti market; however the ongoing intentions to develop an export market appear highly unrealistic, and have thus far failed.</p>

Successful climate-ready crop varieties are planted around Tuvalu, increasing resilience	3	<p>The project has helped DoA and island councils in promoting a wider range of crop varieties, including those that are better suited for local conditions. The promotion of nurseries for seedling production and propagation have certainly helped.</p> <p>The 2 demonstration sites in Funafuti were in use and maintained by DoA after the project's conclusion. Maintenance and operations costs for the southern site were provided for in the annual DoA budget until 2019, but it is uncertain if they were included in the 2020 budget. The landowner has harvested and sold breadfruit from the demo plot, which is still in use. The site at the 'eastern end' has reverted back to the land owners, and GoT does not maintain this site anymore: the expectation is that the landowners maintain the site, however the fence has come down and wild pigs have destroyed the vegetable plots; most tree crops should still be there though. The 3rd site is located at Nukufetau, and is maintained by the local island council. It supplies planting materials (banana, breadfruit) to local farmers at no fee.</p> <p>Two nurseries remain in operation, and are used for training and awareness/extension activities. These distribute seedlings of cabbage, tomato etc. to farmers for free; however before they are supplied the DoA extension staff conducts an inspection of the farm.</p>
Home gardens on all islands result in more fruits and vegetables being available	3	<p>Home gardening have been promoted by a wide range of donor, government, and NGO-initiative over the past decades in the agriculture and health sectors. Home gardening initiatives (including women's groups competitions) do provide a stimulus for households to grow foods, however the plethora of repetitive initiatives indicate that the effects and impacts are usually short lived.</p> <p>The correctness of the stated anticipated impact is acknowledged, however the extent to which the project made a direct contribution to it is at best</p>

		uncertain, considering the impact of the many past initiatives.
More proposals are funded as a result of the proposal preparation trainings	NA	No data were obtained in regards to this anticipated impact

2.6. Signs of indirect impact

Very few countries reported any indirect or unforeseen positive or negative impacts of the project on the target beneficiaries, non-target groups or the environment during the 'field' phase. Whilst this is considered as positive (any serious negative impacts would have been observed and reported on), one must also consider that in some countries (eg. Palau) the target islands are quite remote and difficult to communicate with, and funds for post-project inspection visits are not always available. Also, many national staff who were involved in the project have since moved on to other positions, and tasks relating to follow up and monitoring have been transferred to specific government institutions (eg. Public works), making it more difficult to remain updated and provide accurate and up-to-date information.



Cook Islands:

The training to familiarize senior citizens in the outer islands with using tablet and internet use skills usage provided by the project gradually helped them using their skills to access social media. Although the uptake of tablets was very limited, the increased use of smart phones has helped. This has led to a greater access to information, and boosted awareness about island, national and international issues. Without having interviewed any of the target population, it is readily assumed that this has, and continues to have, raised awareness about environmental issues to a great extent.

Micronesia:

No specific issues concerning indirect positive or negative impacts of the project were raised by the interviewee

Marshall Islands:

No specific issues concerning indirect positive or negative impacts of the project were raised by the interviewee, except for the comments that the inhabitants of Wotje are still unable to benefit from the causeway as the necessary 2nd causeway remains yet to be constructed.

Niue:

No specific issues concerning indirect positive or negative impacts of the project were raised by the interviewee.

Palau:

The GCCA project helped government realise the need to address climate change at the national level and institute a process of reorganising various institutions and redefining their mandates that have much helped improve inter-agency coordination and overall efficiency and effectiveness in implementing the CC Action Plan.

Tuvalu:

No specific issues concerning indirect positive or negative impacts of the project were raised by the interviewees

2.7. Conclusions on direct and indirect impact generated by the project and discussion on factors for success and failure

Under difficult conditions mentioned above in 2.4 section¹⁶, the project generated an overall positive impact in all countries. No significant negative impacts – foreseen nor unforeseen – were mentioned by persons who had been involved in the project during any of the ‘field’ interviews.

Data on the effectiveness of the project’s CC awareness raising initiatives were not sufficiently available. Although the project would certainly have made a considerable contribution, the plethora of international organisations working in the region to support CC preparedness, resilience and mitigation, and the large volume of information provided nowadays through social media and news organisations, it would in any case be difficult to determine the specific contribution the project has made.

However, one must consider the overall economy of this specific project which aimed to support communities on remote islands with a budget allocation of Euro 500,000 for infrastructure in each country. With the exception of the ‘single island’ countries of Nauru and Niue, a considerable component of physical infrastructure provided by the project went to outer islands in Cook Islands, FSM, Marshall Islands, Palau, Tuvalu. And although there is no doubt that the infrastructure is much welcome and even needed there, service delivery to these islands is extremely costly, and often irregular and unreliable; in addition many have very small populations, which prevents the project from attaining a wide impact and a high cost-benefit ratio.

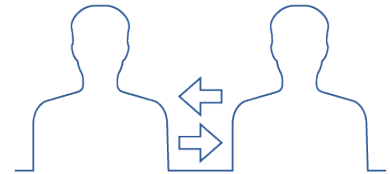
Opting to provide water storage and supply infrastructure to remote island communities is a much welcomed and useful decision that provides highly significant benefits. However, time and again these systems break down at some time earlier or later, often due to lack of maintenance but also from damage caused by natural disasters, accidental damage arising from household activities, and lack of funds or access to spare parts. Rainwater collection systems with ‘first flush diverters’ require household members to be alert when rain starts, and readjust the diverter after the first flush has been diverted. This requires an appreciation of the usefulness of the diverter, and a continued commitment to adjust and again re-adjust the diverter after the rain has stopped. This basic requirement is easily – and at times conveniently – underestimated and at times overlooked by project implementing partners, as beneficiaries are keen to display their interest in receiving the project outputs.

Many of the outer islands have seen steady but significant drops in their populations, indicating a move by young people away to the main islands or beyond that leads to a reducing population of increased age, to a stage where the sustainability as well as viability of such communities become doubtful. This does undermine

¹⁶ The project targeted remote islands difficult to access due to lack of regular transportation services that are costly and time-restricted, different time zones and unreliable access to the internet.

the reasons for selecting remote outer island for project support above other, often larger communities in peri-urban areas where needs may be as, or likely even more severe, and may be addressed at a much lower cost.

Encouraging national and local institutions to deliver support and maintenance services to these islands is also illusive, even though the mandates of these institutions require that they do so. The fact that these services are often of low quality and delivered irregularly and infrequently, and certainly not on a 'cost recovery' basis, points at the institutions' lack of adequate funding, technical, material, human and/or transport resources to deliver and maintain these services under reasonable quality standards.



MoUs and holding workshops and meetings with these institutions will not help the project achieve any sustainable and long lasting outcomes in improved service delivery if these issues are not addressed. And this often means that the country or state will have to allocate more of its already scarce resources to improve services to the outer island communities – whilst it often already lacks the means to adequately service the considerably larger communities on the main islands. As such it may well be considered a negative impact that in some cases the project has contributed to an increased dependence in the outer island communities on the state's already stressed service delivery infrastructure.

A much wider impact, and a much better cost-effectiveness ratio could have been obtained if the project had considered to supply urban or peri-urban communities with water storage and supply facilities. In many islands, these communities continue to lack adequate water supply systems. This would have enabled a much larger number of people and households to benefit.

Although there is some variety in the support provided by the project to each of the nine countries, a majority had opted for improving water storage and supply infrastructure as the means to help address and mitigate impacts of CC.

A major issue confronting this impact and sustainability assessment has been the quality – or lack thereof – of many indicators that should describe measurable targets for the OO, the Specific Objectives, and the Results/Outcomes at the level of the overall project, as well as the national level of each of the nine participating countries. Although it seems that the project did make an effort to detail the indicators, many remained poorly defined and/or lacking the appropriate targets. It seems that in many cases no baseline data were provided, nor any studies implemented to determine these. It is essential that these are assessed and delivered at the start of the project. Several examples of poor indicators have been indicated in this report, however there are many more indicators that should receive similar criticism. This has frustrated the execution of a sound assessment of the impact and the sustainability.

The findings reflect information obtained during the virtual meetings and interviews in which the GCCA project and the wider environment within it was implemented, were discussed.

V. Analysis of Sustainability Levels¹⁷

3.1 List of services and systems that were established under the project and that should have been maintained (based on the outputs delivered):

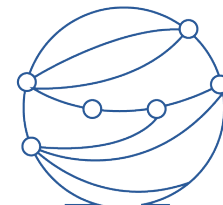
- Extent to which¹⁸ the Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development and the corresponding action plan are implemented
- Extent to which the Nauru Framework for Climate Change Adaptation and Disaster Risk Reduction (RONAdapt) and the corresponding action plan are implemented
- Extent to which the Kiribati Joint Implementation Plan for Climate Change Adaptation and Disaster Risk Management is implemented
- Extent to which the Kiribati Climate Change and Climate Risk Communications Strategy (2014–2018) has been implemented
- Extent to which the Micronesia National Integrated Climate Change and Disaster Risk Management Policy is implemented
- Climate Change Division in Niue still operational and complying with its mandate
- Extent to which the revised Climate Change Policy for Tonga is implemented
- The new regulations for the Public Health Ordinance in Kiribati adopted and implemented/enforced
- Extent to which the 20-year water and sanitation master plan for Nauru is implemented
- Extent to which the coastal management plan for Tongatapu, Tonga is implemented
- Extent to which the Agricultural Strategic Marketing Plan 2016-2025 for Tuvalu is implemented
- Extent to which the Cook Islands Manihiki Pearl Farming Management Plan 2016–2026 is implemented
- The Cook Islands' Ministry of Finance and Economic Management continues to be the National Implementing Entity (NIE) to the Adaptation Fund and actively assumes this role
- Cook Islands: the two laboratories of the Ministry of Marine Resources (MMR) in Rarotonga and Manihiki are operational, amongst others conducting nutrient analysis
- Cook Islands: the boat supplied to the Ministry of Marine Resources in Penrhyn is still in use
- Cook Islands: the water quality monitoring buoy is still functional and providing data
- Cook Islands: the pearl farmers continue to receive water quality data (generated by the monitoring buoy) via their mobile phones
- Cook Islands: regular water quality monitoring is continued, using the equipment supplied
- Micronesia: the newly installed (40 at household level and 5 in government buildings) and refurbished (23) water tanks and accessories on Fais Island are still functional and well maintained
- Micronesia: the Sahagow well with solar pump and storage system is still functional and well maintained

¹⁷ The field phase only covered 6 countries : Cook Islands, Federated States of Micronesia (FSM), Marshall Islands, Niue, Palau and Tuvalu

¹⁸ If too difficult to assess, the question in all similar cases can be turned into: "has the policy/strategy/action plan been brought under implementation; fully or partly?"

- Micronesia: the demonstration rainwater harvesting system in Colonia still functional and well maintained
- Kiribati: the health database, linking data from the Environmental Health Unit (EHU) of the MHMS and the Health Information Unit of the medical clinic using Geographic Information System (GIS) software, still in use and updated
- Kiribati: the computers supplied to 13 clinics in South Tarawa still functional
- Kiribati: the public health laboratory still operational for environmental health monitoring
- Kiribati: the solar disinfection (SODIS) system in Kawan Bairiki community still functional and well maintained
- Marshall Islands: heavy duty equipment (compactor, large rock truck and excavator) supplied to the Ministry of Public Works still operational and well maintained
- Marshall Islands: the Woja Causeway still existing, functional and well maintained
- Niue: the plastic storage tank manufacturing facility still productive as a viable enterprise
- Niue: the 312 5,000 litre water storage tanks that were installed in the villages still functional and well maintained
- Palau: the water reservoir refurbished on Sonsorol still functional and well maintained
- Palau: the 19 stand-alone water catchment systems installed (6 on Sonsorol; 12 on Tobi; 1 on Helen's Reef) still functional and well maintained
- Palau: the upgraded wells in Kayangel (leaks repaired and 2 new pumps installed) still supplying water and well maintained
- Palau: the 3 public water tanks and accessories that were installed in community buildings in Kayangel still functional and well maintained
- Palau: the demonstration community water catchment system installed in Angaur (includes a Koska Well, a pressure pump, a storage tank and 2 rainwater harvesting tanks) still functional and well maintained
- Tonga: the 15 groynes and 10 breakwaters that were constructed, including the recreation areas, still existing, functioning and well maintained
- Tuvalu: the home gardening women's groups still existing and producing
- Tuvalu: the nurseries in resp. Funafuti (capital) and Nukufetau (outer island) still existing and producing (as a viable enterprise?)
- Extent to which the Framework for Resilient Development in the Pacific (FRDP) is implemented

The Pacific Climate Change Portal (PCCP) - as the regional information hub on CC – still existing, used/visited and regularly updated



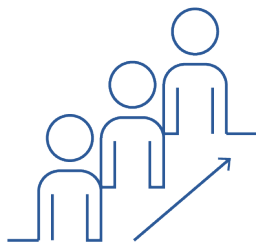
3.2. Information and comments on sustainability¹⁹ aspects from the available reports and/or from the remote consulting process:

OVERALL REGIONAL PROJECT:

- **From the end-of-project evaluation report, 2016**

Overall assessment and conclusions related to sustainability:

Sustainability was rated as 'good'. The evaluation finds that most of the benefits from the SPC GCCA project are highly likely to be sustained over the next 5 years.



Sustainability of outcomes for most projects is highly likely with the support of exit strategies, high levels of national ownership of projects and high staff retention. Ownership of projects was higher in remote outer islands where vital infrastructure to meet daily needs was provided. Whilst there was an appropriate focus on exit strategies as part of the project design, there are limited examples of national government commitment to provide national funding for the ongoing maintenance of outputs and benefits.

The SPC project team has exhibited a strong focus on the sustainability of the project's outcomes and lessons. Exit strategies developed during the design phase combined with a high degree of national ownership of projects are two factors that support sustainability. Also, some aspects of the adaptation projects have been agreed to be maintained or duplicated by other projects or partners, such as SODIS in Kiribati.

The regional and national training has increased the capacity and capability of government staff in climate change adaptation across different fields (e.g. climate change financing, proposal preparation). Most of the project-funded national staff has been absorbed into government departments, or into other donor-funded projects.

Whilst more could be done by national governments to support sustainability, it needs to be recognised that many Pacific countries have limited spare capacity in national budgets. This underscores the importance of careful project design, to ensure that maintenance requirements are minimal, or to ensure that cost-recovery is built in where beneficiaries have the capacity to pay.

Lesson learned related to sustainability: (1) Partnering with other organisations contributes to the sustainability of project interventions. (2) Strengthening collaboration between line ministries and the ministry responsible for finance, enhances national systems, and may facilitate improved access to climate change funding in the future.

Detailed assessment based on the question "To what extent will the project benefits in the targeted sectors be sustained over the longer term (5 years)?":

¹⁹ Sustainability of the several services and systems as listed under 4.1 must be assessed on basis of the current situation in the country. As a consequence, this information cannot be collected from documents ; only through remote consulting or a field visit.

The long term impact of investments such as the EU-funded GCCA: PSIS project rests on the sustainability of the outputs produced. The SPC project team demonstrated a strong appreciation for this in their support to countries in developing exit strategies as part of their PDDs. However, in practice, evidence to demonstrate government budgets have allocated ongoing funds for maintenance of outputs is limited to Tuvalu and Kiribati (see Table 6, and country reports). Claims that departments will cover costs in other countries will be seen over time.

- Exit strategies developed during the design phase provide a plan for sustainability, but these plans need to be backed up by government budget or other project commitments. A number of countries that implemented water sector projects face a challenge of providing free (e.g. Niue) or heavily subsidised (e.g. Nauru, and some outlying states in Palau) water. This not only acts as a disincentive to more sustainable levels of water consumption, and better maintenance of water infrastructure (e.g. fixing leaks etc.), but it also does not provide water utilities with the funding required to maintain existing infrastructure or invest in improvements. Niue is looking to trial water metering and a water tariff, and Palau will be implementing a consumption-based rather than flat water tariff in Peleliu, which are necessary steps to ensure the long-term sustainability of reticulated water supply. Letters of Agreement between SPC and national governments make no mention of sustainability, or committing governments to work through forward budget processes to allocate funds to ongoing project maintenance. This is perhaps something that future projects should consider, as well as including in the Concept Note stage. Estimated maintenance budgets formed during the PDD or later technical design phase of projects could be used to make early approaches to government ministries for ongoing budget support.
- A high level of ownership of projects, at the national level, and particularly beneficiary level, helps sustain the project outputs and ongoing benefits. Countries and beneficiary communities generally demonstrated a high level of ownership of projects. This is likely due to the projects being led by countries, and often having a strong level of consultation at the design stage, and ongoing community engagement during the implementation phase. Interestingly, poorer and more remote communities that are less frequently the focus of a donor funded project (e.g. Fais, in FSM) were more proactive to contribute money and labour to receive rainwater storage than the wealthier Niueans who more frequently receive funding for projects²⁰. This brings into question the level of community ownership of the Niue rainwater tank project. The rainwater storage in outer islands of FSM and Palau were providing vital water infrastructure, whereas the Niue project was providing an alternative water source for disasters. The degree of sustainability of the rainwater tank project in Niue will be determined over time. History has shown a general lack of tank maintenance since the advent of reticulated water supply in 1983-1984. The Niue government has not allocated funds to test the water quality in rainwater tanks. Overall there seems to be a higher level of community ownership, participation, and input to projects in remote outer islands, which generally benefit from less investment from donor and government-funded projects, as well as for investment in vital infrastructure to meet daily needs.
- Access to Climate Funds

²⁰ Seventeen Fais households required roofing improvements and this need was addressed by applying for an Australian Aid community grant.

No countries have yet acquired access to new climate change funding modalities to implement adaptation projects. However, both Cook Islands and FSM have obtained a GCF Readiness Programme funding (USD150,000 each). Whilst it is not possible to attribute this outcome to the GCCA project, it does validate the project's work in this area. The GCCA project did directly advance Cook Islands' NIE application for the Adaptation Fund and this may have contributed to broader positive GCF outcome.

- Retention of project staff

There is a high retention of country-level project staff post-GCCA, with stakeholder consultation indicating approximately 18 of 23 staff continuing employment, either through positions being absorbed into national government departments or agencies (e.g. Palau, RMI) or through other donor projects (e.g. Cook Islands, Tonga). This is important in terms of the sustainability of the skills and experience being maintained within countries, and being applied to other projects. Some projects also used government departments to deliver infrastructure projects (e.g. coastal works in RMI) which has built the skills within the departments to deliver such works in the future, as well as to maintain them.

The project has also built private sector capacity in a number of countries. For example, contractors were trained to install and maintain rainwater tanks in Niue and Palau. A local construction company was also contracted in Tonga to carry out the coastal protection works, thus building local capacity and creating ease of maintenance. Yet as noted previously, there are significant constraints in private sector capacity and capability to deliver projects in smaller Pacific countries (e.g. Nauru). This is evidenced by limited tender responses, and the high cost of bids received (e.g. RMI). There is a need to develop a business plan for the moulding facility in Niue to ensure its long term viability, especially considering that extra rainwater tanks are being sold for less than the manufacturing cost. Technical assistance and funding will be required for this, as the government has not allocated funding to develop a business plan.

- Knowledge management

The sustainability of the GCCA: PSIS project is supported by the strong focus on capturing and sharing of lessons. As noted previously, there were national and regional lessons learnt workshops. This allowed national and regional stakeholders to learn from the GCCA: PSIS project. SPC were proactive in sharing lessons with other CROP agencies and development partners through a lessons learnt roadshow. The SPC team also shared lessons informally through meetings with development partners. Stakeholder consultation indicated that lessons from the GCCA: PSIS project have been taken up by the EU-funded GIZ-ACSE programme. Lessons have also been captured using lessons learnt videos (screened at regional events and available on YouTube), as well as through fact sheets available online. Key project documents are available on the PCCP, which supports the sustainability of the knowledge management.

THE 9 NATIONAL CC ADAPTATION PROJECTS

Cook Islands: Environmental monitoring to enhance community livelihoods and build resilience to CC in low-lying atolls

- **From the project final report, volume 2 (country reports)**

Sustainability related to the mainstreaming achievements:

- ♦ Maintenance of the monitoring buoy will be incorporated into the business plan and budget of the Ministry of Marine Resources (MMR).
- ♦ The Manihiki Lagoon Pearl Management Plan (prepared through this project) will be incorporated into the business plan and budget of the MMR.
- ♦ As accreditation to the Adaptation Fund has been achieved, there will be opportunities to sustain key project activities with resources from the Adaptation Fund.
- ♦ Two trainings were conducted to build skills in proposal preparation, which will enable participants to apply for further funding for project activities.
- ♦ Training and refurbishment/equipping of the three laboratories at the MMR means water quality analysis can now be done in-country. The SRIC-CC project supported the hiring of an experienced and highly qualified Laboratory Manager. Plans are underway for the MMR laboratory to achieve an acceptable accreditation level that will enable them to support fish export as well as marine water quality monitoring work in Manihiki, Aitutaki and Rarotonga.

Sustainability related to further funding:

- ♦ Efforts were made (unsuccessfully) by the Climate Change Cook Islands Office to secure core government funding for the position of National Coordinator. The holder of the National Coordinator position has been rehired by the SRIC-CC project from 2015 onwards. (In 2015 GCCA: PSIS provided top-up funds only in the amount of NZ 10,000.)
- ♦ Efforts are also underway by MMR to secure core government funding for continuing the Marine Biologist position based in Manihiki.
- ♦ The holders of the Marine Biologist position in Manihiki and the Project Manager position in Rarotonga have been rehired in 2016 through the SRIC-CC project and the Ridge-to-Reef project.
- ♦ The rehiring of the holders of all three GCCA: PSIS positions – National Coordinator, Project Manager in MMR and Marine Biologist in MMR in Manihiki – is extremely important for the sustainability of key project activities beyond the end of the project, retention of skills in country, and the continued capacity building of the Climate Change Cook Islands Office and MMR. It is anticipated that in the longer term, these positions may be covered by core funding.
- ♦ The Climate Early Warning Systems Programme of the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Ridge-to-Reef project are potential funding sources to support continued project activities.
- ♦ Senior citizens IT training is being expanded to islands in the Northern Group through the SRIC-CC project.

Sustainability related to Private Enterprises:

- ♦ Discussions are underway between MMR and the Pearl Authority to maintain the research farm in Manihiki. The plan is that the pearl farmers will contribute shells to the research farm, after which they will be sold to the Pearl Authority as an income-generating activity to maintain the research farm.

■ **From the end-of-project evaluation report, 2016**

With the exception of receiving real time water quality data from the monitoring buoy, the outcomes of the project are highly likely to continue in the short to medium term (1 to 5 years). Factors contributing to the sustainability of outcomes relate to the benefits delivered by the mainstreaming of staff and activities into national budgets and plans, additional donor funds committed and some private sector engagement. Specific examples of these sustaining factors include:

- capacity has been built to support project activities:
 - ♦ basic maintenance of monitoring buoy (instrument cleaning and disassembly)
 - ♦ water quality monitoring
 - ♦ marine resource surveying
 - ♦ proposal preparation to obtain additional donor funding
 - ♦ funding support for Project Manager to do AUT project management course to finish in 2017
 - ♦ funding support for the MMR Information Officer to do an e-learning course on Digital Media
- project staff (project manager, national coordinator, Marine Biologist) will continue employment/contracts through SRIC-CC and Ridge to Reef project funding with a plan to absorb the Marine Biologist into MMR's future core budget or a co-financing arrangement with the Cook Islands Pearl Authority
- Laboratory Manager employed by SRIC-CC to ensure MMR laboratories are run effectively
- Future funding to support project activities may come from other sources:
 - ♦ Climate Early Warning Systems Programme (SPREP)
 - ♦ Ridge to Reef
 - ♦ SRIC-CC (senior citizen IT training in the northern island group – already ongoing in 2016)
- A cost recovery model to fund the pearl research farm in Manihiki has also been proposed which if implemented stands a high degree of likelihood of being successful

Whilst it was documented that the monitoring buoy maintenance costs and Manihiki Lagoon Pearl Management Plan implementation would be incorporated into the MMR's business plan and budget, there is no evidence to indicate that the MMR will have sufficient budget to cover the monitoring buoy maintenance costs in either the short or medium term. There is a high likelihood the existing buoy will be abandoned due to ongoing technical issues and high maintenance costs. Simpler more robust buoys or manual water testing probes may prove to be both more effective and cost-efficient options.

Overall, project outcomes are highly likely to continue in the short to medium term. The main risks to sustainability are the continuation of the Marine Biologist based in Manihiki and prolonged technical issues with the monitoring buoy.

Federated States of Micronesia: Increasing coastal water security for climate change in selected outlying islands of the FSM

◆ **From the project final report, volume 2 (country reports)**

Sustainability related to the Mainstreaming achievements:

- The Pacific Resources for Education & Learning – Water for Life, and the Department of Education, will continue the education and awareness activities for water maintenance and conservation initiated by the GCCA: PSIS project. The target audiences are schools and communities, including the outer island of Ulithi.
- A Memorandum of Understanding and recipient agreements are in place for the Yap State Public Service Corporation (YSPSC), the Environmental Protection Agency (EPA), the Yap State Resources & Development Department and Fais Island community, to maintain the installed infrastructure (rainwater harvesting systems and well).
- Designated focal points in EPA and Yap State Resources & Development Department have agreed to follow up and sustain project activities within their respective agencies' mandates.

- Funding expended on implementation and training is being captured in FSM's new official development assistance database, currently covering 2014 and 2015. All reports and documents have also been shared with other development agencies – e.g. Japan International Cooperation Agency (JICA), Asian Development Bank (ADB), and FSM Department of Statistics.
- The Integrated Disaster Risk Management and Climate Change Policy 2014, has prompted the development of sector and state plans. These have been identified for elaboration and implementation including through the Green Climate Fund.
- Participants in the media training continue to cover climate change matters in a more accurate manner e.g. through the FSM Public Information Office page and on the radio.
- Yap State has joined with other UN countries to designate 20 March as World Water Day.

Sustainability related to further funding:

- Plans are ongoing with Yap State to work with the University of Guam's WERI, International Organisation for Migration, and other relevant agencies to replicate and expand the hydrological assessment approach and to develop project proposals to address water security in those islands.
- Equipment acquired through the GCCA: PSIS project will be used as part of the EU-funded Hydrological Cycle Observing System project to monitor surface water.
- The Global Environment Facility System for Transparent Allocation of Resources is considering scaling up or replicating some of the project's activities.

◆ **From the end-of-project evaluation report, 2016**

The project outputs and outcomes are highly likely to be sustained. The community was well consulted during the project design, and demonstrated a high level of involvement and contribution to the project implementation.

Community members had to sign recipient agreements for the water tank project. These agreements outline household maintenance responsibilities and requirements (cleaning and repairs) in cooperation with state agencies and community leaders (chiefs). The agreement also provides permission for Yap EPA to undertake water quality testing.

Designated focal points in EPA and Yap State Resources and Development Department have agreed to follow up and sustain project activities within their agencies' mandates. It is reported that the YSPSC and EPA will continue water quality testing of rainwater tanks.

Technical support and training and further education and awareness activities will be continued by PREL-Water for Life and the Yap Department of Education. Yap State has joined with other UN countries to designate 20th March as World Water Day.

The Integrated Disaster Risk Management and Climate Change Policy, 2014 has prompted the development of sector and state plans. These have been identified for elaboration and implementation including through the Green Climate Fund.

Participants in the media training continue to cover climate change matters in a more accurate manner (e.g. through the FSM Public Information Office page and on radio).

Kiribati: Improving implementation of environmental health surveillance and response to climate sensitive health risks in Kiribati

◆ **From the project final report, volume 2 (country reports)**

Sustainability related to the Mainstreaming achievements through the technical assistance activities:

- Two trainings were conducted to build skills in proposal preparation, which will enable participants to apply for further funding for project activities.
- Three project staff (National Coordinator, Project Technical Officer, and Finance Officer) have been hired by additional projects, so their training and skills enhancement will continue to be utilized.
- Additionally, the National Coordinator attended the UNFCCC negotiations and has become a key climate change negotiator for Kiribati. The Office of the President plans to have him continue in this role.
- The new regulations for the Public Health Ordinance have been submitted to Cabinet and are expected to be endorsed shortly. The regulations will legalize the work of the Environmental Health Unit in cleaning up communities, and also legalize the public health teams to take the necessary measures to monitor and respond to outbreaks.

Sustainability related to Mainstreaming achievements through the adaptation project:

- Trainings in food, water and vector-borne disease surveillance and response are self-sustaining in that the environmental health staff now know how to manage and maintain the laboratory and equipment.
- SODIS was endorsed by the Minister of Health in March 2015 and resources have been circulated to all ministries. SODIS has been incorporated into the 2016 school curriculum for Year 6 students, and teachers and medical staff, along with many students and communities around South Tarawa, have been trained in SODIS. Fourteen SODIS demonstration tables have been built and distributed to schools in South Tarawa, and 14 more are being built for all the clinics and the Environmental Health Unit Office.
- Other water projects in Kiribati have incorporated SODIS into their activities. These include: (1) NZAID, which is incorporating SODIS into their ongoing rainwater harvesting project in 15 communities in South Tarawa; (2) Kiribati Adaptation Project III, which is incorporating SODIS into an ongoing drinking water project with six communities in North Tarawa; and (3) South Tarawa Sanitation Improvement Sector Programme, which is incorporating SODIS into ongoing community awareness programmes on WASH in South Tarawa
- A training of trainers workshop was held for partners by SPC and EHU staff and the water supervisor from Kawan Bairiki on 14 August 2015 (4 men, 8 women).
- SODIS has been incorporated into UNICEF's disaster relief materials for Fiji, and the rainwater harvesting manual and website for Kiribati.
- Funds for reagents and maintenance for the laboratory equipment, the EHU vehicle driver, and additional staff for EHU, have been incorporated into the 2016 environmental health budget.

Sustainability related to further funding:

- The WHO Pacific Headquarters has agreed to continue with the SODIS component of the project, both in Kiribati and across the Pacific. They plan to support it in Kiribati through the upcoming GEF Least Developed Country project and through their in-country officer. They also plan to duplicate the research carried out in Kiribati to other Pacific Island nations, beginning with Fiji. Other partners, such as SPC's Water and Sanitation Unit and the EU Pacific Technical and Vocational Education and Training (PacTVET) on Sustainable Energy and Climate Change Adaptation project also plan to incorporate SODIS into their projects that are being rolled out across the Pacific.

◆ From the end-of-project evaluation report, 2016

It is highly likely that the benefits obtained from the SODIS communications campaign will continue in the short to medium term future. Firstly, the local Kawan Bairiki community has

ownership of the initiative and continues to use SODIS when a reliable water source is available (PUB or rainwater) and when there are appropriate weather conditions. This visible use of SODIS helps to create a new social normative behaviour that reinforces and encourages continuation. Secondly, the water champions continue to answer questions from the community about SODIS and tippy taps.

Outside of the community, a SODIS awareness campaign was carried out reaching approximately 1,400 residents of South Tarawa. Finally, other partners and projects (WHO, NZAID, UNICEF, STSISP, KAP III), are including SODIS as part of their programs, although none to date are replicating the behaviour change model using the water champions. SODIS and tippy tap communication materials have been shared with partners for continued distribution. SODIS tables have been installed in most health clinics and schools in South Tarawa. SODIS has been included into the Year 5 school curriculum which will help with the longer term sustainability of the behaviour.

Cloudy weather, irregular supply of PUB water, bottles going missing and access to PET bottles are all barriers to performing SODIS. However, the last barrier has been reduced through the supply of bottles from external contractors, hotels, and the New Zealand recycling centre. The new water, food and vector-borne disease testing equipment in the refurbished laboratories should continue to run with minimal maintenance. Consumable supplies (reagents, vehicle fuel) are now costed into the MHMS core budget. The WHO allocates AUD 33,000 to EHU each year, so these funds could cover costs for consumable lab supplies if needed.

New projects have funded the continued employment of the national coordinator, project officer and finance officer. Staff retainment will help ensure that capability built is not lost and can be used to assist in continuing project activities (e.g. surveillance work).

Under existing arrangements with NZAID, NIWA continue to engage with the MHMS through regular missions to run refresher training in water quality testing and to ensure staff are following the new Standard Operating Procedures. These visits and trainings help address staff turnOver in the MHMS Medical Laboratory.

Other PSIS (Tuvalu, Marshall Islands, Solomon Islands, FSM, Nauru) have also expressed an interest in learning more about SODIS and potentially piloting the technique in their countries which may lead to possible replication.

Overall, the benefits of the project are highly likely to continue in the short to medium term (1 to 5 years). Longer term sustainability is likely, based on the fact that EHU was recently allocated nine new support staff by the ministry, recognizing the staffing need by EHU for their extensive surveillance programme.

A south-south exchange involving Nauru Government staff visiting Kiribati was held in December 2015 and February 2016. The exchange allowed Nauru Government staff to see firsthand how Kiribati undertook water quality testing, and may allow for the benefits of the project to spread to another PSIS.

Marshall Islands: Building capacity to address coastal protection in the Marshall Islands

◆ From the project final report, volume 2 (country reports)

Sustainability related to the Mainstreaming achievements:

- The partnership between environmental, policy and infrastructure ministries/agencies – namely OEPPC (Office of Environmental Policy Planning and Coordination), EPA (Environmental Protection Authority) and MPW (Ministry of Public Works) – to implement the project in Woja, is an important one which will serve as a guideline for implementation of similar projects in the future.
- Strengthening the technical capacity of MPW has been important, especially as they now understand the need for site-specific technical and feasibility studies before embarking on coastal protection measures.
- MPW now has a blueprint for implementing similar coastal protection and coastal maintenance projects in the outlying atolls.
- The MPW's heavy equipment stock has been increased.
- Use of the Marshallese Climate Change Glossary will help students and communities understand and respond to climate change issues.
- The GCCA: PSIS National Coordinator has taken up a position with the Ministry of Finance in 2016, and it is anticipated that he will be able to apply much of the learning on project management and new forms of climate finance gained through involvement in the GCCA: PSIS project, to his new position.

◆ **From the end-of-project evaluation report, 2016**

The outcomes of the project are highly likely to continue in the short-term and reasonably likely to continue in the medium term (3 to 5 years) provided the monitoring plan is followed and maintenance work is funded.

Factors contributing to the sustainability of the Woja coastal works include:

- The engineering design for work on Woja considered sea level rise and maximum wave heights projected over the estimated 30-year life of the asset.
- A monitoring plan was developed during the engineering design work and the MPW has been tasked with monitoring the site. The EMP also mentions community involvement in monitoring, however, no project activities focused on building this capacity with the community.
- The need for maintenance was considered during the project design phase. Ongoing maintenance of the causeway structure(s) has become the responsibility of the MPW.

The maintenance of the new heavy machinery purchased will be covered by MPW's core budget. The increased capacity within MPW through the experience of implementing the works and additional heavy machinery will assist them to plan, design, implement and monitor coastal protection measures on other outer islands. Whilst technical design work was carried out by e-Coast, MPW has learnt from the process of undertaking feasibility studies to select or verify the most appropriate coastal protection measure before developing detailed designs and costing. In the longer term, the new Marshallese Climate Change Glossary will help build student and community literacy in climate change concepts which should help them better understand and contribute to projects in the future.

The GCCA: PSIS national coordinator was absorbed into the Ministry of Finance in 2016 where he has the potential to play a leading role in enhancing financial management of projects and progressing measures to access new modalities (or sources) of climate change funding. One potential risk to sustainability of the project is the expected life of the temporary Woja road (priority area 2). The road was acknowledged as a temporary stopgap measure and both MPW

and EPA are uncertain how long the temporary road will remain in place and provide safe transport access at high tide. Regular monitoring and maintenance of the site may be needed to ensure the full benefits of the Woja causeway project are continued into the future. Additional funding is required to implement the proper road works to implement the design as specified by e-Coast in the detailed design document. There are no immediate or short term plans or funding to conduct these works.

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

◆ **From the project final report, volume 2 (country reports)**

Sustainability related to the Mainstreaming achievements:

- RONAdapt provides a blueprint and action plan for mainstreaming climate change adaptation and disaster risk management across all sectors of government in Nauru. Based on extensive consultation and support from several regional organisations, this document will provide a framework for Nauru's strategic and national planning for at least the next few years.
- At the sector level, the 20-year Water and Sanitation Master Plan provides a clear way forward for the water sector over the next 10 and 20 years. Backed by consultations and proposals for funding, the Government of Nauru is now in a much better position to seek funding for major infrastructure improvement of the water sector, and to move away from the existing high-risk situation with regard to their water supply.
- The demolition of the existing B10 storage tank clears the way for construction of a new storage tank, and thereby contributes to a more robust water storage supply for Nauru. The feasibility and final design studies for a new tank have been provided to Nauru, which will hopefully shorten any future tender process.
- The WASH training and the south-south exchange with the Kiribati Environmental Health Unit have built capacity in MCIE (Ministry of Commerce, Industry and Environment) in water quality monitoring and management, especially at the community level.

◆ **From the end-of-project evaluation report, 2016**

RONAdapt and the W&S Master Plan have a high level of government ownership. RONAdapt has raised awareness and support for climate change adaptation across the government. RONAdapt provides a blueprint and action plan for mainstreaming climate change adaptation and disaster risk management across all sectors of government in Nauru. Based on extensive consultation and support from several different regional organisations, it provides a framework for Nauru's strategic and national planning for at least the next few years.

The W&S Master Plan is guiding priority projects and investment in the next 10 and 20-year timeframes. Three funding proposals to action priority areas in the W&S Master Plan have been prepared. Nauru is now in a better position to seek funding for major infrastructure improvement of the water sector and to move away from the existing high risk situation with water supply. MCIE is now sitting under the President's Office which has increased the department's profile and support across government. This will help ensure that the benefits of the mainstreaming component are built upon in the immediate future.

The demolition of the old B10 tank provides space for the construction of a future national water storage should sufficient funding become available. The existing concrete pad may be able to be re-used, potentially reducing the cost of a future tank. The feasibility and final design studies for

the construction of a new storage tank have been provided to Nauru, thereby potentially informing a new tendering process.

The WASH training and the south-south exchange with the Kiribati Environmental Health Unit have built capacity in MCIE in water quality monitoring and management. Delivery of WASH training to the community will improve community-level capacity in water, sanitation and hygiene.

Niue: Augmentation of Rainwater Harvesting in Niue

◆ From the project final report, volume 2 (country reports)

Sustainability related to the Mainstreaming achievements:

- The project's technical assistance in the form of providing options and institutional structure support for a Climate Change Division in Niue, moved the option forward. In December 2015, a Cabinet paper had been prepared to merge the Meteorological Office and the Environmental Division into a new division that would also include climate change.

Sustainability related to further funding:

- The moulding facility constructed under this project has the potential to be used to mould other products in Niue, thereby making these products more affordable and more readily available.
- The facility is to be utilised by the ACSE Project implemented by EU/GIZ, for the manufacture of septic tanks in 2016–2017.
- Under the ACSE project, the moulding facility building will be retrofitted to withstand a category 5 cyclone.
- Lessons learned from the project have been incorporated into new projects – e.g. with the ACSE project there is no direct contribution from the households (this requirement created significant issues and delays in the GCCA: PSIS/PACC project).
- Niuean staff have been trained in the manufacturing process to contribute to its sustainability.
- Other potential uses for the facility include waste bins, honey containers and canoes.
- The Government of Niue is seeking funds to develop a business plan for the moulding facility.

Sustainability related to private enterprise:

- Homeowners are responsible for general care and maintenance of the rainwater harvesting systems, gutters and fittings.
- Private sector contractors have been trained in the maintenance and monitoring of the rainwater harvesting systems.
- There is the possibility that the moulding facility could become a private enterprise; although the Government of Niue is not considering this option at the moment.

◆ From the end-of-project evaluation report, 2016

The project is considered sustainable in a number of ways, and at the same time, the sustainability can be questioned for several reasons.

The quality of the water tanks should be assured by the manufacturer required to meet relevant Australian/New Zealand standards, and tanks undergoing a quality test following the moulding process. The operator of the moulding facility also provided a guarantee of 20 years with a 10-year warranty.

The decision to manufacture tanks in Niue has meant that further tanks can be produced relatively quickly, whilst the rainwater tanks mould remains in Niue. Further, the facility built for the mould can be used for future projects, such as the ACSE septic tank moulding project.

There is a need to develop a business plan for the moulding facility to ensure its long term viability as noted at the national lessons learnt meeting. Technical assistance and funding will be required for this, as the government has not allocated funding.

The project has manufactured an extra 100 tanks for sale to the private sector at NZ\$ 1,200 per tank (similar to the price of a 5,000 litre tank in New Zealand), which will raise NZ\$120,000 to help contribute to the maintenance of the moulding facility and purchase of water testing kits. However, the cost to manufacture tanks is approximately NZ\$3,000 per unit. This brings into question the long term financial sustainability of the moulding facility, without external project funding.

Householders have been trained in rainwater tank maintenance, and the Health Unit has a water testing kit. However, there is no government budget allocated to test tank water.

Though households had to contribute some funds towards ensuring their homes were eligible for a rainwater tank, the project subsidised the tank and installation. The Technical Design Report (Chapman, 2012) noted (p44) that “subsidies can also set an unsatisfactory precedent and may encourage dependency” whilst “not using subsidies at all would pose the risk of depriving those in hardship.” The CBA report (Buncle, 2012) also noted that the project should be limited to a small scale pilot to avoid any unintended effects on the Niue rainwater tank market.

The level of community ownership of the rainwater tanks is difficult to gauge at this moment. Since the reticulated groundwater supply was installed in 1982-1983, most homes have not maintained their existing tanks. There is currently no water tariff, though metering is being rolled out as a precursor to a cost recovery for the mains’ water supply. As rainwater tanks were planned as a back-up supply during cyclones, there will need to be a sustained change in behaviour for households to maintain tanks on a regular basis to ensure that the water quality is safe. The introduction of a price signal may act as an incentive for the rainwater tanks to be plumbed into homes, and used more frequently. This would also assist in achieving the NISP target of 20% of water supply coming from rainwater tanks.

The project’s technical assistance to provide options and institutional structure for a Climate Change Division in Niue has provided a sound basis for ongoing climate change adaptation planning and implementation. A Cabinet paper in December 2015 was prepared to merge the Meteorological Office and the Environmental Division into a new division that would also include climate change.

Palau: Addressing water sector climate change vulnerabilities in the outlying states of Palau

◆ From the project final report, volume 2 (country reports)

Sustainability related to the Mainstreaming achievements:

- The endorsement by the President and adoption by both Houses of the Palau Climate Change Policy, is an important milestone, as the policy supported by its prioritised and costed action plan represents a blueprint for moving forward over the next decade. Furthermore, the policy is fully owned by Palau and is not seen as a donor-driven initiative.

- The water operator certification program is a standard way to certify all present and future water operators, and will be fully absorbed by PPUC (Palau Public Utilities Corporation).
- Awareness and education on water conservation is to be an ongoing responsibility of PPUC in partnership with other agencies.
- A Memorandum of Agreement with states on the long-term maintenance of the water infrastructure improvements provides for their continued maintenance.
- The development of the Palau Climate Change Policy proved to be the catalyst for the establishment of the new Climate Change Office in 2015.

Sustainability related to further funding:

- Palau is accessing the Green Climate Fund readiness grant and preparing an application for a National Implementing Entity status at the same time as developing proposals with regional and multilateral implementing entities to implement the food security sector action plan.
- PPUC is implementing an ADB project, including a capacity building component that may replicate some of the project activities and approaches in areas such as procurement.
- Three agencies (Palau Energy Office, National Emergency Management Office and Office of Climate Change) have been designated to lead the implementation of the Palau Climate Change Policy, and will be receiving additional budget appropriations in the next fiscal year to fund core staff salaries.

◆ From the end-of-project evaluation report, 2016

There is a high level of community ownership of the water tanks installed in Tobi and Sonsorol. Tobi residents are reportedly very satisfied with the project. Some Sonsorol people residing in Koror took annual leave to go to the island and help build water catchments. Householders have been trained in maintenance of FFDs (First Flush Diverters) and state workers will help households maintain water tanks. The use of HDPE tanks will ensure their longevity over their design life, compared to stainless steel tanks which have been prone to rust.

In Puloana, one of the islands of Sonsorol, the community modified the rainwater tanks set-up to reduce the likelihood of significant water loss from any damage to the tank faucet. The community has added two 200 gallon stainless steel tanks that are filled from the GCCA water tanks using 12 volt pumps. The stainless steel tanks are used to obtain water, thereby limiting any water loss from damaged faucets to 200 gallons at the most. This demonstrates that the community has a high level of ownership of initiative and has learnt from past issues with tank faucets.

The sustainability of water systems in the other three states with reticulated water systems will be improved with the introduction of a water tariff that provides PPUC with cost recovery for the provision of the services. A number of stakeholders noted that whilst the education and awareness component of the project was great, there is no motivation to save water as there is no metering and tariff. The training of water operators and the development of standard operating procedures for each state's water system will also support the sustainability of the water systems. The development of the terms of reference for the hydrological assessments will also support the sustainability of groundwater extraction if the assessments are implemented and recommendations applied.

The endorsement of the Climate Change Policy should assist Palau's sustainable development. The prioritised and costed action plan represents a blueprint for moving forward over the next decade. Furthermore the policy is fully owned by Palau and is not seen as a donor-driven initiative. The development of the policy provided a catalyst for the establishment of a Climate Change Office.

The skills gained by the staff funded by the project will be retained in government, with all staff now being absorbed into permanent roles. This will be important particularly to support the implementation of priority actions from the Climate Change Policy. The establishment of the PMU will also support the implementation of priority actions. The development of a 'Manual for Grant Management' that is based on the LFA will support clear project proposals.

Tonga: Trialling Coastal Protection Measures in eastern Tongatapu

◆ **From the project final report, volume 2 (country reports)**

Sustainability related to the Mainstreaming achievements through the technical assistance activities:

- The priorities in the revised Tonga Climate Change Policy are to be incorporated into Tonga's Joint National Action Plan (JNAP) II (2016-2020).
- The Department of Environment is developing an Integrated Coastal and Marine Spatial Plan for all of Tonga; the Diagnostic Study for Tongatapu prepared through the project is an important input to this plan.
- Two trainings were conducted to build skills in proposal preparation, which will enable participants to apply for further funding for project activities.

Sustainability related to the Mainstreaming achievements through the adaptation project

- The EU/GIZ-ACSE project is also planning to apply the same design and monitoring process established in the GCCA: PSIS project to protect the coast in Western Tongatapu. They also plan to use the same coastal engineer; however the protection methods differ.
- The Ministry of Infrastructure is also planning to duplicate the coastal protection process in the outer island of Ha'apai.
- Beach monitoring is ongoing with the Department of Geology through regular beach profiles. The most recent profile was completed in January 2016. They will continue to monitor the project sites as part of their mandate.
- The Project Engineer is now CEO of the Ministry of Infrastructure and as such will be able to apply the skills developed from the adaptation project to infrastructure development in Tonga.

Sustainability related to further funding

- Once the Tonga Climate Change Fund is fully established, there will be opportunities to sustain key project activities and other community projects with resources from the fund.
- The ADB Strategic Programme for Climate Resilience is planning to extend the GCCA: PSIS pilot project to three more villages in eastern Tongatapu. They have also indicated that they will fund any needed maintenance for the GCCA: PSIS coastal protection measures during the lifetime of the project. Based on recommendations from GCCA: PSIS, they are considering using the same construction company and coastal engineer.

◆ **From the end-of-project evaluation report, 2016**

The detailed design for the coastal protection measures outlined that it may be necessary to recharge the pilot sites with more sand in between two to five years – this is standard practice with sand recharge. The lifespan of the groynes is estimated to be approximately 5-10 years after which maintenance or replacement may be needed. There is no core budget allocation being set aside for sand recharge or repair of the groynes. Infrastructure maintenance is reliant on either external financial support either through new projects or an allocation from the Tonga Climate

Change Trust Fund (if it is endorsed and funded). This maintenance and future project replication work is one of the main intended uses for the Fund resources.

There are currently no plans in place to continue either the community or schools education programme; however it is possible that the consultation process for the ADB SPCR project may fill part of this role in the short to medium term. The SPCR project has the same target area (Eastern Tongatapu) as this project and it is anticipated that the project will replicate and complete works scoped in the original design documentation that informed the GCCA project.

Project monitoring of pilot sites is reliant on the Geology Division situated within the Ministry of Lands, Survey & Natural Resources. The Division is committed to conducting quarterly monitoring as part of its mandate (core funding). It is highly likely the SPCR project will make a point of ensuring this monitoring occurs up until 2019. Whilst the Geology Division conducted project monitoring without receiving any direct GCCA funds, the Division did receive some equipment (total station for surveying) funded by the GCCA project to conduct detailed beach profiling. The Division recommended that future projects allocate some funding to monitoring activities to cover both new equipment and the overtime claims for staff wages. Beach monitoring can only be conducted at low tide and thus staff often need to work outside of standard business hours. Overall, the benefits of the project are highly likely to continue in the short to medium term (1 to 5 years). Longer term sustainability is dependent on the endorsement of the Tonga Climate Change Trust Fund Bill and funding from external donors will be required for the ongoing benefits of the project.

Tuvalu: Improving agroforestry systems to enhance food security and build resilience to climate change in Tuvalu

◆ From the project final report, volume 2 (country reports)

Sustainability related to the Mainstreaming achievements through the technical assistance activities:

- Two trainings were conducted to build skills in proposal preparation, which will enable participants to apply for further funding for project activities.
- The National Council of Women plans to continue with the home gardening project and to make the competition an annual event.

Sustainability related to the Mainstreaming achievements through the adaptation project:

- Funds for maintenance of the three demonstration sites and for the wages of the projects' temporary workers have been requested and allocated in the Department of Agriculture's 2016 budget.
- The MOUs between the landowners and the Department of Agriculture (see KRA 2) provide an agreement for sustainability of the activities beyond the project's life cycle. The MOUs for the project sites in Funafuti are for five years, and two years for the site in Nukufetau.
- The large-scale equipment purchased for Funafuti will be used by the Department of Agriculture to establish other agroforestry sites. This equipment will also be rented out to the local government and farmers for agricultural purposes.
- The large-scale equipment purchased for Nukufetau will be handed over to the local government (Kaupule) to manage, along with the project site. The Fuaoata farmers association will benefit from the crops produced.

- The project database of the crops and trees planted will continue to be updated by the Department of Agriculture staff. This will provide useful information on which crops and trees have been effective.
- The bioreactor provided to CePaCT will continue to provide climate-ready crops for Tuvalu as required.
- Farmers and landowners have been trained in agroforestry design and methods, compost-making, plant grafting and breeding techniques, and in planting new crops such as sandalwood, so they can take advantage of their new skills.

Sustainability related to further funding:

- Two Funafuti temporary workers from the project have been hired by the Department of Agriculture to help maintain project sites 1 and 2 with the landowners and the Department of Agriculture nursery.
- A joint bank account for the land owners at one site in Funafuti and the Department of Agriculture has been set up, so that all funds earned through selling excess crops can be put back into the project site.
- The same will be set up for the second site once crops are being produced.
- The third project site is being managed by the local government (Kaupule). However, for the first year following the handover (2016), the Department of Agriculture has set aside funds to supplement the Kaupule's efforts, until the needs for the demonstration sites can be fully integrated into their budget in 2017.
- Other upcoming projects, such as the FAO's Technical Cooperation project and UNDP's Ridge-to-Reef project, intend to duplicate the GCCA agroforestry project in the other outer islands.

◆ From the end-of-project evaluation report, 2016

The agroforestry project is likely to be sustained in the near future, with the MoUs with landholders of the two Funafuti sites allowing for a five-year monitoring period (until mid-2019). The Tuvalu national budget for 2016 includes provisions (AUD 30,000) for the Department of Agriculture to work with the landowners and farmers to maintain the agroforestry project sites and equipment. The provision for ongoing budget support was discussed as early as October 2014 (Trip Report, October 2014; 2016 Budget Support Submission).

Farmers and government staff have been trained in the maintenance of the agricultural equipment provided to implement the demonstration sites. Ownership of the heavy equipment on Funafuti will be transferred to the Department of Agriculture, and equipment on Nukufetau will be transferred to the Kaupule. The PDD notes that a maintenance and financial plan between the Department of Agriculture and the Kaupule will be developed at the close of the project. Chippers were purchased under the NAPA procurement to ensure consistency of brand/dealer, meaning that there is commonality for spare parts and technical skills (Email communication, February 2014).

The machinery to facilitate development of agroforestry will be available for hire to farmers (from the Department of Agriculture on Funafuti, and Kaupule on Nukufetau).

Farmers and other stakeholders have been trained in agroforestry (total of 4 training workshops) including agroforestry design and methods, compost making, plant grafting and breeding techniques, and in planting new crops such as sandalwood. The October 2014 training report indicated a high likelihood of replication of agroforestry should funding be available¹⁶⁵.

Other projects are looking to build on the agroforestry project, specifically:

- USD439,534 FAO-funded Technical Cooperation Project (TCP) '*Strengthened capacity to adapt and extend resilient integrated coconut based agro-forestry and livestock farming systems*' expected to start June 2016 and extend to Niutao and Vaitupu islands (taking lessons from GCCA: PSIS project).
- GEF-funded 'Implementing a 'Ridge to Reef' approach to protect biodiversity and ecosystem functions in Tuvalu (R2R Tuvalu)¹⁶⁶', planned to commence June 2015 (but not started implementation yet) to December 2020.

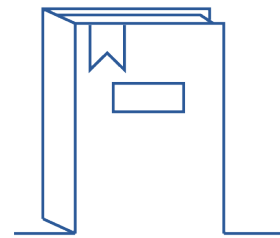
The home gardening project is likely to be sustained through the involvement of the TNCW, who have indicated that they will continue with the home gardening competition in 2016.

The government has endorsed the TASMP (February 2016), and this should assist in promoting local produce, along with the 'Go Local' Campaign.

3.3. Summary findings from the desk phase and specific issues to be further explored during the field phase:

Both the final project report and the end-of-project evaluation report provide exceptionally concrete and comprehensive information related to sustainability.

For the country-based assessments (placed under “the 9 national CC adaptation projects”), it is noted that the extracts from the two reports as presented in box 4.2 also contain (1) case of replication / wider dissemination, an aspect that the GCCA I&S study places under “impact”, and (2) discussions of sustainability of outcomes at national level from other project components (KRA 1, 2 and 4) than the national on-ground adaptation projects (KRA 3).



Based on the good quality of the assessments done in the two key reports, the consultant who will conduct the field phase for the GCCA I&S study can use the findings as basis and further guidance in the ex-post assessment of sustainability (and impact).

Otherwise, the sustainability assessment will be carried out following the common methodology as described in the Terms of Reference.

3.4. Results of the sustainability analysis (as per table in annex)

OVERALL OBJECTIVE: OVERALL REGIONAL PROJECT

To support the Governments of nine Pacific Small Islands States (Cook Islands, Kiribati, Marshall Islands, Federated States of Micronesia (FSM), Nauru, Niue, Palau, Tonga, and Tuvalu) in their efforts to tackle the adverse effects of climate change

SPECIFIC OBJECTIVE(S): OVERALL REGIONAL PROJECT

To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level.

SUSTAINABILITY ANALYSIS

38 items were listed for assessment of their sustainability. Information could be collected for only 26 of these due to the difficulties encountered (mentioned above in section 2.4.)

The scores of the overall project's 26 items that were assessed based on information provided through interviews are as follows:

- 6 items (23%) scored 1, meaning that they were fully sustained and expanded or improved
- 7 items (27%) scored 2, meaning that they were fully sustained in a “status quo” situation
- 10 items (38%) scored 3, meaning that it still exists but with quality and/or coverage issues
- 3 items (12%) scored 4, meaning that they disappeared or lost their functionality

Evidence was found through reporting and comments from reliable sources for 19 items (73%); Uncertain sources provided evidence that supported an assessment of 7 items (27%).

Sustainability analysis for items per country

COUNTRY	# ITEMS	'1' SCORE	'2' SCORE	'3' SCORE	'4' SCORE	'5' SCORE
Regional	2	1 (50%)	-	1 (50%)	-	-
Cook Islands	7	1 (14%)	1 (14%)	3 (43%)	2 (29%)	-
FSM	4	1 (25%)	2 (50%)	1 (25%)	-	-
Kiribati	6	-	-	-	-	6 (100%)
Marshall Is	2	-	1 (50%)	1 (50%)	-	-
Nauru	2	-	-	-	-	2 (100%)
Niue	3	2 (67%)	-	1 (33%)	-	-
Palau	6	1 (17%)	2 (33%)	1 (17%)	1 (17%)	1 (17%)
Tonga	3	-	-	-	-	3 (100%)
Tuvalu	3	-	1 (33%)	2 (67%)	-	-

Of the 26 items scored, 6 (23%) received a score of '1'; and 7 (27%) a '2' score. Considering that scores of '1' and '2' as satisfactory results in regards to sustainability, the project outputs/outcomes of 13 items, or 50% from the 26 items that were scored, had been sustained or expanded since the conclusion of the project.

Considering only the 24 'national' items shows a similar picture, with 5 (21%) receiving a score of '1'; and 7 (29%) a '2' score; 50% from the 24 items had been sustained or expanded following the closing of the project.

3.5. Conclusions on the sustainability aspects and discussion on factors for success and failure

This section can only consider the responses received from six (Cook Islands, Marshall Islands, FSM, Niue, Palau and Tuvalu) of the nine countries that participated in the project.

The countries that received support in installing new or rehabilitating/expanding/complementing existing water storage and supply systems – FSM, Niue and Palau – continue to benefit from the structures and systems put in place by the project. The critical role they play in improving livelihoods and promoting CC resilience of communities is a key factor in driving system maintenance, and helps ensure their long term sustainability: People do need these systems, and therefore appreciate them.

In **FSM**, the installation of rainwater collection systems has much improved households' access to quality drinking water, and enhanced their resilience to better overcome water shortages during droughts and following typhoons. Most of the water systems supplied and or improved by the project remain in place, and in use by the beneficiaries.

Both the target groups and overall environment in **Palau** – which lies just south of Yap State where the FSM project component was implemented – are quite similar, and benefits therefore are too,

although beneficiaries in Palau largely comprise small communities living on remote outlying atoll (or raised atoll) islands where groundwater resources are limited; in these communities the rainwater collection systems are a major boost in enhancing livelihoods, and surviving natural disasters.

In **Niue**, the project provided an alternative and back up water source to households during times of disruptions of the reticulated water supply. The tank moulding facility that was established with support of the project continues to operate and has diversified into a wider range of products, most prominently septic tanks that are installed in households with the support of the GIZ-implemented ACSE project. The current GCCA+SUPA project will further utilise the moulding facility to produce more water tanks for households that were not serviced during the earlier GCCA project. Although the facility makes excess products intended for sales, pricing structures is kept similar to NZ prices. Maintaining such a facility in a small country like Niue would be very difficult without specific targeted support from donor agencies (eg. Supplying moulded products to aid projects) and government (subsidies, tax and duty concessions) and remaining competitive will therefore always remain an issue. However as long as the facility remains under management by the Niue Government, and there remains a reasonable demand for its products remains, this would remain a non-issue.

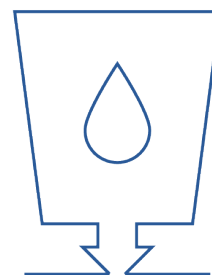
The support provided to strengthen environmental monitoring and its relevance to communities in the atolls of the northern **Cook Islands** largely focused on a single commercial activity there: the pearl industry in Manihiki. Where water quality is a critical factor in both the industry, as well as the communities; and monitoring is required to support both entities. The sustainability of the project's outputs and impact therefore have largely depended on the continued success of the pearl industry, and following its collapse most of the benefits went with it. The laboratory on Manihiki cannot (anymore) conduct the full range of water quality testing, and the marine biologist position there has not been sustained by the Cook Islands government. The buoy that would provide reliable water quality information worked only for a short time, and has been defunct for over 5 years. The project however did contribute to raise awareness of the impacts of CC among the population in the islands, and promoted environmental awareness among youth, and which commonly is sustained for life.

The heavy construction equipment provided to the **Marshall Islands** is still in use by the Public Works department. The project's selection of constructing a causeway of Wotje, and the expectation that it would help improve the access of the Wotje community to services, has not been realised at all, as there was a clear need to construct a 2nd causeway a little further down the road. Whereas the causeway does allow people to travel a bit further on the road, boat transport is still required at high tides to cross the 2nd channel. In the 5 years since the project's conclusion this issue remains to be addressed. Despite this, the quality of construction of the causeway appears high, and it should remain functional for a long time, subject to adequate maintenance.

The sustainability of outputs delivered in **Tuvalu** is mixed, and the usefulness of most over a longer period is doubtful. Whereas agriculture remains a key sector for Tuvalu to help improve resilience, efforts to promote home gardening were already made under a wide range of government- and donor supported initiatives prior to the start of project. The fact that home gardening continues to be listed as a priority by the Department of Agriculture (and probably therefore continues to be supported by donors) indicates a low level of sustainability that should have been acknowledged years ago. Similarly, efforts by the Department of Agriculture to promote local food production and consumption, and a hope of some crops to achieving volumes that allow their export, have been promoted time and again. Whilst the outer islands can grow agricultural produce for the Funafuti market, there are many factors in play that determine the feasibility and success. These include regular and affordable transportation between the islands and Funafuti, as well as reliable and consistent production levels and reasonable produce prices. Whereas by themselves improved farming practices and better and

more resilient crop varieties are of course helpful, the transport and marketing issues continue to be obstacles that affect the wider adoption of such practices, and thus their sustainability. It is therefore a pity that no field visit could be made to inspect the Funafuti market initiatives and obtain data on origin and volumes of weekly produce sold there. The sustainability of the demonstration farms established under the project at Funafuti (2) is uncertain, as urbanisation encourages Funafuti landowners to convert already marginally productive farm land into residential areas for their extended families or for rent. Aside from this, the tractor remains functional and in operation, and is hired out for specific tasks, however the mulcher/chipper appears to have broken down and was not repaired.

Overall, the sustainability of the water supply initiatives is quite high; whereas that of initiatives in other sectors (such as in Cook Islands and Tuvalu) is considered quite low. As for the Marshall Islands, the causeway is a highly sustainable infrastructure item, however its usefulness to date has been very limited as the 2nd causeway has yet to be constructed and therefore requiring community members to continue to use boats for crossing the impassable areas during high tide.



VII. Additional elements

4.1. M&E Practice

M&E ACTIVITIES THAT HAVE TAKEN PLACE:

- **Internal:**

Through reporting: progress reports during implementation of the project, Final report vol 1 & 2, SPC, 2016 ROM Report 2015 (only first page).

The SPC project team monitored the progress of the project from its premises in Suva through the regular reporting process implemented by country coordinators and field visit reports. SPC project staff conducted on-site monitoring during country visits. At country level, monitoring practices have been developed, but only the Cook Islands shared some workshop evaluation and monitoring reports.

- **External:**

ROM missions were conducted in 2012, 2013 and 2015. No reports were made available. An external mid-term evaluation was conducted in 2013; an end-of-project evaluation in 2016 (see comment below)

% OF BUDGET ALLOCATED TO M&E THAT HAS BEEN USED: 89% (Euro 151,935 of a budget allocation of Euro 170,000) had been used as at 29.2.2016 (Global Climate Change Alliance-GCCA:PSIS Interim Financial Report; as quoted in Evaluation Report of 23.5.2016)

ADDITIONAL M&E REPORTS THAT HAVE BEEN COLLECTED: N/A

No information on these aspects post-project was obtained from any of the countries during the 'field' phase.

There are several issues related to M&E that are raised here as matters of concern:

1. As has already been raised in the desk phase report and reiterated by the consultant during the 'field' phase, the logical framework of the overall regional project as well as those of the national components for each of the countries were inadequate in their formulation, indicators and targets. Objectives and results were commonly formulated as activities or outputs; several were phrased inaccurately and allowed several interpretations that would complicate M&E. Some objectives and indicators appeared irrelevant to the project. A critical omission is the lack of baseline indicators against which any progress and success would be assessed; there seems to have been ample time to determine these during the 2-year planning phase of the project, or the early stages of the 'implementation' phase.
2. A review of project reports, including the project's Final Evaluation Report dated 23 May 2016, raised a serious concern: Pacific Research & Evaluation Associates, the consulting company that implemented the Final Evaluation of the project in 2015-2016, had earlier implemented a project-funded activity focused on delivering trainings in M&E and impact assessment in each of the nine countries. Such training is considered an important activity in that it seeks to build capacity among local stakeholders to a.o. monitor the progress of the project and assess its impact. Whilst PREA's final report acknowledges this and mentioned the Company contracted an independent consultant to

review the effectiveness and impact of these workshops, this was done as part of their contract for the final evaluation of the project.

EU regulations are very clear that any party that has been involved in any part of the planning, design and implementation of the project (or part thereof), cannot participate in any independent evaluations or monitoring activities. Despite the company's - perhaps sincere – attempts to circumvent this requirement by hiring an 'independent' consultant, this remains a clear conflict of interest. Moreover, SPC must have been aware of this EU requirement and therefore can be considered complicit in circumventing the regulation.

3. The implementation of the Final Evaluation consultancy involved only visits to three project countries, each for up to 5 days. This provides a very limited overview on the output delivery, effectiveness and impact of the project. Considering the wide diversity of the participating countries, more countries should have been visited by the evaluation team to assess the effects of the project on the ground; instead, the team spent two weeks with SPC in Fiji, which is not a target country for this project.

4.2. Contributions to GCCA+ knowledge management and communication

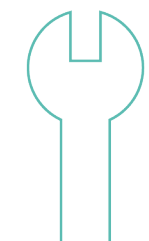
This could not be determined during the 'field' phase, which involved interviews with (former) project stakeholders in 6 of the 9 countries.

4.3. Opportunities for scaling up (future GCCA support activity)

The 2016 Evaluation Report in its Executive Summary provides an overview of the number of beneficiaries and as a percentage of the total population that benefited from the project's activities in each of the nine countries. Considering an initial allocation of 0.5M Euro per country for its pilot project, it shows that the cost per capita vary greatly: from Euro 2,057 per beneficiary in the Cook Islands, to Euro 9 in Kiribati; this is a factor of over 200 times greater. In the countries that opted for support in the water sector, the per beneficiary capita cost of the pilot project ranged from 9 Euro (Kiribati) and 50 (Nauru) to Niue (338), and increasing to 703 (Palau) and 1,700 Euro (FSM) (rounded amounts; refer table below).

Considering the intention to achieve a similar objective, such wide range in costs points at opportunities to significantly improve the processes to identify and select pilot activities in each country, including the implementation of a cost-benefit and cost-effectiveness assessment as part of the selection process. On the other hand, the allocation of 'only' Euro 4.6m (some 40% of the total budget) to pilot activities indicates that the balance of Euro 6.8m Euro (60% of the budget) supported other aspects of the project, including Euro 4m for a significant complement of technical and administrative staff, many of whom were based at the SPC Fiji office to remotely manage the project in each of the nine countries; with the balance for training, operational costs and external evaluations.

Regarding this aspect, it could have been considered to base a complement of technical advisers (particularly for the water sector projects) within the SPC regional office for the North Pacific to support project implementation in the Micronesian countries (Palau, Marshall Islands, FSM, Nauru and possible Kiribati).



COUNTRY	FOCAL SECTOR OF MAIN ON-THE-GROUND ACTIVITY	INITIAL COUNTRY ALLOCATION FOR PILOT PROJECT (EURO)	TOTAL POPULATION	# AND % PEOPLE THAT DIRECTLY BENEFITED	COST OF PILOT PROJECT PER BENEFICIARY (EURO) (ROUNDED)
Cook Islands	Marine environment	500,000	17,737	243 (1.37%)	2,057
FSM	Water	500,000	108,889	294 (0.27%)	1,700
Kiribati	Health + Water	500,000	103,062	58,086 (56.36%)	9
Marshall Islands	Coastal protection/ infrastructure	500,000	53,200	1,729 (3.25%)	289
Nauru	Water	500,000	10,084	10,084 (100%)	50
Niue	Water	500,000	1,479	1,479 (100%)	338
Palau	Water	500,000	17,512	711 (4.06%)	703
Tonga	Coastal protection/ infrastructure	500,000	103,282	3,367 (3.26%)	148
Tuvalu	Agriculture/ food security	500,000	9,562	6,780 (70.9%)	74
Unallocated		100,000			
Total		4,600,000		146,285	

Improving water supply and storage in remote and rural communities in the small island countries of the Pacific addresses one of the most important basic needs, and therefore is very likely to yield a large impact with a likelihood of long term sustainability. However, the cost of delivery of such systems must be considered. Supplying a few hundred people in remote outer islands with water collection and storage systems is of course costly, however such costs increase exponentially if the initiative is delivered through a regional organisation that is based thousands of kilometres away. Supporting local/national mandated institutions to provide such services would help strengthen their capacity and boost their outreach visibility, and develop a stronger ownership of the outputs. In combination these should support better and more sustained maintenance of the outputs and ultimately, their ownership. As for GCCA, it would save considerable costs, while allowing considerably more funds for infrastructure development on the ground – visibility of the project and the EU as a development assistance partner.

Taking this project as an example, one could contemplate an alternative where each country is provided with a budget of Euro 1m to implement a considerably more substantial on-the-ground project activity – possibly with country-based TA - and with a small project management unit based with SPC. Nationally-managed procurement would do away with much of the time consuming and remote long-distance procedures and lengthy supply times, and enable for a longer implementation period in the field, which in turn provides opportunities for enhancing long term sustainability. This alternative would encourage national agencies to

take ownership and responsibility of the project and helped promote EU visibility at national and regional level. If this approach would have been taken in this project, it would likely have allowed for a longer implementation period of the pilots, and for example, have helped the Marshall Islands to complete both causeways and achieve the national project objectives; in Palau, FSM, and Niue it could have supported water supply system maintenance agencies to develop and institute more efficient and effective services and thereby improving sustainability of project outputs and benefits, and provide benefits to the wider population of the country.

Of course, there are many considerations and viewpoints that can be used to argue in favour or against nationalising such project initiatives as were identified and delivered under this project. Whereas it is a fact that in many cases most of the small island countries lack the full complement of technical and material resources to adequately deliver the outputs, it is also so that the regional organisation (in this case SPC) provides the technical resources through specialists specifically contracted under the project – and at the conclusion of the project, this assistance ceases too. The long term sustainability of the organisation's capacity to continue this support is therefore highly dependent on the continued support from donors to fund similar projects.

Agriculture and marine initiatives, such as implemented by the project in Tuvalu, could steer away from small scale efforts to improve agricultural production through the application of a variety of means, and rather focus on identifying and developing activities for developing one or a few products with larger scale commercial potential that utilise available resources, can grow in more islands and can be locally processed to improve their shelf life to reduce their dependence on frequent shipping. Crops that could come to mind are noni (*Morinda citrifolia*), virgin coconut oil, honey, and – for the marine sector – beche-de-mer (sea cucumber); doubtless there will be other niche market products. These would need a serious, consistent and sustained effort to achieve widespread support and ensure their long term sustainability.

Initiatives to promote the use of renewable energy are also highly appropriate, however there already are many such projects and programmes in the region and careful selection would be required to identify specific areas where the benefits, and impact, are optimised and complementary to recently concluded and ongoing activities.

It is remarkable that, after the support provided by this project to help strengthen national capacity for developing applications for funding of CC initiatives, no applications for support from GCCA have been submitted by individual countries, nor a sub-region (e.g. The northern Pacific countries of Marshall Islands, FSM and Palau; or combined with Nauru and Kiribati as the Micronesia region). Perhaps consideration could be given to a regional or sub-regional initiative to support each of the nine countries in developing several proposals for funding to address specific needs to help address CC adaptation and mitigation in their country.

4.4. Climate Finance – evidence of mobilizing funding from public and/or private local sources

N/A

VIII. Sources of Information

DOCUMENTS COLLECTED AND CONSULTED:

- **Programming documents**
 - ♦ Action Fiche, 2010
 - ♦ Contribution Agreement, with annexes including TAPS and logframe, 2010
 - ♦ Addenda 1 (2011), 2 (2014), 3 (2015) and 4 (2016) to the Contribution Agreement.
- **Progress reports**
 - ♦ Final report vol 1 & 2, SPC, 2016
- **Monitoring and Evaluation reports**
 - ♦ ROM Report 2015 (only first page)
 - ♦ End-of-Project Evaluation report by the Pacific Research and Evaluation Associates (PREA), May 2016

RELEVANT WEBSITES:

Pacific Climate Change Portal (PCCP): <https://www.pacificclimatechange.net/>²¹

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- Country Focal Points (table below)

²¹ Housed by the Secretariat of the Pacific Region Environment Programme (SPREP).

▪ **Others:**

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ADDITIONAL DOCUMENTS AND WEBSITES CONSULTED DURING THE FIELD PHASE:
PROGRAMMING DOCUMENTS

- Action Fiche, 2010
- Contribution Agreement, with annexes including TAPS and logframe, 2010
- Addenda 1 (2011), 2 (2014), 3 (2015) and 4 (2016) to the Contribution Agreement.

PROGRESS /EVALUATION REPORTS

- Final report vol 1 & 2, SPC, 2016
- ROM Report 2015 (only first page)
- End-of-Project Evaluation report by the Pacific Research and Evaluation Associates (PREA), May 2016
- Evaluation of the Rauti Para tablet training in the southern Cook Islands. Climate Change Cook Islands, Office of the Prime Minister. November 2014.
- Fact Sheet 'Assessment of Project Impact – A methodology to determine the beneficiaries' viewpoint'. European Union – North Pacific Readiness for El Nino (RENI) Project.
- [Palau Impact Report.pdf \(pacificclimatechange.net\): www.pacificclimatechange.net/sites/default/files/documents/Palau_impact_report_080714](http://www.pacificclimatechange.net/sites/default/files/documents/Palau_impact_report_080714)
- [Tuvalu Impact Report.pdf \(pacificclimatechange.net\): www.pacificclimatechange.net/sites/default/files/documents/tuvalu/tuvalu_impact_report.pdf](http://www.pacificclimatechange.net/sites/default/files/documents/tuvalu/tuvalu_impact_report.pdf)

POLICY AND LEGISLATIVE DOCUMENTS / MANAGEMENT PLANS

- 2017-2030 Framework for Resilient Development in the Pacific – Forum Sec. www.forumsec.org/download/2017-2030-framework-for-resilient-development-in-the-pacific/

TECHNICAL DOCUMENTS

- Assessment of Project Impact: A Methodology to determine the beneficiaries' viewpoint, and Example of a Project Impact Assessment in FSM. European Union – North Pacific – Readiness for El Nino (RENI) Project. 2019.
- Rongo, T., and Dyer, C. 2014. Using local knowledge to understand climate variability in the Cook Islands. Government of the Cook Islands.

RELEVANT WEBSITES:

- [Pacific Climate Change Portal: www.pacificclimatechange.net](http://www.pacificclimatechange.net)
- <http://Ccprojects.gsd.spc.int/eu-north-pacific-reni/>
- www.cookislandsnews.com/economy/government-has-decided-pearl-industry-is-failing-farmer/
- www.cookislandsnews.com/letters-to-the-editor/letter-no-future-for-pearl-farmers/
- en.wikipedia.org/wiki/States_of_Palau

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Annex to the report: Sustainability Analysis

NR	DESCRIPTION OF SYSTEM/SERVICE	SCORE	EVIDENCE	EXPLANATORY NOTES
OVERALL PROJECT				
1	Extent to which the Framework for Resilient Development in the Pacific (FRDP) is implemented	1	R	The Framework for Resilient Development in the Pacific provides an Integrated Approach to Address Climate Change and Disaster Risk Management and high level strategic guidance to different stakeholder groups on how to enhance resilience to climate change and disasters, in ways that contribute to and are embedded in sustainable development. The initiative for developing the Framework was agreed by Forum member countries Leaders at the 2012 Pacific Islands Forum Meeting, and formally endorsed in 2016 for the period 2017-2030. This is now a key instrument to guide resilient development initiatives in the region.
2	The Pacific Climate Change Portal (PCCP) - as the regional information hub on CC – still existing, used/visited and regularly updated	3	R	A large number of country information documentation on the portal was uploaded by SPREP and the GIZ/ACSE project during 2016-2018. Regular updates after that period were not noticed: the last update for the Cook Islands was in 2019. No updates were made by the Cook Islands authorities over the past 2-3 years. The Cook Islands interviewee stated that she has not had any reason or need to use the portal to access information.
COOK ISLANDS				
1	Extent to which the Cook Islands Manihiki Pearl Farming Management Plan 2016–2026 is implemented	3	R	The pearl farming industry in the Cook Islands has collapsed, and the Manihiki Pearl Farming Management Plan 2016-2026 is currently undergoing a review and where needed

				make the necessary adjustments to support the survival and rebuilding of the industry. In view of interest in reviewing the plan, a score of 3 is given.
2	The Cook Islands' Ministry of Finance and Economic Management continues to be the National Implementing Entity (NIE) to the Adaptation Fund and actively assumes this role	1	R	The Ministry remains the NIE to the Adaptation Fund, and in 2018 also became accredited to the Green Climate Fund.
3	The two laboratories of the Ministry of Marine Resources (MMR) in Rarotonga and Manihiki are operational, amongst others conducting nutrient analysis	3	R	The laboratory on Rarotonga is still functioning and conducting nutrient analysis testing. Whilst still conducting the basic nutrient analyses, the Manihiki laboratory is unable to conduct bacteriological testing. Samples often cannot be sent to Rarotonga for testing as there is limited cargo space on the fortnightly flights; this was already an issue during the project, and remains unresolved.
4	The boat supplied to the Ministry of Marine Resources in Penrhyn is still in use.	2	R	The boat on Penrhyn Island remains in operation
5	The water quality monitoring buoy is still functional and providing data.	4	R	There have been serious issues with the buoy from the onset of the implementation of the project's field component. It was fully functional for only a few months, and has been defunct since 2016. From comments received it appears to have been a costly experience, and has frustrated Cook Islands beneficiaries and stakeholders
6	The pearl farmers continue to receive water quality data (generated by the monitoring buoy) via their mobile phones	4	R	Refer to comment 5. above.

7	Regular water quality monitoring is continued, using the equipment supplied	3	R	Regular monitoring of water quality is continued in Rarotonga; the Manihiki laboratory is restricted to basic monitoring activities, which limits its efficiency and effectiveness.
FEDERATED STATES OF MICRONESIA				
1	Extent to which the Micronesia National Integrated Climate Change and Disaster Risk Management Policy is implemented.	1	R	The Policy was adopted in 2014 by the FSM federal government, and continues to guide planning and implementation of government initiatives in the relevant sectors
2	The newly installed (40 at household level and 5 in government buildings) and refurbished (23) water tanks and accessories on Fais Island are still functional and well maintained	3	R	Most of the water tanks and accessories are still functional; however maintenance appears to be wanting. No accurate up-to-date figures could be obtained (the information leaflet 'Example of a Project Impact Assessment in FSM' prepared by the EU-North Pacific – Readiness for El Nino (RENI) Project, 2019, did not provide relevant data), however the interviewee mentioned that an assessment in March 2019 found that 15 tanks were leaking due to manufacturing defects. The installed first flush diverters – important in reducing pollution of stored rainwater – were found to remain in their fixed positions and generally not used for their specific purpose. A number of taps and faucets also were found leaking due to inadequate maintenance procedures
3	The Sahagow well with solar pump and storage system is still functional and well maintained	2	U	The well and solar pump and storage system remain functional and maintained, although the frequency and regularity of maintenance could not be determined
4	The demonstration rainwater harvesting system in Colonia is still functional and well maintained	2	U	The demonstration rainwater harvesting system in Colonia remains functional and maintained, although the frequency and regularity of maintenance could not be determined

KIRIBATI				
1	Extent to which the Kiribati Joint Implementation Plan for Climate Change Adaptation and Disaster Risk Management is implemented	5		
2	Extent to which the Kiribati Climate Change and Climate Risk Communications Strategy (2014–2018) has been implemented	5		
	The new regulations for the Public Health Ordinance in Kiribati adopted and implemented/enforced			
3	The health database, linking data from the Environmental Health Unit (EHU) of the MHMS and the Health Information Unit of the medical clinic using Geographic Information System (GIS) software, still in use and updated	5		
4	The computers supplied to 13 clinics in South Tarawa still functional	5		
5	The public health laboratory still operational for environmental health monitoring	5		

6	The solar disinfection (SODIS) system in Kawan Bairiki community still functional and well maintained	5		
MARSHALL ISLANDS				
1	Heavy duty equipment (compactor, large rock truck and excavator) supplied to the Ministry of Public Works is still operational and well maintained	2	R	Heavy duty equipment (compactor, large rock truck and excavator) supplied to the Ministry of Public Works is still operational and well maintained and used for their purpose by the Ministry
2	The Woja Causeway still existing, functional and well maintained	3	R	The Woja Causeway still exists and is maintained through ongoing Public Works budgets, however its functionality is severely limited as only one of two causeways was constructed; the second causeway that was needed a little further down the road could not be included in the project budget; Vehicle access remains severely impeded especially during high tide
NAURU				
1	Extent to which the Nauru Framework for Climate Change Adaptation and Disaster Risk Reduction (RONAdapt) and the corresponding action plan are implemented	5		
2	Extent to which the 20-year water and sanitation master plan for Nauru is implemented	5		

NIUE				
1	Climate Change Division in Niue still operational and complying with its mandate	1	R	The Division is still operating and complies with its mandate. It comprises of a Director and 2 staff.
2	The plastic storage tank manufacturing facility is still productive as a viable enterprise	1	R	The facility remains a viable operation under government ownership and management. It has widened its range of products and through funding from a GIZ project constructed septic tanks, and has sufficient raw materials in stock that will enable it to produce additional rainwater tanks for supply under the GCCA-Plus project that will start production soon Maintaining such a facility in a small country like Niue would be very difficult without specific targeted support from donor agencies (eg. Supplying moulded products to aid projects) and government (subsidies, tax and duty concessions) and remaining competitive will therefore always remain an issue.
3	The 312 5,000 litre water storage tanks that were installed in the villages are still functional and well maintained	3	R	The storage tanks that were installed in the villages are still functional and are adequately maintained
PALAU				
1	Extent to which the Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development and the corresponding action plan are implemented	1	R	This policy was considered as an important first step that led to major developments, including the establishment of the Office for Climate Change (OfCC), and from 2016 onwards ensuring the allocation of annual funding by the Palau Congress for the three major national bodies that are particularly relevant to address Climate Change: the OfCC, the National Emergency Management Office (NEMO) and the Palau Energy Administration. Although the Policy is generally considered to remain current, the Green Climate Fund (UN) recently approved a grant for a review and updating of the policy and in particular, the Action

				Plan, over the next two years. All government agencies are supporting the implementation of the Policy, and the Action Plan.
2	The water reservoir refurbished on Sonsorol still functional and well maintained	5		The interviewees could not provide any confirmation of the operational status and maintenance of the water reservoir
3	The 19 stand-alone water catchment systems installed (6 on Sonsorol; 12 on Tobí; 1 on Helen's Reef) still functional and well maintained	2	U	As these islands are atolls, rainwater provides the best quality water especially for drinking and certain household uses, and the catchment systems are highly appreciated and generally well maintained. These have made major contributions to improving household living standards.
4	The upgraded wells in Kayangel (leaks repaired and 2 new pumps installed) still supplying water and well maintained	3	U	the upgraded wells in Kayangel (leaks repaired and 2 new pumps installed) remain operational and still supply water and are well maintained. However this water is brackish and of poor quality, and has limited household uses
5	The 3 public water tanks and accessories that were installed in community buildings in Kayangel still functional and well maintained	2	U	The 3 public water tanks and accessories remain operational. Kayangel is an atoll with very limited groundwater resources that are of poor quality and only useful for washing and kitchen. Rainwater is used for drinking and cooking, and stored in these three tanks, which are very well looked after and maintained
6	The demonstration community water catchment system installed in Angaur (includes a Koska Well, a pressure pump, a storage tank and 2 rainwater harvesting tanks) still functional and well maintained	4	U	Components of the demonstration community water catchment system are not working anymore as the solar pump has broken down, and has not been replaced; moreover the company that supplied the pump has closed its business

TONGA				
1	Extent to which the revised Climate Change Policy for Tonga is implemented	5		
2	Extent to which the coastal management plan for Tongatapu, Tonga is implemented	5		
3	The 15 groynes and 10 breakwaters that were constructed, including the recreation areas, still existing, functioning and well maintained	5		
TUVALU				
1	Extent to which the Agricultural Strategic Marketing Plan 2016-2025 for Tuvalu is implemented.	2	R	This plan continues to guide the 'Go Local' campaign to promote consumption of locally grown agricultural produce from Funafuti and the outer islands. The Tuvalu DoA and the Funafuti Island Council ('Kaupule') work together to support the market at the Island Council's premises that is held there twice per week. The market is mostly for Funafuti farmers only as supplies from the outer island depend on shipping services which are infrequent and not sufficiently reliable. Also, the prices asked by outer island farmer are too high
2	The home gardening women's groups still existing and producing	3	U	The home gardening women's groups still existing and producing; produce is mostly consumed by the individual members' families
3	The nurseries in resp. Funafuti (capital) and Nukufetau (outer island)	3	R	the nurseries in resp. Funafuti (capital) and Nukufetau (outer island) still exist and continue regular production of seedlings and planting materials. Costs for nursery operations and upkeep are covered by the Department of Agriculture (for Funafuti nursery), and by the

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still existing and producing (as a viable enterprise?)			Nukufetau island council (for the Nukufetau nursery). The nurseries rely on the support from these institutions as they provide seedlings for free to farmers. Since there is no cost recovery their viability depends on continued financial support from external sources.
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This **Impact and Sustainability Assessment of the Secretariat of the Pacific Community – Global Climate Change Alliance: Pacific Small Island States** (2010/022-473) is one of the 22 case studies that were conducted to feed into the overall **EU GCCA/EU GCCA+ Impact and Sustainability Study**.

This case study report provides a summary list of outputs delivered, a detailed analysis of ex-post impact and sustainability levels as well as additional information on the project's M&E practices, on the available knowledge and communication products, on scaling-up opportunities and on ex-post climate finance mobilised from local public and private sources.

All reports are available on www.gcca.eu/resources

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