

Pacific Adaptation to Climate Change Project

MID-TERM REVIEW

Peter Hunnam, Gavin Kenny, Clive Carpenter

October 2012

Secretariat of the Pacific Regional Environment Programme
United Nations Development Programme
Global Environmental Facility

CONTENTS

Acronyms and Abbreviations	4
EXECUTIVE SUMMARY	6
Relevance and Significance of the PACC Project	15
Summary of General Recommendations	16
Summary of Specific Recommendations for PACC Country Projects	19
Recommendations for PACC Agriculture and Food Security Projects	19
Recommendations for PACC Water Resources Projects	21
Recommendations for PACC Coastal Management Projects	23
INTRODUCTION	26
PACC Mid-Term Review 2012	26
PACC PROJECT – DEVELOPMENT and DESIGN	29
PACC Project Development	29
PACC Project Concept and Strategy	30
PACC Project Design	31
PACC PROJECT – MANAGEMENT AND IMPLEMENTATION ARRANGEMENTS	38
Project Oversight and Governance	38
Project Management and Implementation	40
PACC Project Financial Administration and Operations	42
PACC Project Management – National	45
Integration of PACC+ and other Climate Adaptation Programming	47
Project Finances	48
Monitoring, Information, Reporting & Evaluation	49
Project Duration	51
PACC PROJECT – PROGRESS AND ACHIEVEMENTS	53
PACC Regional Support	53
PACC Country Projects	61
PACC Achievements in Agriculture & Food Security	62
PACC Fiji	62
PACC Palau	63
PACC PNG	63
PACC Solomon Islands	63
PACC Achievements in Water Resources Management	69
PACC Nauru	70
PACC Niue	72
PACC Marshall Islands	73
PACC Tonga	74
PACC Tuvalu	76
PACC Tokelau	77
PACC Achievements in Coastal Management	81
PACC Cook Islands	81
PACC Kosrae, FSM	81
PACC Samoa	81
PACC Vanuatu	81

Acronyms and Abbreviations

ACOM	Anglican Church of Melanesia
ADB	Asian Development Bank
APF	Adaptation Policy Framework
APR	Annual Project Review
AUD	Australian dollars
AusAID	Australian Agency for International Development
BITTA	Bureau of International Trade & Technical Assistance
CBA	Cost Benefit Analysis; Community-based Adaptation
CBDAMPIC	Capacity Building for Development of Adaptation Measures in Pacific Island Countries
CCA	Climate Change Adaptation
CCAP	Climate Change Adaptation Action Plan
CCCPIR	Coping with Climate Change in the Pacific Islands Region
CCEL	Child coded expenditure list
CIM	Coastal Infrastructure Management
CLIMAP	Climate Adaptation in the Pacific
CMAS	Coastal Management Adaptation Strategy
CMAS	Coastal Management & Adaptation Strategy
CROP	Council of Regional Organisations of the Pacific
DRM/R	Disaster Risk Management/ Reduction
EA	Executing Agency, Enabling Activity
EIA	Environmental Impact Assessment
EU	European Union
FACE	Funding Authorization and Certificate of Expenditure form
FSM	Federated States of Micronesia
GEF	Global Environment Facility
GEF-PAS	GEF Pacific Alliance for Sustainability
GIS	Geographic Information system
GIZ	German government aid
IA	Implementing Agency
ICE	Itemized Cost Estimates
ICM	Integrated Catchment Management
ICZM	Integrated Coastal Zone Management
INC	Initial National Communication
IWRM	Integrated Water Resources Management
JNAP	Joint National Action Plan
KIRMA	Kosrae Island Resource Management Authority
LDC	Least Developed Country
M&E	Monitoring & Evaluation
MAL	Ministry of Agriculture and Lands/ Livestock
MAL	Ministry of Agriculture and Livestock
MCC	Millennium Challenge Corporation
MCO	Multi-Country Office
MGD	Meteorology and Geo-Hazards Department
MiLO	Middle-Level Objective
MIP	Ministry of Infrastructure and Planning
MIPU	Ministry of Infrastructure and Public Utilities
MNRE	Ministry of Natural Resources and Environment
MPR	Multi-Partite Review
MSG	Melanesian Spearhead Group
MTR	Mid-Term Review
MYWP	Multi-Year Work Plan
NACCC	National Advisory Committee on Climate Change
NAPA	National Adaptation Program of Action
NBSAP	National Biodiversity Strategy & Action Plan
NC	National Coordinator
NCCCT	National Climate Change Country Team
NCCP	National Climate Change Policy
NCSA	National Capacity Self Assessment
NGO	Non Governmental Organisation

NIWA	National Institute of Water and Atmospheric Research
NWMP	National Water Management Plan
NWP	National Water Policy
NWSHP	National Water, Sanitation and Hygiene Policy
NZ	New Zealand
NZD	New Zealand dollars
OEEM	Office of Environment and Emergency Management
OEPPC	Office of Environmental Planning and Policy Coordination
OERC	Office of Environmental Response & Coordination
OJ	Ontong Java
PACC	Pacific Adaptation to Climate Change
PACE-SD	
PB	Project Board
PDF	Project Development Facility
PEA(R)	Preliminary Environmental Assessment (Report)
PEG	Project Executive Group
PIC	Pacific island country
PICCAP	Pacific Islands Climate Change Adaptation Project
PICCRT	Pacific Islands Climate Change Round Table
PIF	Project Identification Form
PIFFAC	Pacific Islands Framework for Action for Climate Change
PIR	Project Implementation Report
PMU	Project Management Unit
PNG	Papua New Guinea
ProDoc	Project Document
PSC	Project Steering Committee
PWD	Public Works Department
QPR	Quarterly Progress Reports
RMI	Republic of Marshall Islands
RPMU	Regional Project Management Unit
RS	Road section
SCCF	Special Climate Change Fund
SEA	Socio-Economic Assessment
SIAM	Samoa Infrastructure and Asset Management
SLM	Sustainable Land Management
SLR	Sea Level Rise
SMART	Specific + Measurable + Attainable + Relevant + Time-bound
SNC	Second National Communication
SOPAC	South Pacific Applied Geosciences Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Program
SRF	Strategic Results Framework
ToR	Terms of Reference
TR	Terminal Review
UfW	Unaccounted-for Water
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	US Dollar
USP	University of the South Pacific
V&A	Vulnerability & Adaptation Assessment

PACIFIC ADAPTATION TO CLIMATE CHANGE PROJECT

Mid-Term Review 2012

EXECUTIVE SUMMARY

The Pacific Adaptation to Climate Change Project (PACC) is being implemented in fourteen of the Pacific island countries over a period of five+ years (2008 – 2014), with management and oversight by the Secretariat of the Pacific Regional Environment Program (SPREP) and United Nations Development Program (UNDP), and funding from the Special Climate Change Fund (SCCF).

This is the report of a Mid-Term Review (MTR) of the PACC Project undertaken by independent consultants in 2012.

Mid-Term Review (MTR)

The MTR was commissioned by UNDP, as the GEF Agency implementing PACC, and carried out by a team of three consultants with expertise in the three priority development sectors addressed by PACC. The MTR is a comprehensive review of the PACC project background, development, design and implementation progress achieved, covering the period from 2006 to mid-2012. The MTR process reviewed available project documentation, and visited ten of the fourteen participating countries for discussions with project executives and partners and short inspections of project sites.

The MTR report comprises sections on Project Development and Design; Management and Implementation Arrangements, Progress and Achievements to date by the regional program and each of the fourteen participating country projects. Supplementary MTR reports were prepared on the ten countries visited. The MTR main report and Country reports include technical assessments of the specific adaptation pilot projects that are being implemented (Output 2.2), where these have reached an assessable stage.

Notes on Relevance and Significance of the PACC project are presented at the end of this Executive Summary, together with a summary of the MTR General and Country-specific Recommendations for the continuation and conclusion of the project.

The efficiency of the MTR was limited by two main factors – time and capacity constraints on all participants; and the inability of the project offices (RPMU and PMUs) to provide the MTR with project documentation and data (project, technical and financial) in a timely manner. These issues are discussed further in the main body of the report because they affect the efficiency and effectiveness of the project, as well as the MTR.

An additional complication for the MTR is that over the four years of PACC implementation, a large number of additional climate adaptation activities have emerged in the Pacific island countries. PACC was intended to provide the region with a programmatic framework for adaptation work, but this has not occurred to an adequate extent, and in 2012 there are many initiatives being planned or implemented with little apparent connectivity. The lack of systematic adaptation programming makes it difficult for the MTR to provide detailed guidance on scaling-up and additional PACC activities.

The MTR is the first review and evaluation of the PACC project since its start in 2009, but has not been organised until late in the project life, which reduced the relevance or utility of the exercise for some of the project executives and participants. It means that any intractable issues from the project's development, design, management arrangements and implementation may not have been dealt with satisfactorily or in a timely manner.

PACC Project Development and Design

The PACC Project design was developed in the period 2006-2008 through four main phases managed by UNDP: under the 2006 GEF Project Development Facility, country consultations produced detailed situation analyses and PACC project plans and budgets for 11 PICs; the 2007 Project Identification Framework developed the country and regional project concept; the 2008 Project Document specified the 5-year project, with a budget of USD 13.75 million from the SCCF plus USD 44.5 million co-financing, to be implemented in 13¹ PICs with UNDP

¹ In 2006, 11 PICs joined the PACC initiative (Fiji, Papua New Guinea, Solomon Islands, Vanuatu, Federated States of Micronesia, Nauru, Cook Islands, Niue, Samoa, Tonga, Tuvalu); in 2007 a further two countries joined (Marshall Islands and Palau). In 2011, a 14th country, Tokelau, was included in the additional PACC+ component.

as Implementing Agency and SPREP as Implementing Partner; the 2009 Inception phase made some adjustments to the project design, confirmed operational details, established project management and launched project implementation.

The concept of the PACC was to enable the island countries to pilot and demonstrate climate adaptation measures in priority development sectors, with the additional costs of adapting the development to climate risks being borne by the SCCF funding. PACC was the first SCCF-funded project to be developed, globally, and the PACC PDF consultants were required to apply the novel SCCF guidelines. These significantly affected the pre-design of the project: in the identification of PACC pilot projects, the guidelines required all preparatory tasks – baseline assessments, capacity to implement and co-financing secured – to have been completed. The priority sectors were also prescribed at the outset, as water resources management, agriculture and food production, and coastal (infrastructure) management; during the PDF consultations, each country was required to select just one sector and to identify the specific development site(s) and adaptation measure(s) to pilot and demonstrate as its PACC project. The MTR finds that the prescription of a single sector and identification of a specific pilot site and climate adaptation measure in each country prior to the start proved to be a significant barrier to the development and implementation of an effective project; essentially it inhibited project executants from following a rigorous process of vulnerability assessment and adaptation planning.

The Project Document was written and approved in 2008, but did not contain the detailed project plans or budgets specified in the 13 Country Consultation Reports. While the concept and overall budget remained the same, the Project Document was less prescriptive, more generic in the specifications of each country's PACC pilot project. The PACC project design is based on three main components concerned with climate adaptation: Outcome 1. Policy "mainstreaming"; 2. Pilot – demonstration measures, and 3. Capacity building; each is built upon a set of planned Outputs. Component 1 was to be informed by component 2; and component 3 was to capture and disseminate lessons from the results of 1 and 2 in each country and regionally.

The MTR finds that project plan, design and budget were poorly developed in the Project Document, and have not been adequately developed through 'adaptive management' during implementation. The generic PACC logical framework has been little used by project executants, and has been inadequate in terms of giving clarity and confidence to project executants. The 2008 ProDoc did not effectively replace the 2006 country plans with sufficiently clear and rigorous alternative plans for the executants to follow. Planning has been limited to activity work plans that are not underpinned by substantive objectives. It would have been most valuable if individual project plans had been developed for each country, but this was not done adequately either during inception or subsequent implementation. PACC overall has been hampered also by not preparing defining implementation strategies for each of the three components, regionally or nationally; and for not planning adequate adaptation strategies for the three sectors. See **Recommendation 1**.

PACC Project Management and Implementation Arrangements

Management and implementation arrangements for the PACC project were specified in the 2008 UNDP Project Document. UNDP was designated Implementing Agency with responsibility for oversight of the project. SPREP was described as Implementing Partner and Regional Technical Agency, responsible for establishing a Regional Project Management Unit, Regional Project Manager and staff to coordinate PACC management and provide administrative and technical support to the project executants. In each of the 14 participating countries, the project was assigned to a national government Executing Agency which appointed a PACC National Coordinator and staff to a PACC Project Management Unit.

Project Governance

A Project Board was formed with UNDP, SPREP, three country representatives and another CROP agency as members, and has met once or twice each year as the governing body of the project, approving work plans, receiving reports on progress and directing actions to address issues that have arisen. A Multi-Partite Review has also been convened each year, attended by the same representatives as the PB but including also project executant staff from the PMU and RPMU, and a wider range of other participants.

The MTR is concerned that the arrangements have not assigned adequate authorities for directing project implementation to SPREP and to the Directors of countries' lead Executing Agencies, and have been focused too strongly on UNDP's need to maintain oversight. Arrangements could be made more appropriate and relevant for the region by assigning greater ownership and leadership of the initiative to SPREP and the EAs. This should lead to more efficient and effective governance of the PACC project, and in turn to more effective delivery through the RPMU and national PMUs.

The MTR recommends reforming the MPR, to absorb the PB and become a high-level PACC Steering Committee, with senior representatives of UNDP, AusAID (and other donors); SPREP and other CROP agencies

involved directly with PACC; and the National Executing Agencies (or National Steering Committees). Besides efficient annual review and approval of PACC reports (technical and financial), annual project plans and budgets, the PSC should direct overall program strategy and play a more proactive role in developing regional collaborative programming for climate adaptation, such as a strengthened regional CC Round Table. See **Recommendation 2**.

Implementing Partnership

A significant issue for the management and delivery of the PACC project is that UNDP Samoa and SPREP have not worked efficiently and effectively together as partners in PACC. UNDP assumed a strong leadership role for itself but has had to exercise that role through SPREP, which has proved frustrating. From the outset and throughout the four years, UNDP Samoa has felt that project implementation was not moving fast enough or achieving adequate standards. The office has tried in numerous ways to facilitate actions, provide more “backstopping” or apply pressure to the project executants. In its designated role of Implementing Partner to UNDP, SPREP’s primary function has been to establish and administer the PACC RPMU, and to support the RPMU in carrying out its work. The MTR finds that SPREP could have done more to strengthen the capacity of the RPMU to manage the project; and also to develop and manage the PACC project more solidly as a component of the agency’s core programs. The RPMU has been significantly under-resourced from the outset and to date, which has contributed to unsatisfactorily slow progress by the PACC project.

The MTR considers that it would be more appropriate, efficient and effective for SPREP to be properly given and enabled to fulfil the lead role in managing PACC; and for UNDP to revert to an oversight role and to supportively backstopping SPREP, and not attempt to direct the work of the RPMU or PMUs directly. The RPMU needs to be given the authority and resources to play an adequate role in guiding and coordinating climate adaptation programming, within SPREP and in concert with other CROP agencies. Additional dedicated technical staff need to be appointed to the RPMU, and the pivotal role of the RPMU and the RPM needs to be affirmed, in relation to SPREP, UNDP Samoa, the MPR and the participating countries’ EAs and PMUs. See **Recommendation 3**.

Administration and Financial Operations

The efficiency of the project’s management and performance over the four years to date have been considerably reduced by the project’s administration and financial operating system. The MTR reviews the operating system that is in place and notes the main breakdowns that have occurred, which include unsatisfactory standards of work planning and reporting, late disbursement of funds and poor rates of acquittal. Weak planning stems from the lack of a satisfactory project plan for each country (see **Recommendation 1**.) and has contributed directly to inadequacies in monitoring, reporting and evaluation.

The underlying issue for financial administration of PACC is that it is not practicable to advance, spend and acquit the funds within a single quarter; it simply takes too much time, especially when 15 cost centres are involved. The system is intended to disburse funds to executants in advance, but the reality is that the funds arrive in the second or third month of the Quarter, never in advance. The MTR suggests a number of practical solutions, including a) to switch to a 6-month cycle, most simply by advancing funds each Quarter and acquitting the next Quarter; b) to remove one or more of the multiple stages involved in each transaction (UNDP-SPREP-PMU plus finance offices and banks); and c) introduce results-based financial management, comprising preparing budget plans for, and monitoring, recording and reporting expenditure against individual outputs (in an improved project framework). See **Recommendation 4**.

PACC National Management Arrangements

In each country, a PACC Project Management Unit has been established with a Coordinator (NC) and one or two staff, within a designated government department (PACC Executing Agency), and some form of PACC steering group or committee has been formed. Across the 14 countries, the PMUs vary in their capacity, efficiency and effectiveness, depending largely on the EA’s mandate, capacity, and relevance of PACC to the current agenda; as well as on the calibre of the individual PMU staff. The MTR considers that it is important for all EAs to enable and support the NCs to operate effectively in their institutional environments, with a strong focus on strategic management towards climate adaptation and resilience building.

Different institutional arrangements have been chosen for the PACC project in the different countries. The project may be assigned to work within the environment agency, a climate office, the President or Prime Minister’s office, or the line agency responsible for the development sector which the PACC project is targeting. The choices made have affected the efficiency and effectiveness of the PACC PMU and project. Important factors include the home agency’s mandate and capacity, and the relevance of PACC to the agency’s current agenda. It is important for PACC to be actively and creatively used in-country, not to be treated as merely a short-term “UNDP/GEF/SPREP project” working off-line or separately from the mainstream agencies.

A challenge that has faced most of the PACC country projects is that they are working in the novel field of climate adaptation with government organisations that are not experienced in this field. Vanuatu seems to be the only country in which the Meteorology Department (MGD) has taken the lead role in adaptation programming: the PACC Vanuatu project is based in the Public Works Department but is operating with strong support from the national climate unit established by MGD. In several other countries PACC is housed in the environment agency, which creates difficulties for the project, which is working primarily in one of the three priority development sectors. There is an outstanding need for the PACC executives, their EAs and PSC members to monitor, analyse and actively develop their own effectiveness as elements within the national institutional framework. For PACC to be effective in country, it needs to be an integral part of the country's governance and development agenda.

Climate Adaptation Programming, PACC and PACC+

It is encouraging and commendable that PACC has been seen as a useful programming mechanism for climate adaptation efforts, and has attracted both AusAID and USAID as additional financial partners. However it is a concern that a single program has not been established. The MTR suggests that to ensure efficient delivery and to improve overall effectiveness, some form of fully-integrated Pacific Adaptation to Climate Change Program is required. The institutional development objective should be to strengthen the capacity of SPREP and PACC RPMU, the CROP mechanism and the national EAs and PACC PMUs, so that they may contribute more effectively and collaboratively to climate adaptation programming in the region and in each country.

A considerable number of other programs and projects concerned with climate change and/or with the PACC priority sectors are under way or under development in the region and each PIC. However, institutional and programming frameworks are unprepared and inadequate, with unsatisfactory coordination and very little integration of climate adaptation programming, either regionally or within countries. A greater focus on strategy, systems and substance is required, and away from discrete “donor-driven” projects. As an initial step, it would be valuable for PACC SCCF, AusAID and USAID programs to be merged, to provide a good model for agencies “buying into” a common strategy and coordination mechanism for climate adaptation work. See **Recommendation 6**.

Recommendation 6.

Project Finances

The finances of the PACC project, management of the budget and expenditure, have not been reviewed by the MTR. For this component to be completed, summary financial data in a usable form would need to be provided to the MTR, specifically including the following:

- a. Budget allocations and expenditures achieved
- b. For each cost centre – each country and the region
- c. For each component outcome and major planned/ achieved result or major output
- d. Including a breakdown of “Outcome 4 – project management”
- e. For each year of the project to date
- f. For each source of funds separately, including PACC SCCF, PACC+ AusAID, and co-financing.

Monitoring, Information, Reporting & Evaluation

For the past four years of implementation, the main project monitoring activities been Quarterly Progress Reports by each PMU; the annual MPR reports by RPM and NCs; and the Annual Progress Report (APR/PIR) prepared largely by the RPMU and UNDP staff. The MTR finds that these have not formed a satisfactory “M&E” system for the project: the emphasis has largely been on activity reporting with insufficient critical analysis and adjustment by the project executives.

The MTR identifies two fundamental issues: the lack of focus on substantive objectives, stemming from poor planning; and an inadequate information management system. There is an outstanding need for a technical reference library, databank or resource centre, in which technical information useful to or generated by the project can be stored and organised systematically, for ready retrieval. The MTR recommends that a “cultural change” is needed, across the project and in the participating agencies (EAs and SPREP), to establish and develop PACC as primarily a “learning and knowledge-sharing mechanism”. See **Recommendation 7**.

Project Duration

The PACC project was planned as a 5-year project intended to run from 2008 to 2012; implementation started in 2009 and the end-date was moved to 2013; progress was slow and the end-date was moved again, to 2014. Additional funding (PACC+) became available in mid-2011, for a 3-year period, to mid-2014. After four years of implementation, project activities in the 13 countries have progressed at widely different rates, so that at the time of the MTR, some could be considered to be in the final stages while others are still at an early stage.

However, in the absence of clear project plans with substantive objectives, and without results-based budgeting and expenditure monitoring, it is not possible to specify when many of the PACC project activities should be regarded as finished and when funding and activities should be extended.

Following the MTR, it is important for each PACC country project to clearly specify its objectives and any ideas for extension, replication or scaling-up; to appraise the actions, time and funds that will be required to achieve its objectives; and to re-define its basic project plan, budget and timetable. See **Recommendation 1**. The MTR recommends that the overall PACC plan, remaining budget (SCCF, co-financing, AusAID) and timetable for PACC should be reviewed and revised, based clearly on the revised plans proposed and agreed with each participating country. The revised overall plan should provide for continuation, completion or extension of PACC work for a suggested period of up to 5 years (2013 – 2017), subject to a) the time required to achieve the objectives and b) the funding available. See **Recommendation 8**.

PACC Progress and Achievements

The PACC project aims to achieve results in 13-14 Pacific Island **Countries** towards three main **Outcomes**: 1. Mainstreaming Policy and institutional developments; 2. Design and demonstration of climate adaptation; and 3. Capacity development – knowledge management and communications; in three priority development **Sectors** for climate adaptation: Agriculture & Food Production; Water Resources Management; and Coastal Management & Infrastructure. The MTR reviews progress towards the achievement of results under these Outcomes. It covers first the regional activities and second the achievements of the 14 PACC country projects, which are grouped according to chosen Sector.

PACC Regional Support

PACC is a Pacific “regional” project implemented primarily by the Executing Agency and PMU in each of the 14 countries. SPREP RPMU is responsible for providing both administrative and technical support to the country EAs and PMUs, using its own resources and contracting inputs from other sources. The intention was to sub-contract other CROP agencies, especially SPC and SOPAC, as well as other parts of SPREP. The MTR notes that this was unrealistic as none of the agencies work in this way, with staff available to take on additional work. In practice, the RPMU has relied on individual consultant contracts, and used these to employ a variety of short-term experts to deliver guidance and assistance to countries.

The initial plan was to provide countries with a single implementation guide for each planned Outcome: a policy Mainstreaming guide for 1.; Vulnerability and Adaptation (V&A) assessment guide for 2.; and Communications guide for 3. Unfortunately, the list was expanded into more than a dozen sets of guides and tools to fill an ambitious PACC Toolbox.

Inevitably, as the project got underway in each of the 13 countries, the RPMU was overwhelmed by requests for advice from EAs and Coordinators, mostly for basic assistance with establishing the local project management and administration. At the same time, the series of guides and tools were being developed with the assistance of consultants, for delivery to the network of Coordinators and other country team members.

The MTR reviews the main guides and tools that have been applied in the PACC country projects to date: Mainstreaming Guides; V&A Assessment; Socio-Economic Assessment (SEA-PACC); Cost-Benefit Analysis (CBA); Environmental Impact Assessment (EIA); Demonstration Guide (guidance on compilation); and PACC Communications Strategy and Plans. In each of the three full years to date, the PACC project teams have been provided with training and assistance to learn and apply the series of tools that have been devised through the RPMU. Considerable efforts have been made by the RPMU, other SPREP staff, UNDP staff and outside consultants to provide the training and guidance to the PACC country teams, aimed at facilitating and enhancing their actions under the three project components. Skills have been transferred and the results of these efforts in countries to date are reviewed in the main section on individual Country Achievements.

The MTR notes that results have been mixed; some of the individual exercises have been organised and completed thoroughly, and have produced interesting findings. The CBA work stands out in this regard. Other support exercises and training have not worked well; guides produced have not been useful or applicable in the PACC countries.

The MTR considers that overall the regional support work has been only marginally satisfactory; it has not been efficient or cost-effective in enabling the country projects to produce better results. The support work program should have been less ambitious, which would have helped to improve the RPMU’s efficiency of delivery. It is not useful for example, to be developing and introducing new guidance materials (Mainstreaming, CBA) in the fourth year of a 5-year project. Throughout the project the sequence of the support work has been poorly scheduled, and has not been provided on demand or in a useful timeframe for the country project teams. The MTR considers that the particular problem has been the lack of an overall coherent strategy for the support

work; it has not been aligned to a planning framework at country or regional levels. Tools have been applied out of sequence, without a clear understanding of what they are supposed to be achieving, and in some cases are inappropriate to the context. Underlying these issues is a lack of focus on the core concern of climate adaptation and resilience.

The recommendation is for the PACC project to be transformed into a set of individual country projects and to discontinue the uniform application of generic tools from the regional centre. Future support should be tailored primarily to meet the individual country's needs. The RPMU and PMUs themselves should form a network of 'learning points'. A strong emphasis should be placed on learning from the experiences of the executants and participants in each country, community and sub-region; learning how to adapt to climate change impacts and build resilience in each priority sector; and on sharing the knowledge acquired in innovative ways.

PACC Country Projects

Thirteen Pacific island countries have been engaged in the PACC Project since its inception in 2009, and were joined in 2011 by Tokelau as the 14th. Considerable numbers of actions have been organised at country level, producing results under the three structural components of the project, and in the priority development sectors on which PACC is focused. The main MTR report presents an overview and evaluation of progress and achievements in each country. Supplementary MTR Reports have been produced for the ten PACC countries that were able to be visited by the MTR mission, and are provided in a separate volume.

Achievements under Component 1. Policy Mainstreaming

PACC Agriculture - Food Projects: In **Fiji** and **Solomon Islands**, the project has contributed to compilation of National Climate Change Policies, which in both cases were ratified and published in 2012. In **Palau**, the project focused on the food sector, and used the multi-agency PACC Core Group to support development of the National Food Security Policy and Action Plan. In **PNG**, the project has not worked on Outcome 1.

PACC Water projects have used Component 1. to support various policy and planning initiatives. For the water sector, PACC **Nauru** was active in developing National Water, Sanitation and Hygiene Policy with a subsidiary Climate Change Adaptation Action Plan; and is supporting a Drought Management Strategy including Drought Resource Action Plan, Water Supply Emergency Plan and Water Conservation Plan. Also in Nauru, PACC has been effective in national institutional development, assisting to set up the Water Unit, and forming an exemplary collaboration with the IWRM project. PACC **Niue** is supporting a National Water Resources Bill drafted in 2006. PACC **Tonga** has facilitated development of a National Water Policy; reviewed a draft National Water Resources Management Bill that is currently with the Law Review Committee; and has also facilitated drafting a National Water Management Plan. PACC **Tuvalu** has contributed to the National Water Policy to go to Parliament in December 2012. In **RMI** also, PACC is assisting a Water Task Force and policy development in the sector.

In most countries, it will be important to extend PACC's policy focus beyond the water sector and promote integration of climate adaptation with coastal management, food security and other requirements to achieve resilience and sustainable development. PACC **Niue** is contributing to development of a Joint National Action Plan on Disaster Risk Reduction and Climate Change, drafted in 2012. PACC **RMI** likewise contributed to development of a 2010 National Climate Change Policy Framework and 2012 JNAP. PACC **Tuvalu** assisted the development of National Climate Change Policy tabled before Parliament in March 2012; and has also contributed to a multi-agency National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016). **Tokelau** has prepared a 2011-2015 Climate Change Strategic Framework. In the remainder of the project, it will be important to increase monitoring and evaluation of the quality and effectiveness-in-implementation of the current array of climate change-related policies and plans.

PACC Coastal projects have worked mainly on governance within their sector. PACC **Vanuatu** for example has targeted policies and plans that form the governing framework for infrastructure development in the country, under the mandate of the PWD and its Ministry of Infrastructure and Public Utilities (MIPU). Work has been started on the Public Roads Act, Code of Practice for Surface Water Drainage, and National Building Code for Vanuatu. PACC **Kosrae** also has shown leadership in policy development: the Kosrae State Code was amended with ratification of the Kosrae Climate Change Act 2011, under which all new infrastructure developments, especially roads and buildings, are required by law to take climate change into consideration, in design and construction. The next steps planned are to assist stakeholders in Kosrae to apply and implement the legislation in Kosrae; and to use the Kosrae legislation as a model for the other three FSM States, and also more widely in the region. Kosrae State, guided by the PACC project, has opted to regulate climate change adaptation by means of modifying their Environmental Impact Assessment (EIA) system.

Of all the countries, the PACC project in **Kosrae** has been the most ambitious and probably most effective in pursuing a broad agenda for climate adaptation, not only in Kosrae State, but nationally in FSM and more broadly in Micronesia and the Pacific. They have taken a broad approach to Outcome 1, not simply contributing to policy drafting exercises, but also actively facilitating collaborative programming, institutional strengthening and technical assistance work among a variety of other programs and projects concerned with climate change. This work moves furthest towards the concept of climate adaptation programming in the region, and provides a good model for the other PACC country projects, and for UNDP and the other GEF Agencies, and SPREP and its sister CROP agencies. One of the significant partnerships formed by the PACC Coordinator is with the SPC-GIZ CCCPIR project, with the objective of updating and up-grading Kosrae's 2000 Shoreline Management Plan, including advice and guidelines on coastal adaptation actions for Kosrae. The MTR considers this to be a highly relevant activity for PACC Kosrae and recommends that preparation of a whole-island coastal management and adaptation strategy should be specified in a revised PACC FSM project plan.

Achievements under Component 2.

PACC Agriculture & Food Sector Countries

Of the four Agriculture-Food country projects, PACC **Palau** and PACC **Solomon Islands** are best placed to progress their adaptation pilot-demonstration measures most effectively. Both are focused on piloting innovative and ecologically-sound strategies and techniques for maintaining and enhancing local agricultural (and aquaculture) food production. For different reasons, in both countries progress to date has been hampered, and the MTR is hopeful that a well-organised re-definition of overall strategy and focus will enable expansion of activities in 2013.

PACC **Fiji** elected to focus on adaptation of lowland farming systems in the flood-prone delta regions of two of the country's large river catchments. In these sensitive ecosystems there are on-going problems with deforestation, erosion and thus silt loading into the river systems, and the areas are already prone to tidal fluctuations with sea water. These issues were not considered in the project design nor apparently during project implementation up until the time of the MTR mission. The MTR is concerned that the main PACC "demonstration" action has been to clean out and dredge a stretch of creek: this is baseline development work that should not have been paid for with SCCF funds; the project was not properly assessed or designed as part of a coordinated adaptation strategy for the delta. The remainder of the project needs to be revised, with the aim of addressing climate change and food security needs in low-lying wetland areas of Fiji.

In **PNG**, the PACC project has made little progress in its target location. The project design was focused misguidedly on a gravity-fed irrigation system, and there was no adequate appraisal of the design. The MTR recommends that PACC PNG should re-think its strategy and overall purpose, and prepare a re-design of the project with a new project logframe. The revised project plan could usefully incorporate: a) a strategy for food security and climate resilience in drought prone areas of PNG; b) V&A assessment for the Kivori area based on the SEA-PACC work, with proper consideration of both hard (e.g. irrigation) and soft (e.g. multi-tier farming or agroforestry) adaptations; c) demonstration activities based on agro-ecosystems design; and d) a strong focus on capacity building and knowledge sharing in support of the project re-design and its effective implementation.

PACC Water Resources Countries

Six of the 14 countries in the PACC program selected the water sector, covering water resources management, and water supply and/or wastewater infrastructure. The six countries are reliant on rainwater (**Marshall Islands, Tonga, Tuvalu and Tokelau**); groundwater (**Marshall Islands, Tonga and Niue**); or alternative sources (**Nauru** – desalination; **Nauru and Marshall Islands** – seawater or brackish water systems for sewerage). It is notable that all six current PACC water projects focus on increasing drought resilience. Given their natural characteristics, none of the countries that chose water projects for PACC are piloting adaptation strategies and measures for surface water management, such as dry season low flow situations and storm event flood flows; nor are they able to pilot and evaluate use of surface waters in conjunction with other water sources. Across PACC as a whole the water management and adaptation options being trialled are therefore significantly limited, and provide no opportunity for adaptation learning and replication in PACC countries (**Fiji, FSM, PNG, Solomon Islands**) that are dominated by surface waters.

Three of the six water projects had prescribed their proposed adaptation solutions ahead of any assessment of other priorities, available strategies or options. More usefully, **Nauru** (alternative sources), **Tonga** (unspecified water resources) and **Tuvalu** (integrated water management plan) did not specify the adaptation measure at the outset. Across the six PACC water projects, there has been no obvious systematic planning and preparatory work; and no assessment of climate change impacts on reducing water resources availability (rainwater or groundwater) and/ or increasing water demand prediction, to inform the engineering design of the infrastructure interventions. Project preparation and planning appear to be based on existing data sets for

rainfall (**Niue, Tonga, Tuvalu, Marshall Islands** and **Tokelau**); negligible data for groundwater (**Tonga**); and current approximate estimates of water demand (all). Household surveys have been undertaken in **Nauru, Niue, Marshall Islands** (Laura) and **Tokelau** to support household selection and construction planning.

PACC **Nauru** is piloting the use of solar stills to purify brackish groundwater for potable uses; rehabilitation of the aged seawater reticulation system for mains sewerage; and installation of domestic rainwater tanks. The solar stills are a valuable option to pilot on Nauru, where rainwater harvesting is historically problematic due to mining dust on roof catchments. The seawater reticulation rehabilitation is in detailed assessment and design phase prior to procurement of materials and construction. It appears to be an entirely appropriate strategy to significantly reduce freshwater demand.

The PACC project adaptation pilot in **Niue** is household rainwater harvesting, described in the PACC ProDoc as a drought resilience measure. PACC+ has committed funds to replicate the rainwater harvesting nation wide. The project needs to ensure design standards are appropriate for the system to be resilient against intense storm damage. It will be valuable for PACC to promote the Niue adaptation approach regionally as a safeguard against water supply 'outage'; and the need to build storm vulnerability assessments and subsequent resilience into the design and operation of water supply systems, at household, village and town scales.

The PACC pilot project in **Marshall Islands** focused on the densely-populated Majuro atoll, and aimed to demonstrate improved drought resilience by a) water demand management measures; in close conjunction with b) enhanced rainwater capture as part of extending the main airport runway. The specific adaptation measures to be piloted have changed at several stages, and were specified in the 2008 PACC ProDoc as installation of a cover on one of the main reservoirs, to reduce evaporation losses; an alternative proposed later was to install a new reservoir lining, to reduce leakage losses. The MTR finds that the installation of an evaporation cover or replacement lining will provide negligible lessons, has limited replication value and does not constitute "additionality". An important action has been to purchase and install bulk flow meters at key points in the system connecting the runway catchment, reservoirs and groundwater wells. This will enable flows throughout the system to be measured and therefore controlled, as part of a more holistic strategy to reduce Unaccounted-for Water (UfW), reduce water demand, and reduce extraction from the atoll's precious freshwater lens. This is a key water management tool that is of relevance region-wide.

In **Tonga** the PACC demonstration is focused on increasing drought resilience at the district level, through improved water resources use and management; a combination of household rainwater harvesting and village and district scale groundwater-fed reticulation. The project strategy to increase drought water security through exploiting (even importing) groundwater resources to augment rainwater harvesting is an entirely reasonable approach. Groundwater provides considerable storage and is less vulnerable to dry seasons than rainwater harvesting, but nonetheless is still vulnerable to extended droughts. In addition to developing infrastructure, the PACC project will need to address a) improving management of the groundwater resource, including monitoring of climate change impacts and abstraction; and b) to improve management and maintenance of new water supply infrastructure, to prevent excessive leakage occurring in the future.

PACC in **Tuvalu** is focused on communal rainwater harvesting and importantly will contribute towards an integrated approach to village freshwater and wastewater management. Community-scale rainwater harvesting is significantly under-utilised in the Pacific; it has the potential to provide strategic drought period water supply once household rainwater harvesting systems have been depleted. PACC Tuvalu will need to facilitate capacity building for sound management of community systems and particularly the distribution of water.

The PACC project in **Tokelau** has received technical and financial support to improve household rainwater harvesting and is piloting a variety of approaches. The project has correctly identified that rainwater harvesting improvements can and should include assessment and re-use of existing household infrastructure where possible, cost-effective and sensible to do so. PACC Tokelau should promote maximising the use of house roof catchments by including full guttering to buildings. Similar to PACC Tuvalu, PACC Tokelau should also extend the project's activities to include water conservation (including developing self-rationing protocols) and linking these behavioural change responses to rainfall forecasting initiatives.

The current PACC water projects are all biased towards supply-side solutions, with only the Marshall Islands explicitly targeting reduction of losses from the water infrastructure. It would be useful to increase the projects' attention to water resources management measures and water conservation; to counter-balance the focus on water supply infrastructure improvements, typical perhaps of water aid projects. Similarly, the projects should integrate climate forecasting or early warning systems into their plans and interventions. Each of the six PACC water projects has the primary objective of increasing resilience to existing climate variability and climatic hazard, but none have adequately considered future climate change in the design (in contrast with the PACC coastal projects; refer to PACC **Cook Islands, FSM** and **Vanuatu**).

PACC Coastal (Infrastructure) Management Countries

Four of the 13 PICs participating in PACC chose the coastal sector and have developed their PACC work programs to focus on protecting or strengthening coastal infrastructure. The four vary in the extent to which they have focused primarily on the infrastructure (Mangaia harbour in **Cook Islands** and Kosrae coastal road in **Kosrae, FSM**), or also on the coastal zone (**Samoa, Vanuatu**). Following selection of the sector and pilot sites, and over the past three years of implementation, the four PACC Coastal countries adopted different approaches and have progressed at different rates. A problem for the PACC country teams was that none started off with an adequate plan or agreed strategy to guide their actions, and the MTR finds that this proved to be a significant barrier to efficient and effective implementation.

Of the four PACC coastal projects, **Cook Islands** and **Vanuatu** have followed reasonably systematic processes. PACC Cook Islands organised a major geo-spatial study in 2010-11 of the target coastal zone of Mangaia Island, modelling climate change impacts, especially storm waves and sea-level rise. This enabled development of a sophisticated Coastal Calculator to inform the engineering design of the coastal infrastructure adaptation measures. In **Vanuatu** also, although not guided by a clear strategy or plan, good preparatory work has been carried out: local climate change and sea-level rise models have been developed; preliminary ground survey of the selected coastal area on Epi Island has been conducted; marine environment baseline studies have been started; and a Preliminary Environmental Assessment has been prepared.

The other PACC coastal pilot projects, in **Kosrae** and **Samoa**, do not seem to have prepared and followed any systematic plan. The main reason is that both projects understood that the assessment and planning work for their component 2 had been done already: in Kosrae, they understood that the preparatory work had been done in 2004, under the ADB CLIMAP case study. Similarly in Samoa, the preparatory work had been done during the compilation of Coastal Infrastructure Management (CIM) Plans under the previous World Bank SIAM project. As a consequence in both Kosrae and Samoa, there has been no clear strategy, and little further preparatory assessment or planning work has been done.

A crucial step in the development of the pilot-demonstration project is preparation of a sound design for the adaptation measure, based on the results from prior survey, assessment and consultation processes. The four coastal projects have not been managed well in this regard; none has yet produced a comprehensive model design for the coastal adaptation pilot-demonstration works. PACC **Cook Islands** has made most progress: a 2012 Project Design Report for Mangaia Harbour re-development has been prepared by the Ministry of Infrastructure & Planning. However it falls short of providing comprehensive design specifications for a “climate resilient coastal harbour”. In **Samoa**, the PACC project has virtually completed implementation of the pilot projects, rock sea walls at three village sites, apparently with only simple standard engineering drawings and without following the CIM Plans and up-to-date advice on sea level rise or storm wave action. PACC **Vanuatu** has not prepared an overall strategy or a detailed plan of what is to be done on the coast of Epi island; and it will be important following the MTR to re-define an effective climate adaptation strategy for the area of coastline being targeted.

Relevance and Significance of the PACC Project

The concept of assisting Pacific island countries to adapt to future climatic and environmental conditions is clearly highly relevant; it is vital for the PICs to adapt, to bolster resilience and reduce vulnerabilities as effectively as possible. The Pacific islands and communities are among the most highly vulnerable, geographically, ecologically and economically, to climate change impacts through changes in extreme weather events, sea-level rise, ocean warming and acidification. For most PICs, the pattern (historic and current) of development and exploitation of natural resources has also reduced resilience to these climate change impacts. It is important to recognise that this means that the PICs' resources, economies and sectoral management are not well-adapted to current environmental and climatic constraints, let alone likely future increases in variability and extremes.

PACC was significant also as one of the first assistance projects available to the majority of the Pacific island countries that was focused on practical climate adaptation measures. It was thus highly relevant to those PICs that were preparing or had prepared a national adaptation strategy or a plan of action such as the NAPA, as an opportunity to implement priority elements of the plan. However, the MTR is concerned that countries have not yet made the most of the PACC opportunity; its relevance has been reduced by being focused too narrowly downwards onto specific actions and not used strategically.

The intention to use the project to establish an institutional framework for systematic programming of adaptation work in the region gave PACC an additional significance. However, the project has made only minor progress in this regard; and its significance has been diminished in recent years by the large range of new funding opportunities for climate adaptation work, which are being developed with little connection to the PACC or to national or regional adaptation programming "frameworks".

PACC is important and relevant as a region-wide initiative. As a widespread group of SIDS, the Pacific island countries gain greatly from a regional approach to tackling common issues, using resources synergistically, and sharing experiences, knowledge and effective solutions to those issues. All PICs are going to be impacted severely by climate change, and the best chance for the islands and communities to withstand and adapt to these impacts is by working efficiently together. The challenge for the region's institutions is to ensure that working together leads to greater efficiencies, to learning more rapidly how to adapt effectively, and to spreading and applying that knowledge widely. The institutional arrangements for PACC in the Pacific islands region are especially important in this regard: national and regional mechanisms that are intended to drive collaboration – steering committees, teams, Round Tables, SPREP, CROP – have crucial roles to live up to if PACC and associated climate adaptation programs are to be successful.

The relevance of PACC and the several other comparable initiatives would be enhanced greatly if they worked together effectively and covered all the Pacific islands region. A significant portion of the region neither contributes to nor gains from PACC. SPREP and the other CROP agencies do not readily use the projects to extend services to all members; nor thoroughly engage all members in assisting the Pacific island countries to adapt to climate change. The MTR is concerned that the PICs will not be able to adapt to climate change impacts sufficiently rapidly through aid projects alone; a much more vigorous modality of knowledge exchange is required urgently. "Projectisation" of the efforts reduces their significant potential and relevance as a knowledge exchange mechanism, across communities, within countries, across the broader region.

Summary of General Recommendations

Recommendation 1. PACC Country Project Plans and Designs

It is recommended that the future emphasis of management should be placed on the individual PACC country projects, and a reduced focus should be given to the “regional project” and support program. For each PACC country project, the basic project framework of Outcomes, Outputs and Activities and the logic of their inter-connections should be re-defined. PACC requires country-level log-frames nested within an overall framework. This will require the PACC team in each country, with RPMU support, to re-think and confirm the essential strategy, logic and substantive objectives behind the local project. This process could usefully start with defining the country’s key planned results, Outputs or mid-level objectives, plus the financing plan for each one, i.e. results-based budget and expenditure monitoring, and the timetable. Some general suggestions for improving the project logical frameworks are listed. Refer also to individual **PACC Country Project Recommendations**.

In reviewing, refining, and re-designing project plans, the multi-sectoral nature of the majority of the current demonstration activities needs to be fully addressed, and it is important for all PACC participants to develop and promote a more in-depth understanding of what resilience-building means; and to identify effective adaptation strategies and prepare rigorous designs for demonstration adaptation measures. Country teams should ensure that they are effectively building resilience to climate change; and recognise that they are contributing to developing their country’s systems for climate adaptation.

The three components of each country project should be refocused and realigned as follows:

The core Component 2. is to pilot and demonstrate one or a series of effective measures to build resilience in the target location and development sector(s). The adaptation measures should be planned as integral parts of the co-financed, coastal/ agriculture/ water development ‘project’. A lighter and more dynamic approach should be taken in the development of suites of demonstration measures². These should be re-evaluated in terms of their representation of different adaptation/ resilience building options and potential for transfer and/or up-scaling.

Component 1. should focus on applying the lessons and results from component 2 to strengthen the local-national institutional and policy framework and promote replication and scaling-up. This should start with formulating a climate adaptation strategy for the target development sector, and then systematically incorporate climate adaptation into the policies, regulations, management plans, standards and codes that govern the sector.

Component 3. should be focused clearly on sharing knowledge about the demonstration measures and the institutional and policy developments in order to promote their replication. This work should draw on the lessons from each country’s component 2 and 1, both of which will require improved monitoring of their effectiveness in practice.

Recommendation 2. PACC Oversight and Governance

The MPR should be reformed as the PACC Steering Committee (PSC) to serve efficiently and effectively as the single governing body of PACC overall, and the Project Board should not be continued. PSC membership should be UNDP, AusAID (and other donors), SPREP and Directors of the National Executing Agencies or Chairs of National Steering Committees. It should be chaired by SPREP, which should be confirmed as the Lead Implementing Agency for PACC, with the RPMU as executive secretariat; the PACC PSC should also liaise closely with the national Steering Committees. The PSC should focus on overall program strategy and policy; and efficient annual review and endorsement of annual reports (technical and financial), annual project plans and budgets. Decisions should be by consensus or majority vote if necessary. The PSC should also work in conjunction with a strengthened PI CC Round Table and within other regional frameworks convened under the CROP mechanism.

² For example, the PACC project in FSM is in danger of being seen as the project building a climate resilient road, providing the single unremarkable lesson of larger culverts. Instead PACC Kosrae should be managed more creatively to devise and introduce a more useful, varied range of climate adaptation measures for planning, design, construction and maintenance of coastal roads and coastal infrastructure more generally.

Recommendation 3. PACC Project Management

It is recommended that UNDP should delegate management authority for the PACC Project to SPREP, and focus on enabling SPREP to carry out the function effectively and efficiently. SPREP should develop the capacity of the RPMU within SPREP to properly manage and coordinate all aspects of the project's implementation regionally and in countries. The RPMU's responsibilities should be extended so that it is leading and guiding SPREP's climate adaptation program, which may comprise several PACC projects, including those with SCCF, AusAID and USAID funding.

The RPMU within SPREP should be strengthened with three additional technical adaptation program staff, mid-level professionals capable of guiding and servicing the needs of PACC project executants across the technical fields of adaptation planning and building resilience in the countries' mainstream development sectors. SPREP should give immediate consideration to organising the expanded RPMU program to work as a virtual SPREP team with devolved placement to serve the three sub-regions: *via* a) the CROP agencies' hub in Micronesia; b) the MSG Secretariat in Vanuatu as a hub for climate and environment work in Melanesia; as well as c) a hub for Polynesia centred on SPREP. Their focus should be firmly on facilitating knowledge exchange for climate adaptation, employing the SPREP/ linked-CROP agencies' Library facility. Refer also to **MTR Recommendation 9**

MTR Recommendation 4. PACC Project Administration

It is recommended that the administration and financial management mechanism for project operations must be reformed as a pre-requisite to the PACC project proceeding. The MTR makes the following suggestions:

a) Change to a 6-month cycle of planning, funds disbursement and reporting. This would entail a) improving the standards of annual and 6-month plans and budgets against the improved overall logical framework, work plan and results-based budget plan; b) disbursement of 6-months advance of funds in month 1; and c) return of an expenditure report in month 6; allowing one month for processing. If UNDP's system cannot accommodate 6-monthly advances of funds, it would be relatively simple to advance funds each quarter, and acquit and report back on that advance the following quarter. This would obviate the critical hurdle of attempting to advance, spend and acquit the funds within a single quarter.

b) Remove the multiplication of effort required for UNDP Samoa, SPREP RPMU and 14 Executing Agencies and project offices to co-manage project administration and financing: either UNDP Samoa should delegate the task of managing the PACC budget account fully to SPREP, and enable the RPMU to perform this function with due diligence; or UNDP Samoa should administer the project funds directly itself; and disperse funds and receive expenditure reports directly from each PMU and other cost centres. In the latter arrangement, administration of the accounts should be separated from the technical management of the PACC project, which should remain the responsibility of SPREP and the RPMU.

c) Introduce results-based financial management. This will entail a) setting up an Excel file as a parallel record of budget and expenditure in each cost centre (PMU, RPMU); or more simply, adding an account code to each re-defined Output; b) confirming the budget for each PMU and RPMU against the improved project plan/ log framework (with a strong focus on the specific key results – Outputs – that are planned, each with a budget, at each centre; and c) monitoring, recording and reporting expenditure against each Output.

MTR Recommendation 5. PACC Management in Country

PACC should be managed primarily as a set of country projects with connections between them and with the region. It would be valuable for the national EAs and Steering Committees to provide more leadership and direction to the PACC initiative, and to themselves engage upwards into regional adaptation programming in conjunction with the regional PACC PSC. In the remainder of the project and beyond, these national bodies should increase their ownership and use of the PACC project. This proactive re-engagement should form part of the process of re-defining the PACC project plan and substantive objectives in each country, including consideration of how to apply the NC and PMU, and the SCCF and PACC+ funding most effectively.

At country level, PACC should be considerably more active in engaging, collaborating and exchanging ideas, experiences and lessons with other agencies and programs about climate adaptation needs and actions. Rather than remaining inside the prescribed box, the PACC PMU, EA and Steering Committee should deliberately promote and create ways to achieve synergy with other relevant projects; and should contribute to and participate in the development of a common strategic framework or action program for climate adaptation in the country.

MTR Recommendation 6. Regional Collaboration

It will be valuable for SPREP and the RPMU to strengthen efforts to establish an inclusive forum for climate adaptation programming in the region, based on or under the auspices of the Pacific Islands Round Table for Climate Change as appropriate. PACC, PACC+ and the USAID-SPREP 'projects' should become integral parts of an overall program, and make use of the regional forum to develop and establish a common strategic framework, and common tools for monitoring and knowledge management.

MTR Recommendation 7. M&E, Information Management, Knowledge Sharing

A cultural change should be instigated, across the project and in the participating agencies, to foster and establish PACC as primarily a Learning and Knowledge-sharing mechanism. Whereas to date PACC managers and executants have tended to be pre-occupied with organisation and administration of delivering the PACC project, it is recommended that for the remainder and any extensions of the project, all executants should become creatively pre-occupied instead with the technical knowledge that is being generated and used by the project, and systematically develop PACC to function primarily as an information management system, integrated thoroughly with a broader network of information systems, across Executing Agencies, sectors and programs. At the least, each PACC project executant should record and organise the information materials s/he prepares so that they are readily stored and retrievable from the national-regional system.

Following the MTR³, the RPMU and SPREP Library should convene a small virtual task force (involving PACC EAs, PMUs, PSC, SPREP and UNDP) to review the existing technical libraries and databases available to them and plan for them to incorporate the technical information materials that are generated and used by the PACC project. Centred on the well-established SPREP library, these data-banks should form the core of a networked information system serving the Pacific island countries and region.

Recommendation 8. PACC Program Extension

MTR Recommendation 1. is for each PACC country project to re-define its basic project plan, budget and timetable. This should be based on re-consideration of the actions, time and funds that will be required to achieve each country project's re-defined and agreed objectives. It is further recommended that the overall plan, remaining budget and timetable for PACC should be reviewed and revised, based firmly on the revised plans proposed and agreed with each participating country. The revised overall plan should provide for continuation, completion or extension of PACC work for a suggested period of up to 5 years (2013 – 2017), subject to a) the time required to achieve the objectives and b) the funding available. The revised plan should be in the form of a collaborative program between SPREP, UNDP, AusAID, USAID and other contributing agencies; and to the extent possible should incorporate or have links to all of the agencies' climate adaptation related program activities.

Recommendation 9. PACC Technical Support and Guidance

In the next phase of PACC and in cooperation with other adaptation programs, projects and CROP agencies, the RPMU with SPREP and the country PMUs with their national EAs should focus strongly on facilitating knowledge management concerning all aspects of climate adaptation. The RPMU and PMUs should form a network of advice points able to provide individual tailored support focused on the country project and country system needs. The emphasis on generic tools and guidelines delivered regionally should be discontinued, and replaced with individual support exercises requested by the NC or EA and organised by the RPMU. As a priority, the RPMU and PMUs should confirm meaningful V&A assessment and adaptation planning and monitoring tools, based on their collective experiences and strengthened local monitoring, recording, evaluation and learning activities.

PACC and its partners should give increased priority to facilitating wide access, understanding and application of Climate Change and SLR monitoring and projection data from the Pacific Climate Change Science Programme.

The current project communications strategy should be discontinued and replaced with knowledge sharing and capacity building targeted at supporting country and local actions. The primary emphasis should be on sharing

³ This system should have been set up at the start of the PACC project as a priority task of the RPM and NCs within their respective institutions. It should not be left until the end of the project, which is common practice.

of expertise and knowledge between country teams and country projects, as well as across the several adaptation programs that are underway. Each PACC partner, PMU and pilot site should be organised to function as a knowledge bank, resource centre and demonstration, as a source of ideas, guidance and technical support for CC adaptation actions.

PACC should contribute to innovative mechanisms for the three Pacific island sub-regions to share knowledge and support among their communities. A 5-year plan (2013-2017) should be prepared for low-cost, low-key knowledge exchange, with country and island nodes across Micronesia, Melanesia and Polynesia. Refer also to **MTR Recommendation 3**.

Summary of Specific Recommendations for PACC Country Projects

Recommendations for PACC Agriculture and Food Security Projects

PACC Fiji – Recommendations

The drainage maintenance work on Qaraniki Creek should not have been included as major project expenditure in a climate adaptation and food security project. This was clearly baseline development or maintenance work and an item for co-financing, rather than climate change adaptation meeting SCCF's additionality criterion. The dredging work has been done in the absence of a V&A assessment that ought to have looked at the delta areas in the context of the large watersheds that feed them, as buffer zones between land and sea, and considered all possible options for future management of these low-lying areas before even considering the need for new drainage guidelines, let alone implementing drainage clearing in the absence of any guidelines that factor in climate change. Without this fundamental work there is potential for this project to be mal-adaptive, particularly if it does not encompass the real possibility that relocation may be the only realistic long-term solution, with a complete shift away from the drainage management focus and restoration of these areas as buffer zones. The remainder of the project therefore needs to be completely revised to effectively address climate change and food security needs in low-lying wetland areas of Fiji.

1. The project should support no further work on drainage maintenance (weed control and dredging) and design, beyond what has already been contracted (these two activities have already committed approximately 50 percent of the budget), for the reasons given above and in the country supplementary report.
2. A complete re-design of the remainder of the project should be organised from Q1 2013, focused on developing a climate change and food security strategy for low-lying wetland and farmland areas (with short, medium and long-term goals) that treats their management as an integral part of a water catchment; and on reviewing and establishing trials of relevant food production systems. The redesign process needs to identify what is feasible within the remaining timeframe and budget, as well as help establish a much stronger foundation for future adaptation work in low-lying areas that are prone to both river flooding and flooding, inundation, and salt water intrusion from the sea.
3. It will be valuable for PACC in Fiji to be linked to government programming and to interact more closely with and share lessons with other relevant projects in Fiji, a number of which have adopted or are adopting a more holistic ridge to reef approach.
4. A project supervisory board and a new project management group should be appointed, to ensure relevant climate change adaptation, food security, and community engagement expertise. Both groups need to work closely together to support the Project Manager in re-designing the remainder of the project and budget (both SCCF and co-financing), with the aim of ensuring that the project is able to effectively meet its stated objectives of increasing food security in low lying areas of Fiji.

PACC Papua New Guinea – Recommendations

Bureaucratic issues and lack of capacity within Papua New Guinea have paralysed a project that was poorly conceived and designed. The MTR recommends a complete re-design of the project with a new project logframe and a 6-month work plan and budget for the first half of 2013. Project performance should be closely monitored and a final decision made before mid-2013, to either terminate or continue the project, based on the project team in PNG demonstrating that they can make effective and efficient use of the significant amount of PACC funds that have yet to be spent.

1. A new project plan is required that incorporates: a) a strategy for fostering food security and climate resilience in drought prone areas of Papua New Guinea; b) a V&A assessment report for the Kivori area based on the SEA-PACC work, with proper consideration of both hard (e.g. irrigation) and soft (e.g. multi-tier farming or agroforestry) adaptations within the context of all issues/ vulnerabilities at Kivori; c) demonstration activities that are based on agro-ecosystems design; d) a strong focus on capacity building and knowledge sharing in support of the project re-design and its effective implementation.
2. Further improvements to project governance and management are recommended, including tighter, focused governance from a steering group involving representation from DAL, OCCD, UNDP PNG, Department of National Planning and an NGO; plus a strengthened project management committee including representative(s) from the Kivori community.
3. While clear distinction should be maintained between PACC PNG and the SPC-GIZ CCCPIR project, the two projects must also plan and develop complementary and synergistic programs in the local project area.

PACC Palau – Recommendations

The project in Palau has been hampered by poor direction and lack of strategic management. The PMU has not functioned effectively or efficiently under the institutional arrangements to date. The project strategy, logical framework, work plan and budget need to be reviewed and revised, to enable the project to achieve the objective of increased resilience of food production in relation to climate change.

1. The Palau project needs to be re-formed around a revised project strategy; then continued under different management arrangements, and provided with much clearer strategic guidance and support. This can be drawn readily from the PACC Core Group member agencies. Refer to the MTR supplementary report for Palau.
2. The ridge-to-reef or catchment approach that has been initiated is an appropriate strategy for PACC to follow and to promote. The project design and logical framework should be revised and strengthened to reflect this approach, with much clearer strategic objectives and a strong set of well-defined outputs, each driven by an action plan and results-based budget.
3. PACC Palau should contribute where possible to the development and implementation of a comprehensive national strategy for climate change adaptation in Palau, with strong strategic and institutional linkages to complementary integrated natural resource management and related programs.

PACC Solomon Islands – Recommendations

Bureaucracy, the remote location of the principal demonstration site, and lack of capacity have been significant impediments to project implementation, particularly relating to the demonstration activities. The MTR endorses the recent appointment of a Demonstration Team Leader to build on and extend his recent ACOM-funded food security work on Ontong Java.

1. The project needs to focus strongly on building on and extending the successful work done through the ACOM project on Ontong Java.
2. Over the remainder of the project, innovative ways of sharing substantive ideas, experiences and lessons within countries and across the region should be trialed. Both the OJ V&A assessment and the lessons from Temotu and OJ documented by the PACC Solomon Islands Demonstration Team Leader are highly suitable for dissemination trials.
3. The ineffectual, and incomplete, communications strategy should be discontinued, and replaced with a strong focus on relevant capacity building and knowledge sharing, with minimal external agency or consultancy input. Rather it requires some targeted support to enhance the knowledge and capacity of the Demonstration Team Leader, and using him as a resource person to guide the re-design of PACC Solomon Islands and contribute to more effective project design in the other PACC countries.

Recommendations for PACC Water Resources Projects

In the absence of any PACC water countries focusing on surface water management issues (watershed management, flooding, sedimentation, drought low flows) due to the countries selected, it is recommended that PACC should extend its attention to surface water management vulnerability assessment and adaptation, as a primary contributor to food and coastal security in Fiji, PNG, FSM and Palau. Such strengthening of the PACC project would significantly increase the relevance of the project to water management and all water users in the PICs facing surface water management issues and requiring surface water and integrated water resources management adaptation solutions.

PACC Nauru – Recommendations

The PACC project has been focused narrowly onto water, whereas an integrated strategy to build resilience to climate change – for all sectors, island-wide – would be significantly more relevant and effective; Nauru's food security and basic ecosystem functions are also vulnerable to climate change. The trialing of alternative water resources is appropriate but the medium to long term reliability of the infrastructure is uncertain, hence the PACC project needs to commit sufficient resources and effort to adequately evaluate the sustainability of these approaches.

1. The performance, durability and useful lifespan of the solar stills require a thorough monitoring and evaluation program to be maintained for a number of years, and the findings shared and promoted as part of the adaptation demonstration purpose of PACC.
2. It will be valuable also for PACC Nauru to carefully monitor and document the design, performance, capital cost, operating and maintenance costs and technical capacity required to sustain in practice a reticulated brackish/ saline wastewater system; and again disseminate the findings in clear, innovative and effective ways.
3. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, and enable community adaptation responses (water conservation, rationing etc.) to be initiated.
4. In the remainder of the project and using a small amount of PACC+ funds if required, PACC Nauru should promote and facilitate a whole island integrated planning and development approach to water security, local food production and climate adaptation, recognizing the role of gender in management. This should include a strategy for the long-term management of Nauru's brackish groundwater. Elements of the strategy should comprise appropriate measures to prevent further contamination of groundwater from salt water sewerage system leakage, inappropriate wastewater discharge, inadequate solid waste management and pollution controls.

PACC Niue - Recommendations

The project in Niue has been hampered by a weak assessment of country vulnerability and adaptation options and an inadequate project design. The rainwater harvesting demonstration is incorrectly being designed as a drought resilience measure, when it is actually an adaptation to increased cyclone hazard. The project needs to commit resources and effort to refocus on cyclone resilience planning.

1. The PACC rainwater harvesting demonstration should be re-specified to focus on increasing resilience against cyclonic damage (winds and rain), so as to be operational immediately post-cyclone, including not only construction design but also household management and recognising gender specific roles
2. The project should contribute to the preparation and implementation of an integrated water supply and wastewater cyclone resilience strategy across the island, including the reticulated groundwater schemes.
3. Through awareness raising and capacity building PACC should contribute to strengthening community and utility preparedness for cyclone events, including early warning systems and immediate preparedness response measures (including coastal and other sectors).

PACC Marshall Islands – Recommendations

The MTR finds that the PACC project in Marshall Islands is failing to take a systematic, strategic and dynamic approach to enhancing climate resilience of the country's water resources, supply and wastewater systems. The outer islands require priority attention as well as Majuro's municipal water and wastewater systems. Project management capacity and reform need to be aligned with a clearer strategy and systems approach.

1. The PACC project and its lead agency should engage without further delay with the runway extension project to ensure increased rainwater harvesting and coastal storm surge protection, through the infrastructure design, operating procedures, and coastal vegetation planting.
2. PACC should fund MWSC to develop and implement a leakage detection and reduction program for the main pipelines between Laura, the airport and the DUD; making use of the installed flow meter information to identify and prioritise repairs. Secure government or aid financing for the reservoir evaporation covers and linings; use SCCF funds only for technical specification and design works. Facilitate specification and installation of Laura rainwater harvesting by others; not using SCCF funds.
3. The Water Task Force should commission an assessment of the climate change risks and responses required to improve the resilience of the seawater sewage system; including storm surge damage to the seawater intake and wastewater disposal outfall.
4. PACC RMI should coordinate development and promotion of a food and water security & adaptation strategy for the whole country, based on climate projections⁴ linked to food and water strategies. Plan, promote and systematically implement a program of water and food security for the Outer Islands, making use of a strengthened extension program; integrate rainwater harvesting, groundwater management and non-freshwater usage sanitation approaches at the communal and household scale, including addressing gender.

PACC Tonga – Recommendations

The project fails to identify water resource responses to climate change as a critical component for delivering increased community resilience and participatory adaptation; PACC needs to improve integration and communication between water resources management and the target communities.

1. PACC Tonga should enable improved engagement of the Hydrogeology Unit to actively monitor and determine the freshwater lens volume, whether the resource is reducing, stable or expanding; and should provide notification to community whether to reduce abstraction.
2. The project should plan and facilitate improved community infrastructure management, to include tariff collection by the community and equitable gender inclusion to support adequate long term maintenance and encourage both groundwater demand suppression and conjunctive rainwater use.
3. The project should increase efforts to build capacity of communities, especially women, to adapt their water demand, through conservation, rationing, rainwater and brackish wastewater use, in order to sustain fresh groundwater resource availability during predicted dry periods.
4. PACC+ funding should be used to plan, design, pilot and establish a coastal zone management framework that includes improvement to water resources and water supply resilience; community food security; and the development of village and district scale integrated resilience strategies and plans.

PACC Tuvalu – Recommendations

The project focus is predominantly limited to construction of communal rainwater harvesting infrastructure, and needs to ensure both adequate operation and maintenance of this new approach and integrate its use into household water and wastewater management strategies.

1. PACC Tuvalu should explore, develop and facilitate introduction of appropriate community water governance arrangements, recognizing the vital role of women in sustaining communal water storage, including equitable water allocation and long term maintenance.
2. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, to enable community adaptation responses (water conservation, rationing etc.) to be initiated.
3. The project should extend the household and community water conservation and demand reduction measures it is piloting and demonstrating, to include awareness and education on water wastage, tank leak repairs, rationing, dry eco-sanitation and brackish groundwater use for toileting.
4. PACC should strengthen promotion of integrated communal water and wastewater planning and management more widely, incorporating existing household rainwater harvesting practices and recently

⁴ For example, those generated under the Pacific Climate Change Science Program for 13 of the PACC countries. Australian Bureau of Meteorology and CSIRO. 2011. Climate Change in the Pacific.

introduced dry eco-sanitation and brackish wastewater use.

PACC Tokelau – Recommendations

The project focus is only on household rainwater harvesting infrastructure storage and treatment improvements with limited consideration of rainwater capture, alternative water sources and demand management; and of coastal zone risks and the role of improved water availability on food security.

1. The project should increase its focus on maximizing rehabilitation, to include improving the rainwater catchment areas, and storing excess (overflows) water in the ground.
2. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, to enable community adaptation responses (water conservation, rationing etc.) to be initiated.
3. PACC Tokelau should promote integrated water and wastewater planning and management, including household and communal rainwater harvesting, dry eco-sanitation and brackish wastewater use, and water demand conservation and demand reduction strategies (as per Tuvalu).
4. The project should include an assessment of potential fresh groundwater resources, and if feasible introduce, monitor and evaluate infiltration gallery technologies used in atoll islands in Kiribati, Marshalls and Tonga.

Recommendations for PACC Coastal Management Projects

PACC Cook Islands – MTR Recommendations

PACC Cook Islands is focused on re-development of the Mangaia Island Harbour to enhanced design specifications, with the aims of strengthening the durability of the infrastructure to withstand more intense storm waves and raised sea levels, and extending its accessibility and operational utility in stronger wind and wave conditions.

1. Case Study documentation: the project must strengthen the documentation and evaluation of the processes that have been followed for re-development of the harbour within an island/ coastal zone management, development and adaptation plan. Major steps requiring documentation and evaluation have included a) assessment, research, survey and community consultation; b) application of the Coastal Calculator to determine the storm, wave and sea level conditions that the harbour design and structure must allow for and must withstand; c) specification of performance standards that must be met; d) engineering design for the harbour re-development; e) construction management and commissioning.
2. Financial planning and management: the project must prepare a rigorous and transparent financial plan for all aspects of the harbour re-design and re-construction, with the surrounding coastal management planning and implementation.
3. Additional attention needs to be given to the following:
 - a) Preparation of a coastal zone management, development and adaptation strategy for Mangaia; with the harbour re-development plan as a major integral part.
 - b) Immediate establishment and operation of environmental monitoring program over the coastal area and harbour site; with baseline and historic record established.

PACC Kosrae, FSM – MTR Recommendations

The relevance and effectiveness of the PACC project in Kosrae have been limited by the early decision to “climate proof” new sections of the island’s coastal road, rather than develop a broader strategy to plan and demonstrate effective climate adaptation measures in coastal zone management.

1. The PACC project should be used to prepare a comprehensive Coastal Management Adaptation Strategy for Kosrae, planning adaptation of all aspects of Kosrae’s coastal land-use, management, conservation and development to climate change impacts, in broad stages for the next 30-50 years. This should be integrated with actions to be supported under the CCCPIR.
2. Within the CMAS, the PACC project should be used to support design and demonstration of a broad range of climate adaptation measures for Kosrae’s coastal zone management: for roadway planning and design

standards; coastal zone building development; shoreline/ beach management; solid and sewage waste management; water and power distribution grids; coastal vegetation, coastal land, gardening/ farming.

3. As part of CMAS planning, and modification of the State's Infrastructure Development Plan, there should be a review of the wisdom, necessity and value of constructing a complete circumferential road around Kosrae, given the geography, ecology and economy of this island, and the likely future climate change and sea level rise impacts. The PACC project should not continue to facilitate construction of the incomplete Kosrae coastal road sections RS3-4. It is inappropriate use of GEF funds. Through KIRMA, PACC should design, advise on and facilitate the development of the partially constructed Tafunsak roadway into a low impact "green lane" walking and bike track and single light vehicle track, with minimal environmental impact, and landscaping and rehabilitation of the roadway edges and margins; any construction should be lightweight and low-impact, and not paid from PACC/ SCCF funds.
4. The PACC project should contribute its experience and knowledge to formulation of a comprehensive long-term climate adaptation strategy for FSM (each of the four States), as a framework within which multiple agencies and projects can work efficiently and effectively, subsidiary to the National Climate Change Policy.

PACC Samoa – MTR Recommendations

The PACC project in Samoa has not followed rigorous decision-making processes a) to assess coastal vulnerabilities and plan coastal adaptation strategies, building on the District CIM Plans; and b) to plan, design, implement and monitor the effectiveness of the pilot adaptation measures implemented at three sites. Instead, sea walls have been constructed, which were not as recommended in the relevant CIM Plans, and which are not technically sound and appropriate coastal resilience building measures. The work done to date should not be extended, but it is worthwhile to properly monitor, document, analyse and draw lessons from what has been done.

1. The PACC project should prepare a project plan, work plan and integrated results-based budget to complete the existing three adaptation demonstration pilots, with the following components. No PACC work or funding should be extended to other pilot sites:
 - a) Working with PPCR, PACC should support preparation of an integrated coastal zone management and climate adaptation strategy for each of the two Districts it has targeted, incorporating and expanding on the respective CIM Plans.
 - b) The PMU should design, install and implement a model coastal monitoring system for the two Districts and three PACC pilot sites.
 - c) The project should extend work with the local communities in the selected Districts to develop a long-term strategy for adaptation to climate change in the coastal zone, which needs to tackle the reality that progressive relocation away from the existing coastline will be required as sea level rises.
 - d) It will be valuable for PACC Samoa to conduct and document a careful objective appraisal of the successes and shortcomings in the process followed by the project at the three pilot sites and apply the lessons to 1a. above and to the development of the draft Demonstration Guide.
2. The PACC PMU within MNRE should contribute its experience and lessons to support establishment of and to participate in a national institutional framework and programmatic focus to climate change adaptation that is currently being developed in Samoa with the support of PPCR.

PACC Vanuatu - Recommendations

The PACC project in Vanuatu has not progressed, in the absence of a clear strategy, project logical framework plan, and functional project administrative arrangements with SPREP and UNDP.

1. PACC should prepare a fresh project strategy and plan to govern and guide implementation of PACC in Vanuatu. It should encompass both PACC and PACC+, and should be planned for implementation over a sufficient number of years to achieve its purpose with a suggested minimum duration of 4 years. Work on preparing the fresh strategy and plan should be started in Q4 2012 – Q1 2013. The revised project plan should include a revised budget, aligned to the project outputs framework, and integrated with co-financing that will be required for major development components.
2. NACCC (MGD and PWD) should strengthen the management and execution of PACC Vanuatu, with a PACC Task Force under the Climate Unit, to coordinate the line agencies' execution of PACC project actions. Recruit a full-time PACC executive officer to strengthen the PACC PMU, to work under the direction of the PACC Coordinator in PWD and closely with the NACCC PMU.

3. The project should be re-designed to achieve the broad purpose of demonstrating climate-resilient coastal management on Epi island, within the context of developing a coastal zone management and adaptation strategy, and with specific adaptation demonstration components for coastal infrastructure and coastal and marine ecosystem management.
4. The plan should include a proposed second coastal management and adaptation location, to be implemented in parallel with cross-learning, with the Epi Island site. PACC+ funds should be proposed for the coastal adaptation planning and design components of the second location; and again co-financing should be integrated into the budget for any infrastructure development costs.

PACIFIC ADAPTATION TO CLIMATE CHANGE PROJECT

Mid-Term Review 2012

INTRODUCTION

1. The Pacific Adaptation to Climate Change (PACC) Project is an initiative supported by the United Nations Development Programme (UNDP) and the Secretariat of the Pacific Regional Environment Program (SPREP), to assist the Pacific island countries (PIC) to implement practical measures to reduce the vulnerabilities of their key development sectors to the impacts of climate variability and change. Following two years of project development, the Global Environment Facility (GEF) provided a USD 13.5 million grant from the Special Climate Change Fund (SCCF), and the participating PICs committed a total of USD 44.5 million in co-financing to carry out the project over five years, from 2008 to 2012. Thirteen PICs started implementation of the PACC Project in 2009, with support from SPREP and the UNDP Multi-Country Office (MCO) in Samoa. In 2011, the Australian government aid agency, AusAID, allocated a grant of USD 7.86 million over three years, to be added to the PACC initiative and referred to as PACC+. At the same time, a 14th PIC, Tokelau, joined the program.
2. In 2012, UNDP commissioned an independent review and evaluation of the PACC Project, to comprise a standard mid-term evaluation in accordance with UNDP and GEF requirements, plus technical review of the specific climate adaptation actions that each country is undertaking, with a view to recommending how best to organise the remainder of the PACC program including the PACC+ funding.
3. This is the report of the PACC Project Mid-Term Review (MTR) conducted in the period July-November 2012. It comprises an **EXECUTIVE SUMMARY, INTRODUCTION** and the following four main sections plus Annexes.

Section A.	PACC PROJECT DEVELOPMENT AND DESIGN
Section B.	PROJECT MANAGEMENT AND IMPLEMENTATION ARRANGEMENTS
Section C.	PROGRESS AND ACHIEVEMENTS
Section D.	PACC COUNTRY SUPPLEMENTARY REPORTS⁵
	ANNEXES⁵

PACC Mid-Term Review 2012

4. A Mid-Term Evaluation & Technical Review (MTR) of the PACC project was commissioned by UNDP and carried out by a team of three⁶ independent consultants in the second half of 2012. The Terms of Reference for the exercise are included as ANNEX I to this report⁷. The requirement was to conduct a comprehensive review and evaluation of the overall performance of the project and achievements made to date, against the project design, the resources and time available, the management arrangements put in place; and the criteria of relevance, efficiency and effectiveness. The MTR was requested to identify any difficulties in implementation and recommend corrective courses of action; and to provide guidance for future project activities,

⁵ The **MTR Section D** and **Annexes** are in separate files.

⁶ MTR Lead & Coastal expert Peter Hunnam (PH); Agriculture/ Food production expert Gavin Kenny (GK); Water expert Clive Carpenter (CC)

⁷ UNDP used individual contracts for the three consultants. The ToR for each were similar; those attached are for the MTR lead and coastal expert.

including enhanced implementation of the current project and subsequent phases, with specific reference to up-scaling and to the additional co-financing contributed by AusAID as PACC+.

5. The MTR undertook the following main tasks: a) review of documentation and data provided; b) a short inception visit (by PH and GK) to the Samoa offices of UNDP Multi-Country Office (MCO) and SPREP; c) attendance at the 2012 PACC annual meeting (PH); d) short visits to 10 of the 14 individual PACC country projects (CC – Tonga; GK – Fiji, PNG, Samoa, Solomon Islands; PH – FSM, Palau, Marshall Islands, Nauru, Samoa, Vanuatu); e) a single team drafting meeting (PH, GK, CC); f) presentation of draft MTR report to UNDP and SPREP (PH), and receipt of feedback and compilation of final report. These tasks were carried out between June and November 2012, by the consultants working largely separately to cover the different project sectors and countries. The itinerary achieved is attached as ANNEX II.
6. A strength of the PACC MTR has been the involvement of the three experts to cover the PACC sectors. This provided an opportunity to bring together three overlapping perspectives and compile a broader review and set of recommendations. On the other hand, the efficiency and effectiveness of the MTR was limited by two main factors; first, the logistics of travel and communications in the Pacific islands region meant that time, for consultation and analysis, was often a constraint. This was not helped by the three consultants being available only for different time periods and thus having limited opportunities to confer as the work progressed. A consequence of the time constraints was that the MTR was not adequately participatory: some countries and project sites were not able to be visited, and many project participants did not have opportunities to contribute to the MTR, nor to hear and discuss the MTR findings and recommendations. In this regard, it would have helped if the project executing agencies and executants had been involved to a greater extent in the organisation of and preparation for the MTR; it was clear that few offices had prepared or been able to allow time in their work schedules for the review.
7. The second serious limiting factor was that the project offices in SPREP (RPMU) and the country PMUs were not able to provide the MTR with project documentation and data in a timely manner. In addition to time and participation constraints, the underlying issue is that the PACC project does not have in place a satisfactory system for monitoring, recording and management of information. As a consequence, an excessive amount of time was spent by the MTR consultants in organizing information sources and searching for information⁸; documents were not received or reviewed until after the majority of country visits had been made and MTR reports drafted, rather than in advance. The significance of the issue for the current MTR is that the reviewers have based their findings and recommendations on incomplete information. Of particular concern is that summary financial data in usable form have not been available throughout the MTR, and as a consequence no review or evaluation of the project's financial management is included in the current report. These issues are mentioned further in the report sections on **Monitoring Information, Reporting and Evaluation**, and **Financial management**, because they affect the efficiency and effectiveness of the PACC project itself, not just the MTR.
8. A third factor that has tended to complicate the MTR and made it difficult to guide scaling-up and future PACC activities is the plethora of additional climate adaptation activities that have emerged in the Pacific island countries over the four years of PACC implementation. PACC was intended to provide the region with a “programmatic framework” for adaptation work, but this has not occurred to an adequate extent, and in 2012 there are many initiatives being planned or implemented by a variety of international, regional and donor agencies, at regional and national levels, with little apparent connectivity. This includes each of the lead PACC agencies, UNDP and SPREP, as well as several of the country PACC Executing Agencies (EA), which are engaged in other projects with other funding sources that would be well linked into a PACC “programmatic approach”.

⁸ During the MTR, the RPMU provided copies of all available files. The lists of reference documents and work files made available forms ANNEX VII to this MTR Report.

9. The MTR has been carried out late in the project period, which has tended to further reduce the relevance of the current exercise to the project executants and participants. The SPREP member countries have been engaged in the development of PACC since 2004 and in its implementation since 2009; the 5-year project was intended to run from 2008 to 2012, later amended to 2009 to 2013; difficulties and delays in implementation have been recurrent issues; and in 2011 two additional sources of funds for PACC were secured, for additional time periods, from USAID and from AusAID. For each of these reasons, it would have been beneficial to have conducted a first independent review of the whole initiative, i.e. the Mid-Term Review, in 2010 or 2011 at the latest, and to have used the opportunity to make some timely adjustments in the name of adaptive management.

Section A

PACC PROJECT – DEVELOPMENT AND DESIGN

PACC Project Development

10. The PACC Project was developed in the period 2006 to 2008, in response to calls from Pacific Islands leaders for international support to tackle the emerging crisis of climate change impacts on the Pacific islands and the lives and livelihoods of islanders. Notable preliminary steps included the 14th SPREP Council Meeting and the Pacific Island Forum Leaders Meeting, in 2003-04. Based on a concept prepared in 2005 by UNDP, in 2006 the GEF awarded a Project Development Facility (PDF) grant of USD 0.42 million, and UNDP implemented a major project development exercise: the 2006 PDF inception workshop was attended by 11 island countries (refer **table 1**), followed by a three-person UNDP PDF team visiting each country to conduct consultations on needs and plans. These visits produced a set of useful Country Consultation reports, recording the situation analyses, details of consultations and proposals negotiated in each country, and including a project plan, budget and implementation arrangements for the individual PACC country projects.
11. Following the PDF missions, in 2007, the PICs provided letters of commitment and co-financing, and the proposed project designs and financing plans were combined into a GEF Project Identification Form (PIF) for development into a formal Project Document. By this time two additional countries (Marshall Islands and Palau) had joined the program and organised consultative missions in early 2008.

Table 1. Pacific Island Countries participating in PACC

Pacific Island Country		PACC participation			
		PDF	Inception	Start-up	PACC+
<i>Melanesia</i>	Fiji	2006	2009	2010	
	Papua New Guinea	2006	2009	2010	
	Solomon Islands	2006	2009	2010	
	Vanuatu	2006	2009	2009	
<i>Micronesia</i>	Federated States of Micronesia	2006	2009	2009	
	Marshall Islands	2008	2009	2010	
	Nauru	2006	2009	2009	
	Palau	2008	2009	2010	
<i>Polynesia</i>	Cook Islands	2006	2009	2010	2011
	Niue	2006	2009	2009	2011
	Samoa	2006	2009	2009	
	Tokelau		2011	2011	2011
	Tonga	2006	2009	2009	2011
	Tuvalu	2006	2009	2009	

12. Delays in the project development timetable are attributed to the concurrent development of a GEF funding mechanism specifically for the Pacific island countries, the GEF Pacific Alliance for Sustainability (GEF-PAS). The PACC project became one of the first to be included in GEF-PAS. The timeline achieved in the development, design and mobilisation of the PACC project is summarised in **table 2**.
13. The PACC Project design document (ProDoc) was prepared, appraised and approved in 2008, and signed by SPREP on behalf of the 13 countries, and by UNDP in 2009. It specified a five year (2008 to 2012) program of actions to be implemented by the UNDP Multi-Country Office (MCO) in Samoa working with SPREP across the region and in 13 individual island countries.

14. Inception of the PACC project was organised in 2009 to 2010, with SPREP's recruitment of the regional Project Manager and establishment of the PACC Regional Project Management Unit (RPMU); and with some delays, a national executing agency in each of the 13 countries appointed a PACC national Coordinator and PMU. A regional Inception workshop plus a technical workshop were held in 2009 to review and confirm the detailed project design and launch the project in the region. Project inception meetings were also held in some of the countries.

Table 2. PACC Project Development Timeline

Project development stage	Timeline achieved
2005, March-May	PDF Proposal Endorsement by PI Countries
2006, February	PDF Request by UNDP
2006, July	PDF Inception Meeting
2006	PDF In-country PACC consultations and project planning (11 countries)
2007, August and December	Project Identification Form Submission/ Re-Submission to GEF/ SCCF
2008, February	PDF In-country PACC consultations and project planning (2 countries)
2008, April	SCCF Council Approval of concept
2008, October	GEF Endorsement of Project Document
2008, November ?	UNDP Approval of Project Document
2009, January	UNDP-GEF Delegations of Authority to UNDP Samoa, Fiji, PNG and SPREP
2009, January-September	Project Inception Phase
2009, July	PACC Inception Meeting
2009, July	Project Executive Group, 1 st meeting
2009, August	Project MoUs signed between PACC Countries and SPREP
2009, October	PACC Technical Meeting
2010, January-May	Start-up funds received in countries, most PMUs and NCs in place
2010, May	Multi-Partite Review, 1 st meeting
2010, July	Introduction of MYWP
2011 ?	Addition of USAID – PACC Partnership with SPREP
2011, June	Addition of PACC+ and AusAID funding with UNDP
2012, November	Mid-Term Review
2012, December	<i>Original Project Completion</i>
2013, December	<i>Revised Project Completion (2010 PB?)</i>
2014, December	<i>Revised Project Completion (2012 PB)</i>

15. Relatively minor adjustments to the project design were made at inception and in the first year (2009) and subsequent years. These included addition of three Outputs and changes to design indicators, targets, operating procedures, report formats. In 2010, a new format Multi-Year Work Plan (MYWP) was devised and introduced to all project executants. Also in 2010 the PACC completion deadline was extended by one year to December 2013; and in 2012 the completion deadline was extended another year to December 2014. In 2011, USAID and SPREP formed a PACC Partnership with additional funding to the program; and AusAID and UNDP signed an agreement for AUD 7.3 million to be added to the PACC project, dubbed "PACC+", with the same project structure for the same 13 countries plus a 14th, Tokelau; for a period of three years, mid-2011 to mid-2014. Refer to PACC+ Partnership Program Document (July 2011).

PACC Project Concept and Strategy

16. The concept underlying PACC is to assist Pacific island countries to decrease their vulnerabilities and increase their resilience to the impacts of climate variability and change. Key considerations are that many Pacific islands and island communities are already highly vulnerable to

environmental and climatic variability; that climate change and associated increasing frequency and intensity of extreme weather events – storm winds and waves, intense rainfall, droughts – and sea-level rise will have potentially disastrous effects on Pacific islanders' environments, lives, livelihoods and economies. This will require major collaborative efforts regionally, nationally and locally, to learn, share and act on knowledge about how to adapt to climate change impacts.

17. The UNDP Project Development Facility (PDF) proposal (2006), approved by GEF-SCCF, stressed the “gravity of the climate change problem facing the PICs and the limited work on adaptation implementation to date”. The PACC Project was promoted as the first project to support capacity building for climate adaptation actions across most of Pacific island countries. The proposed initiative was to meet the “urgent need to do more adaptation work in the priority development areas identified by the PICs... building on the lessons learnt from the CBDAMPIC⁹, SOPAC, World Bank, ADB and UNEP experiences in the Pacific.” The PDF proposal emphasised that PACC would be additional and complementary to existing adaptation efforts in the PICs: “activities financed under the (PACC) project do not duplicate ongoing activities already financed by the GEF through its EA window and/or under the LDCF. The PACC for example, will not be carrying out vulnerability assessments, greenhouse gas inventories or detailed capacity assessments related to the climate change convention (NCSA).” (2006 UNDP PDF'B' PACC Re-submission).
18. The overall strategy for the PACC Project was to provide a learning and knowledge-sharing mechanism, aiming to foster and strengthen climate adaptation at three levels: locally at carefully selected and managed demonstration sites; nationally by embedding climate change considerations in all aspects of governance systems; and regionally, by exchanging knowledge, ideas, innovations and lessons about climate and adaptation across islands, communities, institutions and countries. In each PACC country, the strategy was a) to design and implement (pilot and demonstrate in practice) specific climate adaptation measures; b) to use these experiences to strengthen the enabling environment (policy, planning, institutional arrangements); and c) to increase capacity and particularly knowledge on how to adapt and be resilient to climate variability and change. These three inter-connecting levels became the PACC Project's three component Outcomes. The MTR considers this strategy for systemic capacity development for climate adaptation was highly relevant to the needs of the PICs and the region. Unfortunately the three components were not articulated clearly in the project design, especially at the country level, and tended to be treated as separate actions; refer to further comments under Project Design and Achievements.
19. From the outset, the idea was for PACC to work in pre-determined “priority sectors” – coastal management, freshwater resources and food production – which had been identified from previous assessments and meetings carried out in the region; the PDF proposal refers to a range of sources (PICs' Initial National Communications (INC), National Adaptation Programs of Action (NAPA), the Pacific Islands Framework for Action for Climate Change (PIFACC) 2006-2015; etc.) that had highlighted “water resources, food security and coastal infrastructure (as) priority areas where adaptation is needed.” (2006 PACC PDF proposal).

PACC Project Design

20. The 2008 UNDP PACC Project Document (ProDoc) is a 136-page document describing in detail the background, project strategy, design and management arrangements planned and approved for the five-year project. The ProDoc presents a generic design plan for the regional plus 13-country PACC initiative, with a single logical framework providing a common structure and hierarchy of objectives for all the countries.

⁹ CBDAMPIC project – Capacity Building for the Development of Adaptation Measures in Pacific Island Countries (2003-2006 with Canadian funding) – implemented practical climate adaptation measures in Cook Islands, Fiji, Samoa and Vanuatu. The project provided a valuable model for PACC, with the aim of extending similar work to additional PICs and localities.

Table 3: PACC Project Logical Framework – partial

(showing an example of each of the 3 sets of countries – Coastal, Water, Food sectors)

Drawn from 2008 ProDoc; Outputs added in 2009, 2010 are shown in *italics*

Goal: To reduce vulnerability and to increase adaptive capacity to the adverse effects of climate change in key Development Sectors identified by 13 participating countries in the Pacific.	
Objective: To enhance the capacity of the participating countries to adapt to climate change, including variability, in selected key development sectors.	
Project Strategy	Indicator
Outcome 1: Policy Changes to deliver immediate vulnerability- reduction benefits in context of emerging climate risks defined in all 13 PACC countries. Output 1.1 <i>Sectoral or national policies revised to incorporate climate change risk and resilience aspects (nationally executed activities).</i> Output 1.2 Methodology and tools developed to assist Pacific Island countries mainstream climate change into their sectoral and national policies and development plans. Output 1.3 Climate change economic and socioeconomic tools for evaluation of adaptation options developed and utilized.	Number of references to coastal, crop production and water sector climate change risks in relevant plans and programs. <ul style="list-style-type: none"> Number of instances where Guidelines on climate change risk management applied in national, sub-national... sector plans and programs. At least 3 climate change policies developed in 3 countries. Number of plans that integrate climate change risk issues (into) sector management. Availability of an economic tool to cost different climate change adaptation options Number of countries that apply economic costing of adaptation options in their project activities
Outcome 2: Demonstration measures to reduce vulnerability in coastal areas (in FSM...); crop production (Palau....); water management (in Tonga...) <u>Federated States of Micronesia</u> Output 2.2.1a: Guidelines to integrate climate risks (e.g. intense rainfall and storm surges) into coastal road designs. Output 2.2.1b: Measures identified in the Guidelines (2.2.1a) demonstrated in Walung community, Kosrae (with co-financing support).	Number of adaptation measures implemented at national... sub-national... local (community) levels. <ul style="list-style-type: none"> Number of guidelines revised and applied Number of existing road projects where the guidelines... are applied
<u>Palau</u> Output 2.6.1a: Guidelines to improve resilience of coastal food production systems to the impacts of climate change. Output 2.6.1b Measures identified in the Guidelines (2.6.1a) demonstrated in Ngatpang State/Communities	<ul style="list-style-type: none"> Number of Guidelines developed. Number of coastal food production systems projects where guidelines... are applied
<u>Tonga</u> Output 2.12.1a: National Guideline developed to drought proof Tongan Communities Output 2.12.1b: Measures identified in Guidelines (2.12.1a) demonstrated in Hihifo district (with co-financing support).	<ul style="list-style-type: none"> No. of national drought proofing guidelines. Number of drought proofed measures in the guideline demonstrated
Outcome 3: Capacity to plan for and respond to changes in climate related risks improved. Output 3.1 <i>National Communication and awareness plans developed and implemented.</i> Output 3.2 Best practices and lessons exchanged among countries. Output 3.3 <i>Regional backstopping mechanism set-up to provide regular technical support.</i> Output 3.4 <i>Technical training programme for adaptation planning and implementation support carried out</i> Output 3.5 Project Website developed and regularly updated.	Technical capacity at the national level to support the work in 13 PICs enhanced. <ul style="list-style-type: none"> Number of instances of technical guidance provided and accepted. Number of lessons exchanged. Project website functioning

21. The PACC Project design has three major components (Outcomes) concerned with climate adaptation “**mainstreaming**”, **demonstration measures** and **capacity building**. A set of planned Outputs leads to each of the three Outcomes, which together are intended to meet the overall desired Objective and contribute to the stated Goal. The main hierarchy of planned Output, Outcome and overall objectives was summarised in the project logical framework and described in the 2008 Project Document. In the subsequent four years, changes to the logical framework have been few: three new generic Outputs were added, and indicators and targets were revised in 2009 and 2010; the first two Outcomes, overall Objective and Goal statements have not been changed, but Outcome 3 has been changed from Capacity building to communications. The core structure of the PACC Project design is shown in **table 3**. The specifications for component 1 and 3 are identical for all 13 participating PICs, while component 2, the demonstration measure, is specific to each country but based on the same generic outline. For ease of reference, copies of the original and revised PACC project logical frameworks are included in ANNEX III to this report.
22. The proposed logic for PACC is that, under Component 2, individual countries design and implement a specific adaptation measure, which can be used to demonstrate good practice, i.e. how to adapt efficiently and effectively – to other communities, projects, other agencies and other countries. Component 1 and Component 3 are both concerned with building broader capacity for climate adaptation, by strengthening the countries’ policies and institutions (Outcome 1) and by national and region-wide mechanisms for sharing knowledge (Outcome 3). The three components were intended to be closely-related, with Component 1 informed by Component 2; and Component 3 capturing and disseminating lessons from the results under 1 and 2 from each country.

MTR Comments & Recommendations – PACC Project Concept, Strategy and Design

23. The MTR finds that the PACC initiative has been let down at several stages by poor quality of planning: in 2006¹⁰, detailed plans were prepared for the PACC project in each country (refer each country’s 2006 PACC Consultation Report). While containing valuable background information, these plans were prepared with the primary aim of meeting the pre-conditions set by the funding source, the SCCF: that necessary baseline assessments had been done; sufficient capacity existed to undertake the project; and co-financing was secured, with the SCCF funds intended to meet the additional costs of climate adaptation. The MTR finds that these pre-conditions led to the uncritical and premature identification of PACC pilot projects, which did not in fact meet the criteria: assessments and plans were not complete, capacity was not prepared; and in some cases co-financing was not genuinely available. These difficulties were realised as the PDF process progressed, and as a result the detailed country project plans and budgets proposed in 2006 were not included in the 2008 PACC Project Document. Instead, the ProDoc included provision for further assessment and planning to be carried out during implementation, in particular for the identification, appraisal and design of the main Outcome 2, each country’s specific Demonstration measures.
24. The MTR finds that these changes, from the detailed 2006 country plans and budgets for Outcome 2 to the generic PACC project design, were not made sufficiently thoroughly or clearly, either in the 2008 Project Document or at the Inception phase, or subsequently: the ProDoc did not fully replace each country’s 2006 plans; it did not provide a sufficiently clear and rigorous alternative plan for each country to follow. Executants were faced with a rather confusing overlay of additional outputs specified in the 2008 Project Document and the further generic modifications made at Inception and subsequently. It is evident in 2012 that many of the PACC country projects are based primarily on the 2006 plans, the countries’ pre-determined pilot projects and budgets, GEF and co-financing, have remained largely the same.
25. The inadequacies of the pilot project identification and pre-selection process in the PDF phase

¹⁰ Two years later, 2008, in the case of Palau and Marshall Islands.

meant that it was important for each PACC country to conduct a thorough vulnerability and adaptation needs assessment (V&A) during the early stages of project implementation, as the first step in identifying and designing the adaptation measures that it would pilot and demonstrate under PACC. This crucial step was not given sufficient emphasis and subsequently countries did not give adequate priority to a solid V&A assessment. While it is apparent and understandable that PACC country leaders did not want action delayed by excessive preparatory assessment or analysis, the consequence of inadequate assessment and planning is evident in both the identification and design of a number of the pilot projects that PACC has implemented.

26. Adaptation Assessment and Strategies: To make key strategic and design decisions through the course of the 2006 country consultative process, the PDF design consultants and PIC officials were reliant on earlier assessments of adaptation needs and priorities (INCs and NAPAs), but these exercises were not sufficient as strategic assessment and planning exercises¹¹; they had not fully identified vulnerabilities nor formulated climate adaptation strategies for a sector or the country; many had produced relatively simple lists of new project concepts. (The MTR notes that the situation has changed little in many of the PICs over the intervening six years: countries have not yet prepared national or sectoral climate adaptation strategies, as a sound basis for identifying and developing priority actions and projects.)
27. Prescribed sectoral strategy and project co-financing: The purpose of the PACC project was “to implement long-term adaptation measures to increase the resilience of a number of key development sectors in the Pacific islands to the impacts of climate change.” The sectors proposed were water resources management; food production and food security; and coastal zone and associated infrastructure. The PDF proposal (2006) stated that, based on prior assessments and consultation, 9 of the 11 PI countries (Fiji, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu) would work on climate adaptation of Water Resources Management and Food Production and Security; while the other 2 (Cook Islands and FSM) would work on Water Resources Management and Coastal Zone Infrastructure. During the 2006 PDF Country Consultations, this plan was changed: “Given limited financial resources the countries have been encouraged to focus only one of the three development sectors where adaptation intervention would be essential.” Country Consultation report for PACC Samoa (2006). At the same time, each government was advised that co-financing (at a 4:1 ratio) of the adaptation pilot-demonstration measure would be required. This resulted in each country nominating in 2006 not only the single-sector adaptation measure it would pilot and demonstrate under PACC, but also specifying the site location and the source(s) and amounts of co-financing that were available for each pilot. Under these prescriptions, five countries opted for specific projects in the water resources sector; four countries in food production; and four countries in coastal management; and earmarked USD 44.5 million in co-financing (PACC ProDoc 2008).
28. The extent of this pre-selection and “pre-scription” and the essential concept behind PACC are made clear by considering the details of the co-financing that was committed by countries (refer to ANNEX V, which lists the 30+ other projects nominated as sources of co-financing for PACC): in one form or another, these projects and co-financing were intended as the “development

¹¹ The MTR considers it important to understand what ‘baseline assessment’ means. If the current ‘development baseline’ is used, with adaptation funding covering ‘additionality’, then the implicit assumption being made is that all current development activities are inherently adaptive and simply need additional input to allow for climate change. In essence this is saying that we simply need to keep doing more of what we are currently doing to account for climate change. Such an approach leaves no room for any critical evaluation of whether current activities may in fact be maladaptive, under present and/or future conditions. Consideration of climate change therefore needs critical assessment of current (baseline) and future conditions, covering climatic, environmental, social, and economic factors. Such an approach forms the key elements of a vulnerability and adaptation assessment, which at the very least should be used for screening the full range of issues and potential adaptation options at the project development stage.

baseline” in each countries’ sector; the PACC SCCF budget was intended to fund the “additional costs” of taking climate change into consideration in the design and development of these development projects. It should have been clear that PACC would find it a challenge to introduce changes to the development projects; in most cases they were well-developed and ready to be implemented.

29. The MTR considers the prescription of single sectors and early selection of specific pilot interventions was a significant mistake in the development of PACC; it led to a narrow focus on a pilot project in each country, with budget and co-financing secured and a detailed prescription of the project, effectively inhibiting any broader thinking or planning from the outset. The fundamental need for a proper vulnerability and adaptation assessment process was lost, even prior to the Project’s inception. The ‘pre-design’ reduced the opportunity for analysis and learning from the decision-making process, which is actually a key planned output. The single sector strategy was applied despite the long-acknowledged difficulties in PICs (and elsewhere) with managing cross-sectoral issues; and despite the arguments put by many, that management of food production, water and the coastal zone are inextricably linked and an integrated approach is preferable, especially in the Pacific islands, and especially for climate change adaptation work.
30. Project logic; specification of planned outcomes and outputs, indicators and targets: In 2008, the PACC Project Document was prepared and approved as the formal plan to guide all aspects of the project’s governance, management, financing, implementation, monitoring and evaluation. The MTR finds that it is poorly developed and inadequate as a plan, logical framework and budget plan, overall and for each of the 13 countries: the specifications of the proposed outcomes and outputs are wordy and unclear; in many cases there is no connection between the proposed outcomes of vulnerability reduction/ resilience built and the outputs intended to lead to them; the objective statements are not substantive or SMART¹² to guide implementation, monitoring and learning; most are descriptions of processes. (Some general suggestions for improving the project logical framework are listed in **table 4**).

Table 4: General suggestions for improvement of Project Logical Frameworks

-
- a. Develop the project logical framework fully; and use it as the key plan guiding project supervision, work planning and budgeting, implementation, monitoring, reporting, and evaluation.
 - b. Plan the overall PACC Outcomes as the collective Outcomes of 14 countries demonstrating climate adaptation across the broad sectors.
 - c. Each country should prepare a logical framework for its PACC work, nested within the overall PACC log frame (and within national strategies for climate adaptation). This will require specification of each country’s planned results or outputs (not relying on generic regional statements); and application of rigorous logic to the specification of the planned full hierarchy of objectives. In each objective statement, specify clearly only the highest substantive objective; do not use multi-stage objective statements. Specify a small number of SMART Indicators as useful signals of achievements; avoid using Indicators to specify planned Outputs, results or activities (these should be demoted to lower levels in the planning framework).
 - d. Specify most clearly the key “mid-level objectives” (MiLO) – the substantive results/ outputs (not process activities) sought in each country.
 - e. Prepare detailed implementation/ work plans as linked but subsidiary plans to the log frame; do not try to rely on an implementation plan (such as the PACC MYWP) without linking it to a well-developed log frame.
 - f. Practice Results-based Management (Technical & Financial) by linking log frame-based planning to the budget plans; and log frame-based reporting to financial reports.
-

¹² Specific + Measurable + Attainable + Relevant + Time-bound

31. At the PACC inception meeting in 2009, the logical framework was discussed and revised. This is good project practice; the logical framework is an essential tool for both planning the project and for monitoring its progress; and project inception is a key stage at which to refine, clarify, confirm and – where multiple stakeholders are involved, as in PACC – agree on exactly what the Project is designed to do, and how it would be implemented and managed. However, the revisions made at project inception to the project plan and logical framework did not go far enough. Most significantly, there was no development of a log frame for each PACC country project; instead a few additional lines and generic phrases were inserted for each country under Component 2 in the overall regional project framework.
32. Subsequently, instead of persisting with the task of developing the log frame to adequately specify the program logic and results sought in the 13 countries, the project's RPMU and RTA resorted, at the end of 2010, to preparing a Strategic Results Framework that specified only a Goal, overall Objective and the three major Outcomes; countries were advised that there was no need to specify the logical framework below that level, i.e. for the Outputs or Activities. The evaluation considers this advice to be misguided; the partial logical framework approved by the Project Board in 2010 was of little value for project managers and executants; it would have been far more useful to have properly developed the key results level of the log frame – specification of the planned Outputs ("mid-level objectives", MiLOs), for each country.
33. The generic PACC project logical framework has been little used by the project executants. The generic and rather simple statements in the PACC logical framework are clearly inadequate in terms of giving both clarity and confidence to project executants and participants. The 2010 SRF was the only version of the logical framework in use in 2011 and 2012; and that is mainly to frame the annual progress reports (PIR) prepared for the GEF, and not to guide project management and implementation. None of the PACC logical framework versions do justice to climate change adaptation at the level of individual countries, especially considering the complexities – technical, institutional, social – of the tasks being proposed and the specific characteristics of each country; PACC should have been planned as a set of country plans nested within a regional framework, recognizing that a country level Output may be equivalent to a regional level Activity. The MTR considers that it would have been most valuable, during or following inception, for each of the 13 countries to have been enabled to develop their own rigorous and clear PACC project plan, logical design, and results-based budget. PACC has also been hampered by the lack of adequate strategy planning and design for each of the three components, and for each of the three sectors, at either regional or national levels.
34. The overall impression of PACC is one of a regionally-conceived and planned project delivering advice and assistance to a fairly uniform and static series of local actions or sub-projects. In December 2010, a Multi-Year Work Plan framework for the PACC Project was introduced as a more complete list of PACC project activities for each country to carry out each year for the remainder of the project. This was a useful development for the organisation of work plans and budgets, specifying the sequence of activities proposed to lead to each Output. However, the PACC MYWP is not underpinned by a logical framework; the planned outputs are not substantive or SMART; and by itself the MYWP has not been adequate as a planning or monitoring tool. It could be strengthened considerably by confirming the substantive objectives and logic of each PACC country project, especially the set of key planned results or Outputs. The sequence of inadequate planning processes has meant that each part of the PACC initiative – demonstration projects, policy and capacity-building, knowledge management; sectoral strategy; and M&E – has been implemented for the past four years without an adequate guiding logical design or framework plan.
35. Pilot and Demonstration strategy: The PACC project design is centred around Outcome 2, to devise, test and demonstrate climate adaptation on the ground in each country. The project development and identification process led proponents to select situations where new project activities could be carried out, where the need for action to address vulnerabilities was most urgent. The MTR considers that a more useful, strategic approach would have been to deliberately select situations where PACC could develop the most effective pilot and

demonstration measures. In this way, PACC could have concentrated on its core purpose – to facilitate learning and share knowledge, about how to adapt and build resilience. The difference between these approaches is that one is focused on implementing a project that meets immediate needs; whereas the other is focused on promoting a demonstration that is of long-term and strategic value. If this strategic approach was followed by PACC and PACC+ across the 13-14 countries, a more diverse portfolio of adaptation measures would result, and PACC would form a stronger and more useful regional platform.

Recommendation 1. PACC Country Project Plans and Designs

It is recommended that the future emphasis of management should be placed on the individual PACC country projects, and a reduced focus should be given to the “regional project” and support program. For each PACC country project, the basic project framework of Outcomes, Outputs and Activities and the logic of their inter-connections should be re-defined. PACC requires country-level log-frames nested within an overall framework. This will require the PACC team in each country, with RPMU support, to re-think and confirm the essential strategy, logic and substantive objectives behind the local project. This process could usefully start with defining the country’s key planned results, Outputs or mid-level objectives, plus the financing plan for each one, i.e. results-based budget and expenditure monitoring, and the timetable. Some general suggestions for improving the project logical frameworks are listed. Refer also to individual PACC Country Project Recommendations.

In reviewing, refining, and re-designing project plans, the multi-sectoral nature of the majority of the current demonstration activities needs to be fully addressed, and it is important for all PACC participants to develop and promote a more in-depth understanding of what resilience-building means; and to identify effective adaptation strategies and prepare rigorous designs for demonstration adaptation measures. Country teams should ensure that they are effectively building resilience to climate change; and recognise that they are contributing to developing their country’s systems for climate adaptation.

The three components of each country project should be refocused and realigned as follows:

The core Component 2. is to pilot and demonstrate one or a series of effective measures to build resilience in the target location and development sector(s). The adaptation measures should be planned as integral parts of the co-financed, coastal/ agriculture/ water development ‘project’. A lighter and more dynamic approach should be taken in the development of suites of demonstration measures¹³. These should be re-evaluated in terms of their representation of different adaptation/ resilience building options and potential for transfer and/or up-scaling.

Component 1. should focus on applying the lessons and results from component 2 to strengthen the local-national institutional and policy framework and promote replication and scaling-up. This should start with formulating a climate adaptation strategy for the target development sector, and then systematically incorporate climate adaptation into the policies, regulations, management plans, standards and codes that govern the sector.

Component 3. should be focused clearly on sharing knowledge about the demonstration measures and the institutional and policy developments in order to promote their replication. This work should draw on the lessons from each country’s component 2 and 1, both of which will require improved monitoring of their effectiveness in practice.

¹³ For example, the PACC project in FSM is in danger of being seen as the project building a climate resilient road, providing the single unremarkable lesson of larger culverts. Instead PACC Kosrae should be managed more creatively to devise and introduce a more useful, varied range of climate adaptation measures for planning, design, construction and maintenance of coastal roads and coastal infrastructure more generally.

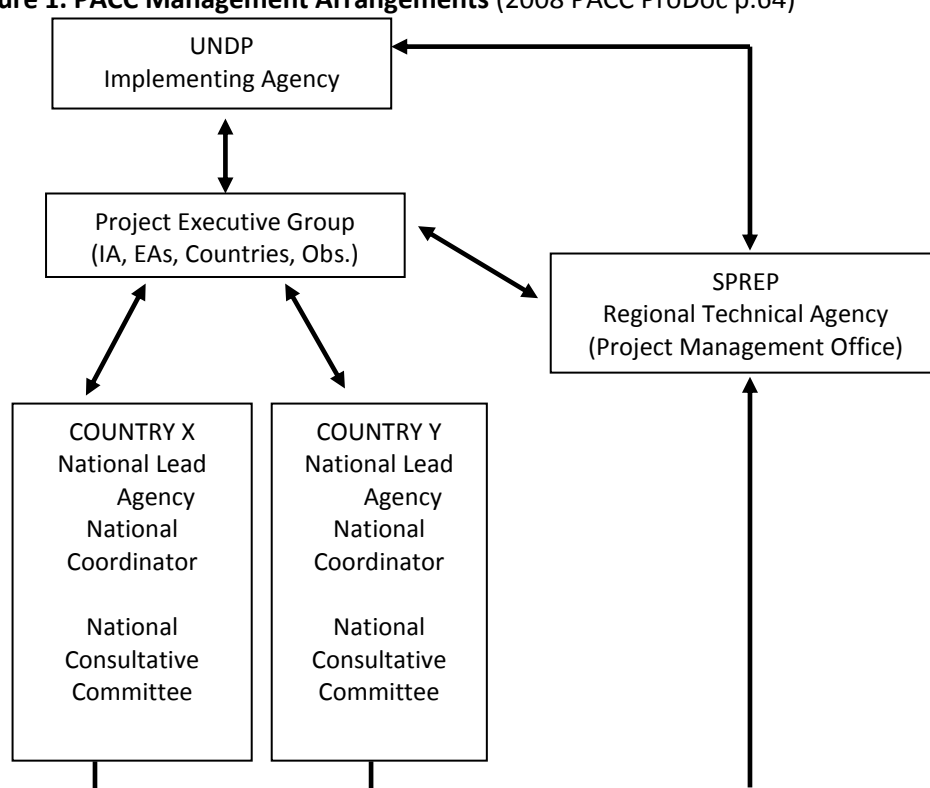
Section B

PACC PROJECT – MANAGEMENT AND IMPLEMENTATION ARRANGEMENTS

Project Oversight and Governance

36. The arrangements for governing and managing the PACC project were specified in the 2008 Project Document, with the overall scheme shown in **Figure 1**. UNDP (UNDP MCO in Samoa) is the designated Implementing Agency, with overall responsibility for “project oversight; approval of project activities, budgets and co-financing; project inputs; implementation plans; project reviews, monitoring and evaluation.” UNDP staff in Samoa, Fiji and PNG and UNDP-GEF will contribute to this oversight role. UNDP Samoa was allocated USD 0.4 million (less than USD 100,000 per year) as a portion of the GEF Agency fee, to use towards the costs incurred in supporting the development and implementation of the PACC project.

Figure 1. PACC Management Arrangements (2008 PACC ProDoc p.64)



37. Project Governing Body: As specified, UNDP Samoa has convened and chairs a PACC Project Board, also called a Project Executive Group, as the body responsible for supervising management of the PACC project (“management decisions, approving work plans and budgets, identifying problems and suggesting improvements to performance...; support and guide the PACC Regional Project Manager and Office...; regional oversight (scientific, technical, policy, and management) to PACC implementation.”). The PB/PEG members were designated in the ProDoc as “Executive” (UNDP Samoa Resident Representative); “Senior Beneficiaries” (“3 reps to represent each sub-region on an annual rotational basis”); and “Senior Supplier” (SPREP Executive Director); and UNDP-GEF. Elsewhere in the 2008 ProDoc, membership of the PB was extended also to “representatives of relevant CROP¹⁴ agencies, collaborating organisations as

¹⁴ Members of the Council of Regional Organisations of the Pacific include: Forum Fisheries Agency (FFA), Pacific Islands Forum Secretariat (PIFS), Secretariat of the Pacific Community (SPC), South Pacific Applied Geoscience Commission (SOPAC), South Pacific Tourism Organisation (SPTO), University of the South

well as co-financing partners”, and in a third place, UNDP Fiji and UNDP-GEF were also listed as members. SPREP as “Implementing Partner” was to provide secretariat services. A first PEG meeting was held in July 2009, and Project Board meetings have been held subsequently, once or twice a year in 2010, 2011 and 2012.

38. Multi-Partite Review (MPR) meetings for PACC have also been held, in 2010, 2011 and 2012, as part of an annual gathering of the main PACC project executants, the national Coordinators and Executing Agency or Steering Committee officials. MPR participants, in addition to the above, have included other UNDP offices, other CROP agencies, representatives of related programs, and AusAID as an additional donor since 2011. A three-tier process seems to have been adopted for the PACC annual meetings, comprising the MPR meeting, a Board meeting, and a “management and technical meeting” for the project staff.
39. Although the current arrangements are as specified in the Project Document, the MTR is concerned that the Board meetings are not conducive to an adequate degree of participatory or equitable governance over the project. UNDP has felt it necessary to assume too much control over every aspect of project implementation, and has ended up dominating proceedings and micro-managing the project. It would be useful if instead SPREP was given the clear lead role in implementation, and was enabled to perform that role. The MPR has also not been effective as a decision-making body; in future it should be clearly differentiated from regular project technical meetings, agendas should be tightly directed, and attendance limited to the responsible agency representatives, and not project staff and advisors.
40. The MTR considers that governance of the PACC project would be more efficient and effective and arrangements could be made more appropriate and relevant for the region:
 - a. The Multi-Partite Review and Project Board are essentially duplicates and should be formed into one body, perhaps more appropriately named PACC Steering Committee (PSC). PSC members should be senior representatives of the designated GEF Agency (UNDP Samoa), other PACC donor agencies (AusAID and USAID); SPREP as the inter-governmental body and project Implementing Agency; each of the (national) Executing Agencies; and SPC (if it becomes engaged directly in PACC implementation).
 - b. The PSC should be convened by SPREP (confirmed as the Lead Implementing Agency), and given the mandate to act as the genuine decision-making body for the PACC program (PACC and PACC+). This will require the PSC to be briefed and serviced in a more rigorous manner by a strengthened RPMU as secretariat; and for project monitoring and reports to be aimed primarily at the PSC as the governing body.
 - c. The PSC should deal with broader strategic and policy issues, and with the efficient review and endorsement of completed annual reports (technical and financial) and proposed annual plans and budgets. For efficiency, meetings should be virtual where feasible. The PSC should issue broad directions and guidance primarily through the project Implementing Agency and Executing Agencies to their RPMU and PMUs; and should also liaise closely with national Steering Committees, using the RPMU and PMUs as secretariats. PACC management and implementation authority should be delegated primarily to SPREP, the RPM and RPMU.
 - d. The PSC should also work in conjunction with a strengthened Pacific Islands CC Round Table and within other regional frameworks convened under the CROP mechanism; to contribute to the broader process of bringing together all adaptation projects, and coordinating and steering climate adaptation programming in the region.

Project Management and Implementation

41. PACC Implementing Agencies UNDP and SPREP: Besides chairing the MPR and Project Board, UNDP's major inputs to the PACC project are through PACC Implementing Partner SPREP, and to an extent directly with the country-level project executants. This is governed by the routine project cycle of planning, funds disbursement, implementation, monitoring and reporting, which is supported by UNDP's global ATLAS system through the MCO in Samoa. PACC is a major component of UNDP Samoa's total portfolio, and significant inputs have been made by UNDP Samoa administrative and technical staff throughout both the project development and implementation stages, a period to date of 7-8 years. These inputs have gone significantly beyond those of normal project oversight of a UNDP-GEF project. UNDP has placed senior technical staff (Regional Technical Advisor for climate adaptation and Program officer) in Samoa since the start of PACC in 2009, and they have channelled considerable amounts of technical and management guidance and advice directly to SPREP, the PEG, MPR, PACC RPMU and the countries' PMUs. Additional technical and management advice have also been provided over the years by UNDP and UNDP-GEF offices in Bangkok and New York. The other UNDP multi-country and country offices in the Pacific islands region have apparently not been involved in the PACC project, although they are managing and supporting UN programs in the PACC countries.
42. In the 2008 ProDoc, SPREP was designated "an Implementing Partner, responsible and accountable to UNDP Samoa for coordinating the PACC, achieving its outputs, producing results and for the effective use of UNDP resources." A Regional Project Management Unit for PACC was established at SPREP, staffed by a Regional Project Manager, plus later a Project (Finance) Officer, and made responsible for overall planning, management, coordination and administration of the regional and multi-country PACC project. In 2011, two additional temporary staff were recruited to the RPMU, and in 2012, in an attempt to provide more support to the country PMUs, four other SPREP Climate Change Division staff were nominated to liaise directly with individual countries, primarily to assist the national Coordinators with project administration and reporting. In addition, over the four years of PACC implementation, SPREP senior management, administrative staff, finance staff and common support facilities such as the SPREP library have provided support to the PACC RPMU within SPREP. The costs of the RPMU and supplementary direct assistance have been financed from the PACC project GEF-SCCF budget, while the senior management and administrative support services are funded from a 6% fee charged by SPREP to the PACC project budget.

MTR Comments and Recommendations – Project Management

43. Although it is clear that both agencies have made major efforts over the past four years to try to get the PACC project working more efficiently and effectively, oversight and management of the PACC project have not been well-served by the UNDP – SPREP partnership. It has not provided an efficient project implementation mechanism, nor enabled PACC to become an effective regional program serving the Pacific island countries. The MTR considers that the management arrangements for PACC need to be clarified, strengthened and made more efficient, particularly with regards to the roles of the two agencies, which in some ways have not been adequately differentiated.
44. The MTR finds that the management arrangements specified in the 2008 UNDP Project Document were not appropriate and could have been expected to cause problems; it is difficult to see the scheme depicted in **Figure 1**. as workable in the Pacific islands region or elsewhere. It is apparent from the 2008 Project Document that UNDP felt at the time that they would need to maintain strong direct control over the project; the specifications of roles suggest strongly that UNDP Samoa was intended to be the lead agency implementing PACC. SPREP's role clearly was to be secondary, and confined mainly to establishing an RPMU, with a Project Manager as the single staff member; although even that officer was to be accountable primarily to UNDP Samoa and not to SPREP management. The MTR considers that these arrangements should have been amended before the project started; the inception phase in 2009 was an opportunity for the newly established governing body, management units and staff to review what had been

planned and make necessary changes. This was not done however and the arrangements that have been in place for the past four years are largely as specified in the 2008 ProDoc.

45. In practice the management arrangements have been problematic in various ways, causing inefficiencies and delays, as well as tensions between the partner agencies. To the MTR, both parties appear frustrated and worn down by the relationship, more so than in previous projects in which UNDP and SPREP have worked together. The impression given is that UNDP Samoa was feeling it necessary to take on more and more of the role of the RPM and RPMU, because it felt that the RPMU did not have the capacity to drive project implementation at a satisfactory pace or quality.
46. For its part as Implementing Partner, SPREP has carried out the functions required of it, which primarily have been to establish and administer the PACC RPMU, and to support the RPMU in carrying out its work. The RPMU has been under-resourced however and this has contributed to some extent to the unsatisfactorily slow progress of the PACC project over much of the four years to date: establishment of national PMUs, committees and staff took much of the first year in some countries; the quality of reporting from countries has been unsatisfactory; and achievement of substantive results has also been slow. Only in 2012 has SPREP assigned additional staff to support the management of PACC, which took some of the workload off the RPMU but did not increase its capacity to lead and guide the program.
47. In order to improve management of the PACC project, the MTR concludes that there are three underlying issues that need to be addressed: first, while UNDP and SPREP need to work in close partnership, they need to agree on more clearly-differentiated roles. SPREP was not given the lead role in PACC implementation and to date has not taken the lead adequately; the PACC project is not adequately integrated with the core programs of SPREP and other parts of the CROP mechanism. UNDP assumed the lead role for itself but has had to exercise that role through SPREP, which has proved ineffectual. A more appropriate arrangement would be for SPREP to be properly given and enabled to fulfil the lead role in managing PACC; and for UNDP to revert to an oversight role and to supportively backstopping SPREP, but not attempting to direct the work of the RPMU or PMUs.
48. UNDP is primarily the conduit for the GEF-SCCF funds to the PACC project and has ultimate responsibility for their efficient and effective expenditure against agreed plans. On the other hand SPREP is the inter-governmental body and technical agency responsible for serving its members, which include the 14 Pacific island countries participating in PACC. In order to improve the effectiveness of PACC and of climate adaptation programming in the PICs more generally, it will be important for UNDP to work through SPREP and the CROP mechanism, and to enable the Pacific regional agencies to lead the work in the region, rather than attempting to build up its own role as lead agency for climate change in the Pacific islands region. The capacity of SPREP should be developed, to lead PACC as a contribution of strategic, technical and management support to the PICs for climate adaptation. PACC should be developed and used by the regional agencies as much as possible as a common framework for climate adaptation programming in the PICs.
49. Second, the RPMU does not have adequate capacity to perform the required functions. It is not sufficient nor constructive for other staff in SPREP or UNDP to try to take on these functions. SPREP could have done more to strengthen the capacity of the RPMU to manage the project; and also to develop and manage the PACC project more proactively as a component of the agency's core programs. The solution lies in both UNDP and SPREP systematically enabling the RPMU to function effectively; the RPMU needs to be given the authority and resources to play an adequate role in guiding and coordinating climate adaptation programming, within SPREP and in concert with other CROP agencies. Additional dedicated technical staff need to be appointed to the RPMU, and the pivotal role of the RPMU and the RPM needs to be affirmed, in relation to SPREP, UNDP Samoa, the MPR and the participating countries' EAs and PMUs.
50. The third underlying issue affecting PACC's management and performance is that the system and procedures for project and financial administration and reporting have proved to be over-

complicated to operate the regional project in 13-14 countries. Operational inefficiency has been the main constraint on the PACC project's performance for the past four years. All staff have had to spend too high a proportion of their time on routine project administration, and have been diverted from the substantive work of the project. This applies in particular to the RPMU. In order for the PACC project to make satisfactory progress towards its substantive objectives, the project operating system will need to be made much more efficient. This issue is discussed further in the following section.

Recommendation 2. PACC Oversight and Governance

The MPR should be reformed as the PACC Steering Committee (PSC) to serve efficiently and effectively as the single governing body of PACC overall, and the Project Board should not be continued. PSC membership should be UNDP, AusAID (and other donors), SPREP and Directors of the National Executing Agencies or Chairs of National Steering Committees. It should be chaired by SPREP, which should be confirmed as the Lead Implementing Agency for PACC, with the RPMU as executive secretariat; the PACC PSC should also liaise closely with the national Steering Committees. The PSC should focus on overall program strategy and policy; and efficient annual review and endorsement of annual reports (technical and financial), annual project plans and budgets. Decisions should be by consensus or majority vote if necessary. The PSC should also work in conjunction with a strengthened PI CC Round Table and within other regional frameworks convened under the CROP mechanism.

Recommendation 3. PACC Project Management

It is recommended that UNDP should delegate management authority for the PACC Project to SPREP, and focus on enabling SPREP to carry out the function effectively and efficiently. SPREP should develop the capacity of the RPMU within SPREP to properly manage and coordinate all aspects of the project's implementation regionally and in countries. The RPMU's responsibilities should be extended so that it is leading and guiding SPREP's climate adaptation program, which may comprise several PACC projects, including those with SCCF, AusAID and USAID funding.

The RPMU within SPREP should be strengthened with three additional technical adaptation program staff, mid-level professionals capable of guiding and servicing the needs of PACC project executants across the technical fields of adaptation planning and building resilience in the countries' mainstream development sectors. SPREP should give immediate consideration to organising the expanded RPMU program to work as a virtual SPREP team with devolved placement to serve the three sub-regions: via a) the CROP agencies' hub in Micronesia; b) the MSG Secretariat in Vanuatu as a hub for climate and environment work in Melanesia; as well as c) a hub for Polynesia centred on SPREP. Their focus should be firmly on facilitating knowledge exchange for climate adaptation, employing the SPREP/ linked-CROP agencies' Library facility. Refer also to **MTR Recommendation 9**.

PACC Project Financial Administration and Operations

51. Implementation of the PACC project has been managed and administered by UNDP Samoa, SPREP RPMU and the PMU in each country, with the RPMU and PMUs as the main cost centres organising activities by project staff and through sub-contracts to a range of actors and suppliers. There is an overall common project plan, a common budget and common timetable. The main single issue that has debilitated management and implementation of the PACC project over the past 4 years is the basic routine of project operations and administration, which has not worked satisfactorily since PACC implementation started in 2009. The main steps in the annual routine and the main weaknesses that have occurred in the system are summarised in **table 5**.
52. It is apparent that operating this project administrative and financing mechanism has occupied far too high a proportion of project staff's limited time, and proved a major burden for the SPREP

RPMU, UNDP Samoa and the country PMUs. Discussion of the problem and of possible solutions have dominated virtually all project meetings for the past three years (including the MTR meetings with UNDP Samoa, SPREP, and during each country visit). All PMUs and Executing Agencies visited by the MTR complained about the dysfunctional system and the issues listed in **table 5**. It appeared that several offices had given up trying to get the PACC project funding mechanism to work satisfactorily, and if possible had found other ways of proceeding with the work. [The PACC project in Vanuatu is perhaps the extreme case: after 3.5 years it seems that not a single quarterly cycle has been completed satisfactorily, and only a small fraction of the GEF project funds has been spent; despite this the Vanuatu Executing Agency has managed to progress useful work at the PACC Vanuatu site, using funds and activities from other projects.]

Table 5. Annual Routine of Project and Financial Administration

Main Process Steps	Recurrent Weaknesses
Annual plans and budgets are prepared by PMUs and RPMU – due Oct-Dec each year.	<ul style="list-style-type: none"> Annual work plans and budgets are sometimes received late or of poor quality from some countries.
Quarterly work plans and budgets are prepared by each PMU for submission to the RPMU, collation into a single submission to UNDP Samoa – due 1 st week each Quarter	<ul style="list-style-type: none"> Quarterly plans have (often?) not been submitted by PMUs on time nor of a satisfactory quality. The RPMU is required to edit and collate them into a single submission to UNDP, which takes further time.
Quarterly advance funds are transferred from UNDP to SPREP and on to 13 individual PMUs, via banks and national financial institutions –	<ul style="list-style-type: none"> Funds are not transferred or received in PMUs on time; funds are transferred through several institutions and have occasionally been held-up or mislaid en route; PMUs (regularly/ normally?) receive funds for the Quarter at the beginning of the 3rd month of that Quarter. The amount received is (often?) less than the amount requested (presumably because if the transfer is made late in the quarter, there is no chance of the PMU spending a satisfactory portion of the funds before the end of the quarter).
Quarterly reports on results and expenditure are generated each quarter by the 14 country PMUs and 1 regional PMU, and processed as a single batch by the RPMU and by UNDP Samoa – due final week of each Quarter.	<ul style="list-style-type: none"> Quarterly reports have sometimes been sent late, of poor quality or not at all. The RPMU is required to edit and collate them into a single submission to UNDP, which takes further time.
Annual reports, technical and financial prepared by PMUs and RPMU – August each year.	<ul style="list-style-type: none"> Monitoring and reporting of results has been consistently weak.

53. At the 2012 PACC annual meeting (Nauru, August 2012), a number of changes to the system were proposed, including a) placing more emphasis on Annual Work Plans & Budgets, with targets or milestones for each Quarter; removing the need for Quarterly Work Plans & Budgets; and b) requiring each PMU to produce semi-annual Progress Reports, in addition to the RPMU and UNDP report (PIR) to the GEF. The MTR considers that these changes would be useful improvements, but that by themselves they will not be sufficient to get the mechanism running efficiently. There seem to be two main systemic issues not addressed by these changes.
54. First, as discussed in the PACC Project Design section, there is no substantive project plan, i.e. logically-linked set of substantive objectives, on which PACC executants at country and regional levels can base any of their subsequent management actions – annual and quarterly work plans, budgets, monitoring and reporting. This makes plans, budgets and reports difficult to prepare, evaluate and approve, as they are simply lists of activities. It is important to improve the quality of PACC project planning, in particular by each EA and PMU clearly defining the substantive

objectives of the key mid-level results (outputs) that it seeks to achieve, plus an outputs-based budget (refer to **MTR Recommendation 1.**); these will then form the basis for work plans & budgets, monitoring and reporting.

55. The MTR considers that the second underlying issue is that the mechanism of planning, funds disbursement and reporting across three tiers (PMU ↔ RPMU ↔ UNDP) and 14 countries (each with banks-Finance Department-EA-PMU chains) is too laborious to fit into a Quarterly time-frame. UNDP's system is intended to make funds available to the executants in advance, for a three-month period or less. However, this is simply not practicable for a multi-tier project like PACC, given the stipulation that the previous advance (at least 80%) must be liquidated before the next advance is approved. It simply takes too much time (for 15 cost centres) to process the FACE form, ICE and CCEL each quarter, and then to disburse the next funds. Inevitably, they arrive in the second or third month of the quarter, never in advance.
56. The MTR considers that there is no justification and no value in such a tight tight-frame for PACC activity and expenditure reporting; reporting of these project data every quarter serves no additional purpose. In fact, the mechanism is clearly counter-productive, as the short repetitive cycle 'dumbs down' the quality of reporting; many reports are simple repetition of activities underway; it is unrealistic to expect meaningful results to be achieved every quarter. Six-month reporting against a well-formed plan of expected results would be significantly more useful to all stakeholders.
57. UNDP Samoa insisted to the MTR that the 3-month cycle of advance-and-acquittal could not be changed without contravening UNDP regulations. However, at least two of the PACC PMUs reported to the MTR that, following approval from UNDP Samoa, they have received their PACC project funds 12-months in advance for the past two years, for staff salaries at least, and did not understand why all their project financial advances could not be administered in this way. The MTR's enquiries to UNDP Samoa produced no answers to this question. The system seems to be based on a lack of trust by UNDP, and their reliance on the Executing Agencies to cover any risk that exists. However, PIC government agencies are not allowed under their own regulations to operate a PACC project budget in arrears; government finance offices complained to the MTR that UNDP's rules over financial disbursements to PACC were forcing them to break their domestic rules, often by using another donor project's funding to subsidise PACC activities.

MTR Recommendation 4.

PACC Project Administration

It is recommended that the administration and financial management mechanism for project operations must be reformed as a pre-requisite to the PACC project proceeding. The MTR makes the following suggestions:

- a) Change to a 6-month cycle of planning, funds disbursement and reporting. This would entail
 - a) improving the standards of annual and 6-month plans and budgets against the improved overall logical framework, work plan and results-based budget plan;
 - b) disbursement of 6-months advance of funds in month 1; and
 - c) return of an expenditure report in month 6; allowing one month for processing. If UNDP's system cannot accommodate 6-monthly advances of funds, it would be relatively simple to advance funds each quarter, and acquit and report back on that advance the following quarter. This would obviate the critical hurdle of attempting to advance, spend and acquit the funds within a single quarter.
- b) Remove the multiplication of effort required for UNDP Samoa, SPREP RPMU and 14 Executing Agencies and project offices to co-manage project administration and financing: either UNDP Samoa should delegate the task of managing the PACC budget account fully to SPREP, and enable the RPMU to perform this function with due diligence; or UNDP Samoa should administer the project funds directly itself; and disperse funds and receive expenditure reports directly from each PMU and other cost centres. In the latter arrangement, administration of the accounts should be separated from the technical

management of the PACC project, which should remain the responsibility of SPREP and the RPMU.

- c) Introduce results-based financial management. This will entail a) setting up an Excel file as a parallel record of budget and expenditure in each cost centre (PMU, RPMU); or more simply, adding an account code to each re-defined Output; b) confirming the budget for each PMU and RPMU against the improved project plan/ log framework (with a strong focus on the specific key results – Outputs – that are planned, each with a budget, at each centre; and c) monitoring, recording and reporting expenditure against each Output.

PACC Project Management – National

58. At country level, the governing structure for the PACC project is a national Steering Committee, intended to provide guidance and support to the national Executing Agency and a PACC project office (PMU). The aim was for the National Climate Change Country Team (as established under the earlier PICCAP program, with members from government, NGO, civil society and community organisations) or equivalent) to form a PACC steering committee and oversee project implementation and synergies with other national initiatives. Most PACC project activities were to be conducted at country level, managed, coordinated and implemented by national professionals “to the extent possible”. The 2009 inception meeting agreed that each national PMU will comprise at least a full-time Project Manager/ Coordinator paid by the project; and this has been achieved, although several countries had serious delays in designating lead agencies and project staff. In each country, a PACC Project Management Unit has been established with two or more staff, within a designated government department, and some form of PACC steering group or committee has been formed, with connection to national coordinating bodies. The arrangements vary from country to country, which provides the IA and EAs with a useful opportunity for comparative analysis. Refer to discussion below and to the supplementary report sections on individual PACC countries.
59. The MTR is concerned that the business of administering the PACC project activities and budget has taken too high a proportion of the EAs’ and PMUs’ staff time and has reduced the attention given to the substantive objectives of the PACC project. As noted above, the routine mechanism of project and financial administration has been problematic throughout the period of implementation. Work plans and routine progress reports have not been able to be prepared on time or to a satisfactory standard. Quarterly advance funds have seldom been received on time. Several PMUs have found it necessary to recruit an additional staff member to handle routine financial administration, while others have relied on the EA’s finance office or the national government finance office to manage the project accounts. Procurement of major items has been a problem and UNDP Samoa has had to short-circuit the regular process and make direct payments to suppliers. The data are not available to evaluate these input costs, against either the GEF budget or the co-financing, but it seems clear that the project administration costs are too high to provide a useful model for future adaptation projects.
60. Across the fourteen countries, the PMUs vary in their capacity, efficiency and effectiveness. Key factors appear to be the agency (EA) in which the PMU is housed, that agency’s mandate and capacity, and the relevance of PACC to the agency’s current agenda; as well as the calibre of the PMU staff, their individual abilities and understanding of the substantive aims of PACC and of the national context. The MTR considers that it is particularly important for all EAs to develop a) their engagement with and use of the PACC project; and b) the capacity of the NCs and PMU staff to operate within their institutional environments, with a strong focus on implementing PACC activities effectively and on achieving the substantive objectives and demonstrating the substantive results of climate adaptation and resilience building.
61. A similar important lesson from PACC to date is to ensure close connection between the PMU and the country’s institutional mechanisms for governing both climate work and the (sectoral) developments which the PACC project is supporting. For PACC to be effective in country, it needs to be integrated primarily with the country’s governance and development agenda, and only

secondarily to be part of a regional program. Similarly, the PACC PMU needs to be developed and used as part of the country's permanent institutional framework, and not treated as a short-term project office working off-line or separately from the mainstream agencies.

62. The MTR is concerned that the overall extent and purpose of the PACC country projects are ambiguous and therefore that the home institution and ToR of the PMU may not be appropriate: is it a multi-million dollar project to develop and demonstrate climate resilient coastal, water or agricultural infrastructure or systems (or portions thereof)? Or is PACC a relatively small technical assistance project, generating advice on climate risks in order to strengthen a mainstream development project that is done by others? The PACC country projects all seem to be aspiring to be the former, but in many cases are set up as the latter.
63. Vanuatu provides a useful model for this lesson: there the PACC project is supervised and guided by the national Climate Unit, which forms an executive office for the National Advisory Committee for Climate Change; and management of the PACC project is delegated to the Executing Agency, the Public Works Department, which is the mainstream government agency responsible for public infrastructure development, including coastal infrastructure which is the chosen focus of PACC in Vanuatu. This arrangement enables the NACCC's Climate Unit and the PWD to collaborate closely in guiding, managing and making use of the PACC project. The direct engagement of the latter is important, because the primary purpose of the PACC is to enable the mainstream agencies, such as PWD, to adapt their policies and practices to climate change. The NACCC brings together all the national agencies; the proposal is to set up a Steering Committee of its members to provide further guidance to the PACC project, and a clear avenue for engagement of other departments in the PACC initiative.
64. The MTR considers that PACC could be "institutionalized" more effectively in some of the participating countries, and this could serve to enhance the process of mainstreaming climate adaptation. A strength of the Vanuatu model is that the NACCC, the national institutional mechanism driving and coordinating climate work, including the PACC project, is chaired and serviced by the Meteorological Department (MGD), which has been given the mandate and resources to perform this function. Another strong model is provided by the Marshall Islands, where the government's Chief Secretary convenes the National Climate Change Committee. The advantage of the Vanuatu system is that the PACC project also works closely under the auspices of the NACCC and its Climate Unit, whereas in RMI PACC should probably be working more directly under the NC-3. In Nauru also, the PACC project operates within a strong institutional framework, led by the Department of Commerce, Industries and Environment (CIE), which is able to integrate efforts to strengthen both climate adaptation activities and water resources management. In the PACC countries targeting climate resilient agriculture and food, the lead EA role has been given to the mainstream agency, the agriculture department, and this may have resulted in limited inputs from other agencies such as meteorology, environment, or planning.
65. The MTR notes that the mechanism of a multi-agency project Steering Committee may be particularly important for the PACC countries that have chosen to work on coastal management (Cook Islands, FSM, Samoa, Vanuatu), because in most countries multiple agencies share responsibility for coastal zone management; few governments (globally) have designated single Coastal Management agencies. In Samoa and FSM, the PACC project is led by a government environment agency (MNRE and KIRMA respectively), whereas in Cook Islands and Vanuatu the lead Executing Agency is the Ministry of Infrastructure & Planning and the PWD. In FSM, the environment agency has the task of building an effective partnership with the PWD; whereas in Vanuatu and Cook Islands, the PWD/ MIP has to draw the environment, fisheries and other agencies into effective partnership. In Samoa, the MNRE used mostly resources from within the institution.
66. In both Palau and Marshall Islands, the PACC project PMU has been established within the environmental policy office attached to the Office of the President, the OERC and OEPPC respectively. These units are concerned with international environmental conventions and financing, rather than being government line agencies responsible for managing pilot projects. As

the PACC projects in Palau and Marshall Islands are promoting development of climate resilient systems, for agricultural production and water resources management respectively, the MTR recommends in each case that PACC should be attached directly to the relevant line agencies.

MTR Recommendation 5. PACC Management in Country

PACC should be managed primarily as a set of country projects with connections between them and with the region. It would be valuable for the national EAs and Steering Committees to provide more leadership and direction to the PACC initiative, and to themselves engage upwards into regional adaptation programming in conjunction with the regional PACC PSC. In the remainder of the project and beyond, these national bodies should increase their ownership and use of the PACC project. This proactive re-engagement should form part of the process of re-defining the PACC project plan and substantive objectives in each country, including consideration of how to apply the NC and PMU, and the SCCF and PACC+ funding most effectively.

At country level, PACC should be considerably more active in engaging, collaborating and exchanging ideas, experiences and lessons with other agencies and programs about climate adaptation needs and actions. Rather than remaining inside the prescribed box, the PACC PMU, EA and Steering Committee should deliberately promote and create ways to achieve synergy with other relevant projects; and should contribute to and participate in the development of a common strategic framework or action program for climate adaptation in the country.

Integration of PACC+ and other Climate Adaptation Programming

67. It is encouraging and commendable that PACC has been seen as a useful programming mechanism for climate adaptation efforts, and has attracted AusAID and USAID as additional partners and financing. This could prove a valuable model for the Pacific islands region as a whole, as the amounts of international assistance for climate adaptation are increasing rapidly. However, the MTR notes that the effectiveness and efficiency of delivery of the AusAID-funded PACC+ addition are likely to be reduced by being developed and implemented under the same project design, governance and management arrangements as the current PACC project. This development appears to have been planned primarily by UNDP Samoa with relatively little involvement of SPREP or the PACC RPMU. The MTR is also concerned to learn that conversely the new “USAID – SPREP Partnership for the PACC Program” has provided funds directly to SPREP for implementation of similar “on-the-ground adaptation initiatives”, in the same three sectors as PACC, but under separate management to the PACC project, and with no apparent involvement of UNDP Samoa.
68. In order to avoid confusion and inefficiencies and to improve the overall effectiveness of these efforts, it will be important for these and other additional resources and projects for climate adaptation to be fully integrated within some form of “Pacific Adaptation to Climate Change program mechanism”. There is an important opportunity for PACC, PACC+, USAID and other resources that become available to be managed as a single longer-term program. The institutional development objective should be to strengthen the capacity of SPREP and PACC RPMU, the CROP mechanism and the national EAs and PACC PMUs, so that they may contribute more effectively and collaboratively to climate adaptation programming in the region and in each country. This will require a greater focus on strategy, systems and substance, rather than on separate projects and their routine operations and administration, which have pre-occupied all parts of the PACC initiative to date. As an initial step, it would be valuable for PACC SCCF, AusAID and USAID programs to be merged, to provide a good model for agencies active in the PIR “buying into” a common strategy and coordination mechanism for climate adaptation work.
69. A considerable number of other programs and projects concerned with climate change and/or with the PACC priority sectors are under way or under development in the region and in each PIC. Less apparent are programming connections between PACC and these initiatives and

between the agencies that are developing, funding and/ or implementing them. It has been a challenge for the regional team driving the PACC project, in the RPMU, SPREP and UNDP, to develop and make good use of PACC as the Pacific regional framework for climate adaptation programming that was envisaged in the formulation of PACC. While PACC was heralded as the first opportunity for a majority group of PICs to implement practical climate adaptation measures, a diverse range of additional opportunities has arisen very rapidly in the past few years and in various ways has overwhelmed PACC. Many development agencies and donors, and environment and development NGOs have joined the field; creating a complex matrix that is currently difficult and time-consuming for regional and national organisations to navigate and connect with efficiently and effectively. The institutional and programming framework is unprepared and inadequate; there is as yet inadequate coordination and very little integration of climate adaptation programming, either regionally or within countries.

MTR Recommendation 6. Regional Collaboration

It will be valuable for SPREP and the RPMU to strengthen efforts to establish an inclusive forum for climate adaptation programming in the region, based on or under the auspices of the Pacific Islands Round Table for Climate Change as appropriate. PACC, PACC+ and the USAID-SPREP 'projects' should become integral parts of an overall program, and make use of the regional forum to develop and establish a common strategic framework, and common tools for monitoring and knowledge management.

Project Finances

70. The finances of the PACC project, management of the budget and expenditure, have not been reviewed by the MTR. For this component to be completed, summary financial data in a usable form would need to be provided to the MTR, specifically including the following:
 - a. Budget allocations and expenditures achieved;
 - b. For each cost centre – each country and the region;
 - c. For each component Outcome and major planned/achieved result or major Output;
 - d. Including a breakdown of “Outcome 4 – Project Management”;
 - e. For each year of the project to date;
 - f. For each source of funds separately, including PACC SCCF, PACC+ AusAID, and co-financing¹⁵.
71. Refer to **MTR Recommendation 4.** on results-based financial management.
72. It is particularly important to monitor and review co-financing in the case of PACC, because of the nature of the PACC SCCF funding. The basic concept is for the PACC SCCF funds to pay the additional costs of building climate resilience into the “co-financed” projects which provide “baseline” development and management of agriculture & food production systems, water resources, and coastal systems and associated infrastructure. PACC is necessarily concerned with the “whole project” that is developing a climate resilient coastal zone, harbour, crop production, or water system. The combination of SCCF and Co-financing in PACC is explained clearly in the UNDP Project Document (2008):
 - a. “SCCF resources will..., together with individual country co-financing, finance the implementation of pilots that reduce vulnerability to climate impacts....
 - b. (SCCF) funds will play a catalytic role in leveraging national level investments towards meeting the additional costs of adaptation to climate change. All countries have already committed the necessary co-financing towards this project.

¹⁵ Some of the AusAID PACC+ funds, made available for 2011 to 2014, had been included in the 2008-2012 PACC Co-financing budget.

- c. (SCCF) provides additional resources for national governments to address climate change specific issues in the design of their development programmes to ensure resilience to current and future changes in climate. Therefore, co-financing activities from governments provide the baseline activity aimed at achieving sustainable development whilst PACC activities provide the additional provisions to address climate change adaptation.

Monitoring, Information, Reporting & Evaluation

73. A Project Monitoring & Evaluation plan was outlined as Part IV of the 2008 UNDP PACC Project Document, and developed further into the schedule of M&E Activities in the 2009 PACC Inception Workshop and Report, which is summarised in **table 6**.

Table 6. Schedule of Proposed PACC M&E Activities

Inception Workshop (IW) and Report
Visits to field sites
Annual Reports
• APR/ PIR Annual Performance Review/ Project Implementation Report
• Tri-Partite Review report
• Audit
Periodic reports
• Status reports
• Specific monitoring studies
• Technical Reports
Mid-term External Evaluation
Terminal Report
Final External Evaluation
Lessons learned

74. In practice, this schedule has been followed to a reasonable extent. The main “M&E activities” have been as follows:
- The 2009 **Inception Meeting** and **Regional Technical Meeting** were used to review and develop parts of the project plan.
 - Also in 2009, an additional **Technical Review** (which was unusual at the outset of a project) was conducted by an independent expert.
 - Quarterly Progress Reports** (QPRs) have been the principal monitoring and reporting mechanism employed: each PMU has been required to prepare technical and financial reports at the end of each calendar quarter, to be collated by the RPMU and submitted to UNDP Samoa.
 - A **Multi-Partite Review** has been convened each year: the RPM and each NC have made status reports on progress and achievements and also have presented any new technical reports that have been prepared. The MPR makes recommendations to the Board to address issues arising and decisions are relayed to the relevant party for action.
 - An **annual report**, the APR/PIR has been prepared each year by the RPMU and UNDP for submission to the GEF-Sec.
 - Annual **audits** of the project accounts have been conducted at the RPMU and most if not all PMUs.
 - The current **Mid-Term Review** was conducted by independent experts in 2012.
75. Over the past four years of PACC implementation, considerable time and effort – by the PMUs and EAs, RPMU and UNDP – have been spent on the annual and quarterly cycle of reporting and

review. This has revolved on the three main activities listed above: a) QPRs; b) the annual MPR plus c) the APR/PIR; which together form the major part of the M&E system for the project. The QPRs are discussed in the section on Project Operations and Administration, and recommendations made for streamlining and simplifying this reporting requirement. The MPR and Project Board are discussed under Project Governance above, and recommendations made for merging the two and forming a stronger Project Steering Committee, which will contribute to a stronger M&E system.

76. The progress/ status reports prepared by the RPMU and PMUs for the MPR are the main or only annual reports prepared by the project executants, and serve to communicate “highlights” and actions undertaken. The APR/PIR is prepared as a more analytical annual report on the PACC project and has been the main project record and monitoring tool for UNDP and the RPMU, but not apparently used by the EAs or PMUs.
77. The MTR finds that the performance of the M&E system for the PACC project over the four years has only been marginally satisfactory, and may be characterised as a routine of project activity reporting with little critical analysis, whereas it should be a key management practice comprising the following:
 - a. Monitoring of substantive results against a rigorous plan;
 - b. Recording the information and reporting on these substantive results;
 - c. Periodic evaluation of relevance, effectiveness and impact; leading to
 - d. Adaptive management of the project
 - e. Learning and Knowledge-sharing.
78. One reason for the poor M&E performance is that the PACC project has not been set up and operated as a rigorously planned, managed and monitored initiative. The Project M&E Plan specified in the Project Document and Project Inception Report was insufficient to enable project management (the RPM and NCs) to establish an M&E system. The M&E Activities listed were aimed primarily at enabling the Implementing Agencies¹⁶ to perform their oversight function. A good M&E system should be geared primarily to provide the project managers and executants with feedback on their performance and achievements so that they can adjust their next actions.
79. Poorly-developed M&E have hindered all three components of the PACC project: under Component 1, plans and policy documents have been drafted, but guided only by an objective “to draft a policy”, with inadequate specification of its intended substantive impact. If there is no substantive objective, it is difficult to monitor and evaluate the effectiveness of the policy, or of the project’s actions. Under PACC Component 2, countries have not been guided by substantive objectives and are not monitoring whether adaptation measures are effective in building resilience or addressing vulnerabilities, or as demonstrations. Similarly for Component 3, substantive objectives have not been set for communications, extension work, awareness-raising or knowledge management, and country projects are not monitoring progress towards such objectives.
80. The MTR considers that there are two fundamental issues that need to be addressed – the lack of focus on substantive objectives; and an inadequate information management system. Both of these are required to create a useful M&E system for the project.
81. The root cause of the first issue is the lack of rigorous planning, which has been described in the section above on Project Design. There has been insufficient focus on determining the substantive objectives of the PACC project, in each country and for each sector, component and pilot project. Project implementation has relied on work plans (AWP, MYWP) to schedule activities, but these are not sufficiently underpinned by substantive (output) objectives and a well-developed project logical framework; refer to **MTR Recommendation 1**. It is essential and

¹⁶ It is notable that the 2008 M&E Plan indicates no role or involvement for SPREP in the monitoring or evaluation of the PACC project.

good practice to base the M&E plan on the overall project plan, i.e. the logical framework. The project log frame is required to serve as both the main planning tool and monitoring tool for the project: monitoring means the routine of gathering information on the state of the project's 'performance indicators' and therefore progress towards the planned objectives and results.

82. The second issue is that no satisfactory information management system has been established for the PACC project. Records are kept in each PMU and the RPMU on the basic activities of the project office, i.e. copies of work plans, correspondence, reports, field trips, personnel, procurement, budgets and expenditures. There is an outstanding need for a technical reference library, databank or resource centre, in which technical information useful to or generated by the project can be stored and organised systematically, for ready retrieval. None of the PMUs nor the RPMU appear to have such a system in use, and as has been made clear during the MTR, none of the offices have been able to easily retrieve, summarise, analyse or otherwise apply the considerable amounts of information that exist. This is a significant shortcoming for an initiative such as PACC, the primary purpose of which is to provide a learning and knowledge-sharing mechanism, aiming to foster and strengthen climate adaptation locally, nationally and regionally, by exchanging knowledge, ideas, innovations and lessons about climate and adaptation across islands, communities, institutions and countries.

MTR Recommendation 7. M&E, Information Management, Knowledge Sharing

A cultural change should be instigated, across the project and in the participating agencies, to foster and establish PACC as primarily a Learning and Knowledge-sharing mechanism. Whereas to date PACC managers and executants have tended to be pre-occupied with organisation and administration of delivering the PACC project, it is recommended that for the remainder and any extensions of the project, all executants should become creatively pre-occupied instead with the technical knowledge that is being generated and used by the project, and systematically develop PACC to function primarily as an information management system, integrated thoroughly with a broader network of information systems, across Executing Agencies, sectors and programs. At the least, each PACC project executant should record and organise the information materials s/he prepares so that they are readily stored and retrievable from the national-regional system.

Following the MTR¹⁷, the RPMU and SPREP Library should convene a small virtual task force (involving PACC EAs, PMUs, PSC, SPREP and UNDP) to review the existing technical libraries and databases available to them and plan for them to incorporate the technical information materials that are generated and used by the PACC project. Centred on the well-established SPREP library, these data-banks should form the core of a networked information system serving the Pacific island countries and region.

Project Duration

83. The PACC project was planned as a 5-year project intended to run from 2008 to 2012; implementation started in 2009 and the end-date was moved to 2013; progress was slow and the end-date was moved again, to 2014. Additional funding (PACC+) became available in mid-2011, for a 3-year period, to mid-2014. The MTR notes that the 5-year duration was a fairly arbitrary decision made during project development, based on the practices of the implementing and funding agencies rather than on the requirements of the project executants, partners and participants. Similarly, the two extensions were made on *ad hoc* grounds. (The MTR notes also that the amount of SCCF funding allocated to each country project was also a fairly arbitrary decision, rather than being based on the estimated costs of the activities that were planned.)

¹⁷ This system should have been set up at the start of the PACC project as a priority task of the RPM and NCs within their respective institutions. It should not be left until the end of the project, which is common practice.

84. After four years of implementation, project activities in the 13 countries have progressed at widely different rates, so that at the time of the MTR, some could be considered to be in the final stages while others are still at an early stage. Some of the simpler PACC projects, which includes the water sector projects, are planning on replication or scaling-up of what they have done to date. However, in the absence of clear project plans with substantive objectives, and results-based budgeting and expenditure monitoring, it is not possible to specify when many of the PACC project activities should be regarded as finished and when activities should be extended.

Recommendation 8. PACC Program Extension

MTR Recommendation 1. is for each PACC country project to re-define its basic project plan, budget and timetable. This should be based on re-consideration of the actions, time and funds that will be required to achieve each country project's re-defined and agreed objectives, plus any plans for extension, replication or up-scaling.

It is further recommended that the overall plan, remaining budget and timetable for PACC should be reviewed and revised, based clearly on the revised plans proposed and agreed with each participating country. The revised overall plan should provide for continuation, completion or extension of PACC work for a suggested period of up to 5 years (2013 – 2017), subject to a) the time required to achieve the objectives and b) the funding available. The revised plan should be in the form of a collaborative program between SPREP, UNDP, AusAID, USAID and other contributing agencies; and to the extent possible should incorporate or have links to all of the agencies' climate adaptation related program activities.

Section C

PACC PROJECT – PROGRESS AND ACHIEVEMENTS

85. The PACC project has been designed and implemented to achieve results in 13-14 Pacific island **countries** and across the region, towards three main **Outcomes**: 1. Mainstreaming Policy and institutional developments; 2. Design and demonstration of climate adaptation; and 3. Capacity development – knowledge management and communications; in three priority **Sectors** for climate adaptation: Agriculture & Food Production; Water Resources Management; and Coastal Management & Infrastructure. **Figure 2** attempts to represent the project's scope across the three components, three sectors and 14 countries.
86. This section of the MTR reviews progress towards the achievement of results under these Outcomes. The section is organised in two parts, covering first the regional activities and second the achievements of the 14 PACC country projects, which have been grouped according to the selected priority Sector. MTR Recommendations for strengthening the project's performance are given at the end of each part.

Figure 2. PACC Project Structure – Countries, Components, Sectors

PACC Regional Support	Component 1. Mainstreaming Policy and institutional development	Component 2 Demonstration of climate adaptation measures	Component 3. Capacity development Knowledge management	
PACC country projects				Priority Sectors
1. Fiji				Agriculture & Food Production
2. Palau				
3. PNG				
4. Solomon Islands				
5. Marshall Islands				Water Resources Management
6. Nauru				
7. Niue				
8. Tokelau				
9. Tonga				
10. Tuvalu				
11. Cook Islands				Coastal Management & Infrastructure
12. FSM, Kosrae State				
13. Samoa				
14. Vanuatu				

PACC Regional Support

87. The PACC RPMU within SPREP has been required to carry out two major functions in implementing the PACC project: a) coordinating the administration of project operations in conjunction with the PMU in each country; and b) providing and organising technical support and guidance to the substantive work of each country project. The performance of the first of these functions is reviewed in the previous section of this report, Project Management Arrangements. The second function is reviewed here.
88. The requirement was for the RPMU, using its own resources and contracting inputs from other sources, to provide technical support, guidance, training and leadership; monitoring, review and quality assurance to the 14 PACC country projects, as they undertake each of the three project components of the PACC project within their selected sector.
89. Partly because of the “sectoral” focus of PACC, the intention was for other relevant CROP agencies, especially SPC and SOPAC, as well as other core programs of SPREP to provide “scientific, technical and management guidance” to the project, regionally and in-country. This

was to be organised, upon request from the RPMU or a country PMU or NCCCT, and coordinated by SPREP, by sub-contracting the appropriate regional agency and reimbursing actual costs incurred. The ProDoc referred also to other “partner institutions assisting SPREP to provide technical support” – UNITAR, Stockholm Environment Institute and Munasinghe Institute for Development. The MTR notes that it would be difficult for the RPMU to achieve this aim, as none of the agencies work in this way, with staff available to take on additional work. In practice, the RPMU has relied on individual consultant contracts, and used these to employ a variety of short-term experts to deliver guidance and assistance to countries.

90. As project implementation started in 2009-2010, the RPM prepared a plan for the regional technical support that he assessed PACC country projects would need in order to implement the three components effectively and efficiently. The main support items were as follows:

Outcome 1 – Mainstreaming Guide and Training Module; Socio-economic assessment.

Outcome 2 – Vulnerability and Adaptation (V&A) assessment¹⁸

Outcome 3 – Communications Strategy.

91. This early needs identification evolved over the first year of project implementation into a more ambitious series of guides and tools, which it was intended would form a PACC Toolbox; **table 7** lists the various tools that were proposed for development in 2010.

Table 7: Proposed PACC Toolbox (from PACC RPMU 2010)

Component One - Mainstreaming
1. Mainstreaming guide
2. Climate Change economic tools
Component Two – Pilot Demonstration
1. V&A tool
2. Climate Risk Assessment tool
3. Socioeconomic Assessment tool
4. Climate Change Explorer tool
5. CRISTAL tool
Component Three – Technical Backstopping
1. Communication Strategy
2. Partner tracking tool
3. Capacity Building tracking tool
4. Website [improvement]
Component Four – Project Management
1. National Coordinator Reflection Survey tool
2. PACC Project Impact Indicators

92. The RPM’s Annual Report for 2010 commented on the overwhelming nature of the demand on the RPMU for training and guidance, and it is clear from the PACC quarterly and annual reports that there was a significant need among the 13 NCs, PMUs and wider country teams for capacity development, in the two main areas of project administration management and technical implementation of climate adaptation work. Clearly it was unrealistic to expect an RPMU of two staff to be able to meet the needs of the countries, especially not in both of these areas during the start-up of the project; noting that the RPMU had to rely primarily on its own resources (two staff) to assist PMUs to develop their project administration systems and skills, which tended to take precedence over substantive work.

¹⁸ Use of a V&A assessment approach (PACE-SD Integrated Assessment and Action Methodology for Climate Change, Disaster Risk Management and Sustainable Development) developed at USP from the CBDAMPIC project.

93. The RPM's reports refer to the engagement of other staff – “from SPREP, UNDP, USP PACE, SOPAC, SPC, IISD and SEI” – in assisting the technical support program. The extent and effectiveness of this additional support is not clear; (as noted in the MTR section on Monitoring, Information, Reporting & Evaluation, one critical weakness of project management has been the lack of an adequate monitoring and information management system). While the MTR does not have details on the nature, costs and impacts of the technical support provided by these different organisations to PACC activities, regionally or in countries, it is apparent that a major portion of project expenditure to date has been on organising regional and sub-regional meetings for purposes of capacity building, primarily of the PACC national Coordinators.
94. Also in 2010, at the 1st PACC MPR meeting, UNDP and SPREP decided to form “a high-level Technical Advisory Group comprised of world class expertise drawn from specialized regional CROP agencies as well as globally... to provide technical oversight over the various outputs of the project.” The MTR understands that such a group was not established, but does not regard this as a substantial loss. There is sufficient technical capacity accessible within PACC, SPREP and the EAs, and another layer of project oversight or advice would not have produced significant benefits.

PACC Tools

95. In implementing the PACC project over the three years 2010, 2011, 2012, the RPMU has commissioned the development of a number of guides and tools and has organised for the PACC country teams to be trained in their use and application. Training and briefings have been delivered to NCs and other country team members, through series of regional and sub-regional workshops dedicated to a particular topic, and also through the annual PACC technical meetings held in conjunction with the project MPRs. The tools that have been developed and applied as part of the PACC regional support are as follows:

Outcome 1 – Mainstreaming Guide

Outcome 2 – Vulnerability & Adaptation (V&A) Assessment; Socio-Economic Assessment Guide (SEA-PACC); Cost Benefit Analysis (CBA); Environmental Impact Assessment (EIA) for CC Adaptation; Demonstration Guide

Outcome 3 – Communications Strategy

Guidance for Component 1.

96. **Mainstreaming Guide:** A 59-page Mainstreaming Guide was produced in 2010 along with an accompanying 27-page Training Manual. The author's approach was to provide guidance based on available information and to encourage countries to apply what they considered appropriate so that “best practices can emerge through experience, rather than external direction”. Much of the content of the guide is a review of relevant literature with recommended actions at the end of each section. The PACC RPMU and UNDP RTA considered the Guide to be inaccessible to the countries in this form; and this has been borne out in practice as the Guide appears to have been little used in undertaking Component 1. PACC country teams have instead proceeded with Mainstreaming activities in their own manner, and unfortunately in most cases with little strategic guidance; (refer to the reviews of PACC country level Achievements below). Two later efforts were made to produce a more user-friendly regional mainstreaming guide with draft documents produced in 2011, including a draft 7-page Practical Manual for Climate Change and Disaster Reduction, and a final version mainstreaming guide in 2012.

Guidance for Component 2.

97. **Vulnerability & Adaptation (V&A) Assessment:** As noted under Project Development and Design, it was a significant mistake for the selection of situations and sites at which to pilot adaptation measures in each country to be made during the PACC PDF consultations in 2006; in essence the PDF process became an *ad hoc* V&A process, but in the absence of comprehensive baseline assessments, the selection of pilot projects was driven strongly by either current lack of relevant activity in a particular sector and/or immediate needs, as well as by the availability of co-financing. A properly done V&A assessment will look at all relevant vulnerabilities and then

consider the range of options for adaptation, before any decisions are made regarding adaptation activities. Unfortunately in the case of PACC this did not happen: specific adaptation projects were identified and measures designed without the benefit of adequate V&A assessments.

98. It was recognised in the RPM's original plans for regional technical support and in the first years of operation that the decisions taken on sites and adaptation pilots in the PDF planning phase had been misguided, and that a thorough V&A assessment would be required at an early stage of PACC start-up in each country. The RPM proposed to use a V&A assessment approach¹⁹ developed at USP from the earlier PICCAP and CBDAMPIC projects.
99. During the course of project implementation from 2010 onwards, V&A assessments have been carried out, but not with adequate purpose or rigour. They have tended to be conducted too narrowly and too late to influence the prescribed focus of the PACC pilot project and adaptation measure. The MTR considers that the lack of rigour in conducting and applying early V&A assessments is the most significant weakness in the PACC project process. Importantly, those countries whose PACC pilots that have not progressed far – Fiji, FSM, Palau, PNG, Vanuatu – would still benefit greatly from drawing together a thorough V&A assessment, leading on to framing an adaptation strategy and rigorous design of specific adaptation pilot measures. The importance of a good V&A assessment at the start of the planning process is exemplified by PACC Solomon Islands, where a well-designed and thorough assessment of vulnerabilities and adaptation options on Ontong Java has been completed by the country team, and has been used to guide the selection and development of adaptation options; refer to the supplementary report on PACC Solomon Islands.
100. (In some PACC country projects, the reason for not conducting a thorough V&A assessment at the start of implementation is that it had been understood that sufficient V&A assessment had been completed prior to the PDF phase. Thus in FSM and Cook Islands, the 2004 CLIMAP studies, and in Samoa, the earlier CIM Planning exercises, were assumed to have been adequate for the PACC project to simply proceed to implement the adaptation measures that had been determined. Unfortunately, this was not so.)
101. **SEA-PACC:** A presentation on socio-economic assessment (SEA) as a potential contribution to the project was given at the first PACC Technical Meeting in October 2009. The tool was developed into the SEA-PACC guide in 2010, followed by development of SEA-PACC training modules and delivery of three SEA-PACC training workshops (one for each of the three sectors) at the end of 2010.
102. The MTR finds that SEA-PACC is misnamed as a socio-economic assessment, and is in fact a vulnerability and adaptation assessment. It is intended as a tool to be applied at the start of a project to help identify adaptation options. Overall the SEA-PACC guide and training appear to have been useful to the PACC country teams, including in identifying gaps in baseline assessment and capacity. It was rather ad hoc in its application however and has not been undertaken as part of a coordinated strategy for development, design and implementation of PACC pilot-demonstration projects. It would have been better for the RPM to have stuck to his original plan to concentrate on a thorough V&A assessment, rather than embark on developing additional tools and the full Tool Box.
103. **Cost Benefit Analysis:** Through the first two years of PACC (2009, 2010) various economic tools were being assessed for use in the project in line with planned Output 1.3 "Climate change economic and socioeconomic tools for evaluation of adaptation options". This led to the development of an 'Economics of PACC' project with a focus on applying CBA methods. The proposal was approved by member countries at the 2011 PACC MPR meeting with the following objectives:

¹⁹ PACE-SD Integrated Assessment and Action Methodology for Climate Change, Disaster Risk Management and Sustainable Development

- a. “To increase PIC capacity to undertake economic assessments of climate change adaptation both at the pilot project demonstration level and sectoral and national policy levels;
- b. To complete cost-benefit analyses of the PACC demonstration projects; and
- c. To undertake economic assessment of climate change in each country to help support national adaptation policies and implementation processes, and help countries to mobilize resources and seek additional funding to implement adaptation measures.”

104. Over the course of 2011-2012, CBA methodology has been introduced to all the country project teams through training exercises; and CBAs have been conducted on 7 of the 14 adaptation demonstration measures that are being developed. This has produced some interesting data and conclusions for individual PACC country projects. It has been useful in some cases to compare alternative adaptation options or the costs of the adaptation measure and of doing nothing. Of all the regional support exercises, the CBA work appears to have been conducted most thoroughly and followed through to completion of the exercise.

105. Unfortunately the relevance and utility of the CBA work have been reduced by the haphazard process by which the PACC country projects have been supported: as stressed elsewhere in the MTR, the individual countries have not prepared clear strategies for their PACC pilot projects, and the regional support work also has not been applied with any clear strategy. The CBA has been rolled out mainly in 2012, the 4th year of a 5-year project, which has meant that the analysis is being applied retrospectively, out of sequence with the pilot project planning, decision-making and implementation process that has been undertaken and reached different stages in the countries. In PACC, the CBA was intended to be a complementary part of the process of appraising and confirming the design of climate adaptation measures, carried out after a V&A assessment has been made, and adaptation needs and options identified. PACC’s inadequate V&A results have resulted in the more-thorough CBA work being applied often with no prior V&A or instead of a V&A. Ironically, the CBA has proved useful in situations where other assessment and decision-making tools, in particular a V&A assessment, had not been applied or completed adequately, as the process enabled the project teams to review and confirm their objectives and actions in a systematic way. The MTR finds that CBA can be a useful supplement, but is not an adequate or necessary substitute for a proper adaptation planning and design process. Additional reviews of the CBA work are included in the section on Achievements at country level, and an additional note is provided in MTR ANNEX VI on the appropriateness of CBA in climate adaptation decision-making.

106. **Environmental Impact Assessment (EIA):** In several of the PACC country projects, notably those tackling coastal infrastructure, environmental impact assessment procedures have been employed to determine whether there are any environmental issues that should be addressed in the pilot project design. In both Vanuatu and Samoa for example, Preliminary Environmental Assessments (PEA) were made of the PACC adaptation measures, although as noted in those PACC country reports, few design details had been prepared on the proposed pilot projects and made available to those conducting the PEAs. In Samoa, the PEA was a fairly cursory exercise prepared by the engineers contracted to design the rock sea wall. For PACC Vanuatu, contrary to the decision of the Director of Environment, SPREP has advised that the PEAR was not adequate and a full EIA should be prepared; refer to the MTR country supplementary reports.

107. In PACC Kosrae, an additional strategy is being followed: the State’s EIA regulations and procedures are being modified so that climate change impacts are factored in to the pre-appraisal of the proposed adaptation measure. This is an interesting development that deserves to be assessed carefully for possible adoption in all PACC countries. Whereas PEA-EIA are procedures to appraise the potential impacts of the development (project) on the environment, including impacts on the climate, with the aim of mitigating or avoiding these impacts at the design stage, under PACC in Kosrae, PEA-EIA are being proposed as a tool to assess the potential

impacts of climate change on the development project; i.e. will it be an effective climate adaptation measure? Refer to the PACC Kosrae, FSM supplementary report.

108. The MTR is concerned that regular PEA-EIA work in PICs may be confused by this additional strategy that is being developed under PACC. Careful consideration needs to be given as to whether PEA-EIA is the most appropriate set of procedures to which to add an ad hoc V&A assessment; it may be preferable for the PACC project to assist countries to devise a distinct procedure based on the V&A process, which would form a more rigorous mechanism for appraisal of the design of climate adaptation measures. There is a danger in relying on environment agencies to develop and apply a regulatory mechanism to appraise climate adaptation measures that are being proposed; it would be preferable to “mainstream” the process, i.e. by making the V&A assessment and appraisal tool available directly to those mainstream agents who are planning and designing the development – of an agriculture system, water supply or infrastructure.
109. **Demonstration Guide:** The regional support work has included assistance to countries to prepare a “Demo Guide”, which was specified under component 2 in the PACC project plan as Output 2.1 “Guidelines to improve resilience of coastal infrastructure/ water resources/ food production systems”. (As commented under the section on Project Design, the MTR considers the project plan to be poorly developed and worded, and this is one place where the structure and logic are particularly awkward and confusing: Output 2.1 is the Guidelines, and Output 2.2 is the climate Adaptation measure(s) identified in the Guidelines.)
110. In practice, PMUs have been advised towards first implementing the Demonstration measures (2.2) and then documenting (2.1) the process followed, its efficiency and effectiveness in producing the planned result and impacts; with the objective that the documentation will form a Demo Guide – “a comprehensive explanation of how to... implement... adaptation measures... in order to build capacity for implementation of similar future projects.” Most of the country projects have not yet progressed far with compiling their Demo Guides. PACC Nauru and PACC Samoa have produced drafts, although they are largely descriptions of what was done, with little analysis or evaluation. As further countries compile their Guides, it will be important to remember that PACC’s adaptation measures are pilots and demonstrations, and will require strengthened M&E – systematic monitoring of the performance and impacts of the pilot measures; and honest and critical evaluation of what was tried and tested in the project and the results obtained.
111. The MTR considers that it would preferable to re-structure each country project plan as a logical set of outputs leading to Outcome 2. Demonstration of climate adaptation in the priority development sector. Relevant outputs would include a) Assessment of vulnerabilities and needs for climate adaptation and resilience; b) Identification of options for adaptation and resilience building; c) Design of the pilot adaptation measure; d) Development, monitoring and documentation of the Demonstration. This would emphasise the importance of monitoring the results and impacts of the adaptation pilots and documenting the lessons, which would form the basis for producing adequate “Demo Guides” and other Knowledge products for dissemination.

Guidance for Component 3.

112. **PACC Communications Strategy:** The final regional support “tool” reviewed in this section is the communications strategy that was prepared by SPREP RPMU in 2011. This has been provided to countries with training, and used to assist the PMUs towards preparing PACC country communications plans of their own and developing their communications activities.
113. Countries’ PACC communications plans propose to get messages about the project, climate change and local impacts to various country audiences, via a range of actions:
- d. Community outreach or extension activities
 - e. Project consultations with government agencies and NGOs
 - f. Local media presentations

- g. Promotional activities and special events
- h. Project newsletters, websites.

114. Overall, the MTR is disappointed in the work that has been done under Component 3. It should not be focused on the types of communications actions listed above, but rather on Knowledge management. As with other parts of the project, Component 3 has not been guided by an adequate strategy or plan. Component 3 in particular was not articulated clearly in the 2008 plan, in relation to the other two Components: Outcome 3 was specified as Capacity (to plan for and respond to climate change), virtually the same as the overall Objective for PACC, which was Capacity (to adapt to climate change); the actions proposed for Component 3 should have been integrated into Components 1 and 2.

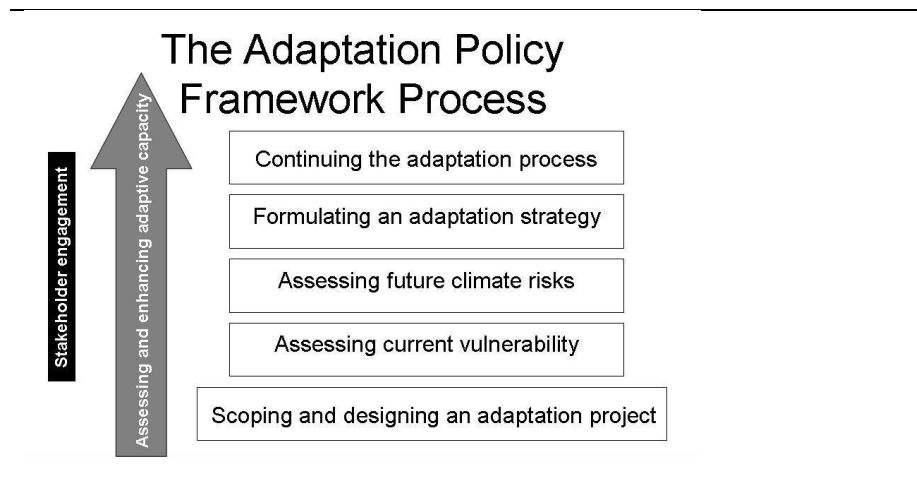
MTR Comments and Recommendations – PACC Regional Support

115. It is apparent that considerable efforts have been made over the past 3-4 years of project implementation, by the RPMU, other SPREP staff and UNDP staff, and also by outside consultants, to provide a range of technical support, training and guidance to the PACC country teams, aimed at facilitating and enhancing their actions under the three project components. The MTR recognizes also that for the RPMU especially, this work has been on top of the time spent maintaining the routine of PACC project operations. Nevertheless, the MTR considers that overall the regional support work has been only marginally satisfactory; it has not been efficient or cost-effective in enabling the country projects to produce better results.
116. The support work program should have been less ambitious, which would have helped to improve the efficiency of its delivery by the RPMU. It is not useful for PACC to be developing new guidance materials and tools (Mainstreaming, CBA) for introduction in the fourth year of a 5-year project. Throughout the project the sequence of the support work has been poorly scheduled, and has not been provided on demand or in a useful timeframe for the country project teams. The relevance and effectiveness of the regional support are also reduced by too many tools having been devised and introduced by the regional managers and advisors; and delivered out of sequence with the work on the ground. The support should be tailored and provided primarily to meet the individual country's needs.
117. The MTR considers that the PACC project and the regional support effort have laboured under two major difficulties: the pre-selection (2006) of pilot projects and the subsequent (2008) project design that did not take into account the prior planning decisions; and the failure to reconcile the contradictions by preparing adequate country-specific project plans. The PDF country consultations in 2006 stipulated that all necessary baseline assessments were to have been completed and that there was financing and sufficient capacity to implement the project: based on these premises sectoral development projects and pilot site locations were selected. It was realised subsequently that the necessary baseline assessments had not been done and the capacity to implement the country projects was not as strong as assumed. The regional support program was designed to fill these gaps. A series of tools and training have been delivered to countries, but these have lacked an overarching strategy, aligned to the specific needs of each country's project, and in many cases have been inadequate in dealing with pilot projects that were not properly screened as appropriate adaptation measures in the first place.
118. The basic purpose of the PACC initiative seems to have been lost sight of. The Pacific island countries are looking for effective and affordable models for building resilience to climate change in their priority development sectors. The MTR finds also that the process has been made more complicated than it needs to be; PACC may have suffered from having "too many cooks" and too many tools, delivered too top-down. The RPM's original plan for Outcome 2 was simply to provide guidance for countries to conduct a vulnerability and adaptation assessment, recognising that this fundamental step had not been completed adequately, as supposed by the PDF. If this had been done in 2010 as intended, using the lessons that the RPM himself had drawn from the CBDAMPIC project, the PACC country pilot-demonstration projects may have been developed with a sounder base from which to proceed. For some reason this original plan was not followed

and the more complicated PACC Toolbox was devised in 2010, with a dozen “tools” to be developed and applied.

119. In the absence of an overarching strategy, aligned to the specific needs of the country, tools have been applied out of sequence, without a clear understanding of what they are supposed to be achieving, and in some cases are inappropriate within the context that they are being applied.
120. An appropriate starting point for PACC would have been the UNDP Adaptation Policy Framework (see **Figure 3**). The APF is valuable for any adaptation project whether it is focused on baseline assessment of vulnerabilities, implementation of adaptation actions, development of adaptation policies, or a combination of these. There is sufficient flexibility within the APF to enable it to be adapted to meet different needs and different contexts. At the very least the APF would have provided a valuable checklist in the PACC project design stage to ensure that the necessary baseline assessment had been completed; the country project selection was robust; and that a proper process was followed in the selection and implementation of adaptation options.

Figure 3: Key stages of the UNDP Adaptation Policy Framework Process



Recommendation 9. PACC Technical Support and Guidance

In the next phase of PACC and in cooperation with other adaptation programs, projects and CROP agencies, the RPMU with SPREP and the country PMUs with their national EAs should focus strongly on facilitating knowledge management concerning all aspects of climate adaptation. The RPMU and PMUs should form a network of advice points able to provide individual tailored support focused on the country project and country system needs. The emphasis on generic tools and guidelines delivered regionally should be discontinued, and replaced with individual support exercises requested by the NC or EA and organised by the RPMU. As a priority, the RPMU and PMUs should confirm meaningful V&A assessment and adaptation planning and monitoring tools, based on their collective experiences and strengthened local monitoring, recording, evaluation and learning activities.

PACC and its partners should give increased priority to facilitating wide access, understanding and application of Climate Change and SLR monitoring and projection data from the Pacific Climate Change Science Programme.

The current project communications strategy should be discontinued and replaced with knowledge sharing and capacity building targeted at supporting country and local actions. The primary emphasis should be on sharing of expertise and knowledge between country teams and country projects, as well as across the several adaptation programs that are underway. Each PACC partner, PMU and pilot site should be organised to function as a knowledge bank, resource centre and demonstration, as a source of ideas, guidance and technical support for CC adaptation actions.

PACC should contribute to innovative mechanisms for the three Pacific island sub-regions to share knowledge and support among their communities. A 5-year plan (2013-2017) should be prepared for low-cost, low-key knowledge exchange, with country and island nodes across Micronesia, Melanesia and Polynesia. Refer also to **MTR Recommendation 3**.

PACC Country Projects

15. Thirteen Pacific island countries have been engaged in the PACC Project since its inception in 2009, and were joined in 2011 by Tokelau as the 14th. In the three years up to the evaluation, a considerable range of actions have been organised at the country level, producing results under the three structural components of the project, and in the priority development sectors on which the PACC project has focused. This section of the MTR report presents an overview and evaluation of the progress and achievements made in each of the participating countries. It is focused on the main practical outputs of each country project, and serves as the technical review of the adaptation measures being devised, piloted and demonstrated in each of the 14 countries.
16. The MTR is based on the review and evaluation of the project in all 14 of the PACC countries. For ten of the countries, which were able to be visited by MTR missions, individual reports were also compiled as more detailed supplements to this main MTR report. **Table 8** summarises the countries participating in PACC, the sectoral focus of each, the coverage of the main MTR report and the individual country project supplementary reports.

Table 8: PACC Country Participation, Sector and MTR Coverage

	PICT	Sector	Country Mission	MTR Report	Supplementary Report
<i>Melanesia</i>	Fiji	Ag&Food	July, GK	✓	✓
	Papua New Guinea	Ag&Food	July, GK	✓	✓
	Solomon Islands	Ag&Food	Sept, GK	✓	✓
	Vanuatu	Coast&Infra	Aug, PH	✓	✓
<i>Micronesia</i>	FSM - Kosrae	Coast&Infra	Sept, PH	✓	✓
	Marshall Islands	Water	Sept, PH	✓	✓
	Nauru	Water	Aug, PH	✓	✓
	Palau	Ag&Food	Sept, PH	✓	✓
<i>Polynesia</i>	Cook Islands	Coast&Infra	-	✓	
	Niue	Water	-	✓	
	Samoa	Coast&Infra	July PH, GK	✓	✓
	Tokelau	Water	-	✓	
	Tonga	Water	Oct, CC	✓	✓
	Tuvalu	Water	-	✓	

17. Each PACC country was required to select, even at the start of the project development phase, just one of three prescribed sectors for the PACC project to work in. The sectors were not clearly or consistently defined or applied by the countries, and in practice the sectoral approach has proved to be an impractical constraint: inevitably given the geography, ecology and economic development of the 14 Pacific island countries, issues relating to all of the three sectors have arisen in the course of developing and implementing each country's PACC project. For example, it has been clear that in all four 'agriculture sector' countries the projects are necessarily dealing with **systems** (ecological, social and economic) that encompass water, coastal, health and other issues as well as agriculture and food security.
18. The following section is a summary review and evaluation of the achievements made by the PACC Project to date in the three sets of PACC countries.

Agriculture and Food Security	Fiji, Palau, Papua New Guinea, Solomon Islands
Water Resources	Marshall Islands, Nauru, Niue, Tonga, Tokelau, Tuvalu
Coastal Management	Cook Islands, Kosrae, FSM, Samoa, Vanuatu

PACC Achievements in Agriculture & Food Security

Baseline Assessment and Selection of Agriculture Sector and PACC Demonstration Sites

19. Four of the 13 PICs participating in PACC chose Agriculture and Food Security. One of the three key criteria for selecting the priority sector for the PACC project in each country was that “all necessary baseline assessments have been carried out, and additional activities are ready for implementation”. At the time of the in-country consultations (2006), no adequate baseline assessments had been completed in the countries or locations selected for an agriculture and food security focus under PACC. For Solomon Islands, the NAPA report published subsequently (2008) provided a mostly qualitative vulnerability assessment for the whole country. Aside from this example, which did not significantly influence the final design of the PACC project, relevant baseline assessment work has had to be incorporated into the PACC project work program. In different countries this has involved one or more assessment methodologies including socio-economic assessment (SEA); cost-benefit analysis (CBA). There has been no coherent plan nor clear guidance provided on the most appropriate tools to apply as part of a coordinated V&A assessment. In addition, in some cases, additional site assessments have been carried out that also ought to have been embedded as part of a coordinated and comprehensive V&A assessment.
20. A properly done V&A assessment will look at all relevant vulnerabilities and then consider the range of options for adaptation. At all stages this should involve a strong community engagement process²⁰, supported where necessary by quantitative assessment. Such an approach should be taken before any decisions are made regarding adaptation activities. Unfortunately in the case of PACC the specific adaptation pilot activities were identified and designed without an adequate broad assessment of vulnerabilities, needs and options. For example in Fiji the decision to focus narrowly on drainage in a small area of the Rewa Delta was made without considering the whole Rewa River catchment, and the range of issues and potential responses needed to ensure effective adaptation in the delta. In Papua New Guinea the decision was made to focus narrowly on irrigation on drought-prone sandy soils, again without considering the wider water catchment context and the range of issues and vulnerabilities being experienced by the local community.

PACC Fiji

21. In Fiji the priority sector identified was agriculture with a focus on “lowland farming systems”; and specifically to enhance and where necessary develop new design features for drainage networks and infrastructure in lowland farming areas. The 2006 in-country consultation proposed what is basically a drainage maintenance and improvement project and linked this to increased resilience of farming and food security. The PACC project identification and development process failed to consider the broader context of flood-prone lowland farming areas in Fiji’s river catchments. These are natural drainage areas and buffer zones from river catchments into the sea. Historically they were cleared for rice cultivation and then subsequently used for sugar cane production. More recently they have become more heavily populated with subsistence farmers. There are on-going problems with deforestation, erosion and thus silt loading into the river systems. Their coastal location also means that these lowland areas are already prone to tidal fluctuations with sea water. These are sensitive ecosystems that are now

²⁰ The MTR was provided with no evidence for any of the agriculture countries that such a process had been followed at all stages of the project. “Community engagement” was largely limited to meetings to inform people about the PACC project.

inhabited by people who are very vulnerable to flooding from both land and sea. This is a complex situation that involves much more than dealing with drainage network design and improvement. These issues were not considered in the project design nor apparently during project implementation up until the time of the MTR mission.

PACC Palau

22. Palau opted for the agriculture and food sector on the grounds that a) the SNC, completed the previous year, advised that climate change and sea-level rise would damage agricultural production, and b) that the other sectors in Palau were currently provided for by other aid projects. The PDF mission in 2008²¹ guided a solid process of consultation and review of existing and planned policies and projects, leading to a PACC project proposal for Palau focused on integration of climate change risk reduction in coastal food production systems. The fact that Palau joined the PACC project only in 2008 meant that there was less attention paid to the pre-conditions that had been stipulated during the 2006 PDF consultations in the other countries, and allowance was made for V&A assessment to be integrated with the early stages of implementation. A broad landscape approach was proposed, with activities proposed along a transect of upland, coastal lowland and inshore reef sites. The selected location was Ngatpang State, part of the main island of Babeldaob.

PACC PNG

23. In Papua New Guinea food production and food security were chosen, with a focus on drought-prone areas of Central Province. The selected demonstration site is a lowland, low rainfall, coastal area with distinct dry and wet seasons. Dry seasons are exacerbated during El Nino events. Such conditions are likely to become increasingly prevalent with climate change. Intense rainfall events can also lead to flash floods. The coastal lowlands give way to low hills of denuded land with shallow stony soils. Coastal erosion is already happening in some areas, with one village already having relocated. The complexity of issues at the demonstration site clearly indicates the need for an integrated approach encompassing coast, water and agriculture. Unfortunately, despite the wider food security issues identified in the in-country consultation report, and without any clear justification, the focus of the PACC project has been narrowed to development of an irrigation system with no consideration of broader issues.

PACC Solomon Islands

24. In Solomon Islands food production and food security were identified as the priority sector, and the offshore atoll of Ontong Java was selected as the PACC demonstration site, on the grounds of its exposure to tropical cyclones, coastal erosion and wave overtopping. Through an ad hoc decision-making process, one of the remotest locations in Solomon Islands was selected for the PACC project, which proved to be a major constraint on project implementation. Apparently at the time of the 2006 consultations there had been a recent king tide event in Ontong Java and PACC was seen as an opportunity to provide some immediate relief. Unfortunately there was no systematic consideration of food security issues, potential challenges of working with remote sites, or capacity issues²² in the country. The issues experienced on Ontong Java are common not just to low-lying atolls but to coastal environments throughout Solomon Islands and other Pacific island countries.

Progress towards planned Outcomes and Outputs

PACC Fiji

25. Outcome 1: Mainstreaming The PACC project has done little policy or institutional development work. The main achievement has been a contribution to the development of a National Climate Change Policy for Fiji (published in 2012), facilitated primarily by GIZ. GIZ is also supporting

²¹ Palau and RMI joined PACC late in the PDF phase; country consultations took place in 2008, 2 years later than the other 11 countries.

²² Capacity issues include the lack of a research station and limited staff in the agriculture research division stretched by the demands of a growing number of projects.

development of a Climate Change Adaptation Strategy for Land Based Resources in Fiji, without apparent PACC involvement.

26. Outcome 2: Adaptation Demonstration Output 2.1 Revised design criteria for the drainage network: PACC has contracted NZ NIWA to undertake re-design of drainage and coastal flood protection in 2012 (cost USD249,500, 25% of the GEF project budget). The main components of the contracted work include: hydro-climatology; hydraulic engineering; storm and wave run up modelling; vulnerability and adaptation (V&A) assessments; cost benefit analysis; drainage design guideline. Field work for the V&A assessment was undertaken over a three-week period in July 2012. The MTR considers it inappropriate to combine the V&A assessment with development of drainage design criteria. PACC ought to have undertaken a comprehensive V&A assessment of the identified river systems (Rewa and Navua) at a much earlier stage of the project, to clearly establish the context and full range of vulnerabilities and adaptation options. A second issue, assuming that the V&A assessment was not embedded within the drainage design work, is that the V&A assessment ought to have been implemented with local expertise, not contracted out to an overseas consultancy. There is considerable expertise in V&A assessment within Fiji, for example through PACE-SD at USP, which has developed since the late 1990s. It would have been more appropriate to draw on this existing expertise for this sort of work at a much earlier stage in the project and before final decisions were made on what adaptation actions were needed.
27. Output 2.2: Adaptation Demonstration De-silting, weed clearing and dredging of a stretch of Qaraniki Creek in the Rewa Delta have dominated the demonstration component of the project in terms of both time and budget. Approximately 25% of the GEF funds have been committed to this work. De-silting of 3000m of drains was completed in 2010. Dredging work began in 2010 and was still taking place during the evaluation visit in July 2012. This major work has been completed prior to development of revised drainage guidelines; it is a baseline development activity that has not been properly evaluated as part of a coordinated adaptation strategy for the Rewa Delta. A fundamental requirement of climate adaptation work is to clearly distinguish baseline activities from climate adaptation. This has not been the case with this activity. There is no evidence of any assessment that demonstrates that the dredging work is an appropriate climate change adaptation measure in the Rewa delta. Without such an evaluation it should not have been considered as part of a climate change adaptation project.²³
28. Additional pilot work has started to trial salt tolerant root crops (taro and cassava). A research work plan was developed in 2011, but not implemented to date.

PACC Palau

29. Outcome 1: Mainstreaming A gap analysis of existing agricultural policy in Palau has been completed and a National Food Security Policy and Action Plan, taking into account climate change impacts, has been drafted and is waiting further consideration (pending national elections). Supporting work has included a socio-economic assessment on food security and health in Palau which was based on a nationwide household survey.
30. Outcome 2: Adaptation Demonstration There have been three relevant baseline survey and assessment activities: a) in 2011 a Palau Farm Survey was completed with the purpose of guiding development of PACC component 2. This involved GIS mapping of aquaculture and agriculture activities throughout Palau, which generated good baseline data on the sector. It was a valuable exercise that can be used to guide further development and execution of the PACC demonstration activities, and in addition lead to broader land use planning and economic development across Palau. b) In 2012 the project organised a Household Food Security survey,

²³ It is debatable whether the Qaraniki Creek work is a 'no regrets' option as claimed by UNDP's RTA. What benefits will there be and for how long, before the creek is full of silt and weeds again? What other options were considered? How will this action protect people and land from future flooding and silt loading from the Rewa River catchment (the largest in Fiji), given the on-going deforestation and poor land management practices, and from inundation and salt water intrusion from sea level rise?

with the stated aim of determining the impact of climate change on both food security and the health of people in Palau. c) A work plan has been developed by SPREP (in 2012) to conduct a CBA with a focus on taro production in low-lying areas. Both the farm survey and the SEA have provided some valuable information but there is no apparent overarching V&A assessment framework for these two activities and the planned CBA. Meanwhile demonstration activities have already been initiated, not based on the assessment work.

31. PACC's pilot and demonstration activities have been implemented at points across the island-scape, from "ridge to reef", focused on Palau's largest island of Babeldaob. To date, the project has initiated work at three points on this spectrum:
 - a. Ridge – cultivation of fruit and vegetable crops (agro-forestry/permaculture) on degraded (previously de-forested and burned) upland sites.
 - b. Coastal wetland taro patches – maintenance and enhancement of taro production in areas subject to saltwater intrusion and inundation.
 - c. Reef – farming and ranching various reef fish and invertebrate food species (giant clams, mangrove crabs, rabbit fish, milkfish); impacted by ocean temperature increase and algal bleaching.
32. It will be valuable to formulate a strategic framework or plan for PACC within which the pilot actions (and the other components) can be managed, developed and monitored; to date they have been ad hoc discrete mini-projects with no agreed objectives. Nothing appears to have been done as yet to start to monitor the results of the various pilot exercises, translate them into technical guidelines for extending, replicating or scaling-up, and to promote development of more resilient coastal food production systems. These will be important tasks for the remainder of the project.

PACC Papua New Guinea

33. Outcome 1: Mainstreaming There is nothing happening at present with mainstreaming or policy work. The focus of PACC in PNG has been towards preparing a drought plan for the selected pilot location of Kivori. To be of strategic value, this exercise should be broadened to encompass planning a food security and climate resilience strategy for drought prone areas of PNG. This would require PACC to first formulate and affirm what its objectives and strategy are in PNG, in the form of a simple project logical framework, results-based budget and appropriate management arrangements.
34. Outcome 2: Adaptation Demonstration With the paucity of information provided for the MTR in PNG, it is not clear exactly what has been done towards Outcome 2. A land survey of the selected target area of Kivori has been completed, but there has been no critical appraisal of the pilot project design, which is for a gravity-fed irrigation system. In 2011 the project team conducted a SEA with the participation of the RPM; the results were poorly documented, but seem to have identified key vulnerabilities, with no comprehensive assessment of adaptation options. A CBA work plan was developed in 2011 and scheduled to be implemented by the end of 2012, with the aim of evaluating three different adaptation options. Some quantitative assessment of groundwater is needed, and there are plans to conduct a groundwater assessment, but it is already late in the project. Ideally data need to be gathered over multiple years, to determine ground water levels in dry and wet years and during the dry and wet seasons.

PACC Solomon Islands

35. Outcome 1: Mainstreaming Under this component, PACC has contributed to development of a National Climate Change Policy for Solomon Islands. This work was initiated in 2010 with provincial and national consultations completed in 2011, and published in June 2012.
36. Outcome 2: Adaptation Demonstration A comprehensive V&A assessment was carried out by the PACC Solomon Islands team on Ontong Java, with a report completed in May 2011. Aside from the fact that it was done after the project was started this report is an exemplar for all PACC

countries. It identifies all inter-related vulnerabilities on Ontong Java and provides recommendations on adaptation options to address these. Importantly it provides a valuable context for the agriculture and food security focus of PACC and provides recommendations that are directly linked to the project demonstration activities. More recently, a CBA for Ontong Java has also been completed. Given the in-depth V&A assessment on Ontong Java undertaken in 2011, with clearly identified adaptation options, it is not clear what additional benefit has been gained from this CBA.

37. GIS mapping of Ontong Java has been consistently signalled as an activity to be completed, but has been stalled because of site accessibility issues and lack of available expertise. A GIS person has recently been employed by MAL and discussions have been held regarding PACC needs. The main issue at present is gaps in data. The project has started an outline for the Demonstration Guide. The MTR recommends that the guide should be developed during the course of implementation of the pilot project, as an output of monitoring, to document the process, inputs, results achieved and consequent outcomes.
38. To date the project has not established any of the planned demonstration activities. This has been attributed to a number of factors: a) the remote location of the project site and cessation of the shipping service to Ontong Java; b) Staff turnover within the PMU; c) the ability of the Agriculture Research Division in the Ministry of Agriculture and Livestock (MAL) to commit staff to this component of the project; and d) competition from other projects, which are putting increasing pressure on PACC's limited staff resources, including a new climate change and food security project (locally referred to as SWOCK) and what is referred to as the EU NARI suite of projects.
39. In September 2012, the project prepared to appoint as PACC Demonstration Team Leader, the manager of the closely similar ACOM food security project, which has been operating on Ontong Java since 2010, and has established successful demonstration activities. A PACC work plan has been drawn up to extend ACOM's work; the evaluation considers that development of this partnership will enable PACC to proceed more rapidly and effectively from now on. Some key activities that are planned include:
 - a. Extending ACOM's current four demonstration plots for atoll permaculture systems, with the same community and to an additional community on Ontong Java.
 - b. Working with the Ontong Java Women's Association in Honiara which has bought land near Henderson airport for the purpose of growing food crops for Ontong Java. The potential to develop this as a demonstration site will be explored.
 - c. Preparing a technical 'manual' to document the lessons to be learned from ACOM project manager's experience in Temotu Province and on Ontong Java.

MTR Recommendations for PACC Agriculture and Food Security Projects

PACC Fiji – Recommendations

The drainage maintenance work on Qaraniki Creek should not have been included as major project expenditure in a climate adaptation and food security project. This was clearly baseline development or maintenance work and an item for co-financing, rather than climate change adaptation meeting SCCF's additionality criterion. The dredging work has been done in the absence of a V&A assessment that ought to have looked at the delta areas in the context of the large watersheds that feed them, as buffer zones between land and sea, and considered all possible options for future management of these low-lying areas before even considering the need for new drainage guidelines, let alone implementing drainage clearing in the absence of any guidelines that factor in climate change. Without this fundamental work there is potential for this project to be mal-adaptive, particularly if it does not encompass the real possibility that relocation may be the only realistic long-term solution, with a complete shift away from the drainage management focus and restoration of these areas as

buffer zones. The remainder of the project therefore needs to be completely revised to effectively address climate change and food security needs in low-lying wetland areas of Fiji.

1. The project should support no further work on drainage maintenance (weed control and dredging) and design, beyond what has already been contracted (these two activities have already committed approximately 50 percent of the budget), for the reasons given above and in the country supplementary report.
2. A complete re-design of the remainder of the project should be organised from Q1 2013, focused on developing a climate change and food security strategy for low-lying wetland and farmland areas (with short, medium and long-term goals) that treats their management as an integral part of a water catchment; and on reviewing and establishing trials of relevant food production systems. The redesign process needs to identify what is feasible within the remaining timeframe and budget, as well as help establish a much stronger foundation for future adaptation work in low-lying areas that are prone to both river flooding and flooding, inundation, and salt water intrusion from the sea.
3. It will be valuable for PACC in Fiji to be linked to government programming and to interact more closely with and share lessons with other relevant projects in Fiji, a number of which have adopted or are adopting a more holistic ridge to reef approach.
4. A project supervisory board and a new project management group should be appointed, to ensure relevant climate change adaptation, food security, and community engagement expertise. Both groups need to work closely together to support the Project Manager in re-designing the remainder of the project and budget (both SCCF and co-financing), with the aim of ensuring that the project is able to effectively meet its stated objectives of increasing food security in low lying areas of Fiji.

PACC Papua New Guinea – Recommendations

Bureaucratic issues and lack of capacity within Papua New Guinea have paralysed a project that was poorly conceived and designed. The MTR recommends a complete re-design of the project with a new project logframe and a 6-month work plan and budget for the first half of 2013. Project performance should be closely monitored and a final decision made before mid-2013, to either terminate or continue the project, based on the project team in PNG demonstrating that they can make effective and efficient use of the significant amount of PACC funds that have yet to be spent.

1. A new project plan is required that incorporates: a) a strategy for fostering food security and climate resilience in drought prone areas of Papua New Guinea; b) a V&A assessment report for the Kivori area based on the SEA-PACC work, with proper consideration of both hard (e.g. irrigation) and soft (e.g. multi-tier farming or agroforestry) adaptations within the context of all issues/ vulnerabilities at Kivori; c) demonstration activities that are based on agro-ecosystems design; d) a strong focus on capacity building and knowledge sharing in support of the project re-design and its effective implementation.
2. Further improvements to project governance and management are recommended, including tighter, focused governance from a steering group involving representation from DAL, OCCD, UNDP PNG, Department of National Planning and an NGO; plus a strengthened project management committee including representative(s) from the Kivori community.
3. While clear distinction should be maintained between PACC PNG and the SPC-GIZ CCCPIR project, the two projects must also plan and develop complementary and synergistic programs in the local project area.

PACC Palau – Recommendations

The project in Palau has been hampered by poor direction and lack of strategic management. The PMU has not functioned effectively or efficiently under the institutional arrangements to date. The

project strategy, logical framework, work plan and budget need to be reviewed and revised, to enable the project to achieve the objective of increased resilience of food production in relation to climate change.

1. The Palau project needs to be re-formed around a revised project strategy; then continued under different management arrangements, and provided with much clearer strategic guidance and support. This can be drawn readily from the PACC Core Group member agencies. Refer to the MTR supplementary report for Palau.
2. The ridge-to-reef or catchment approach that has been initiated is an appropriate strategy for PACC to follow and to promote. The project design and logical framework should be revised and strengthened to reflect this approach, with much clearer strategic objectives and a strong set of well-defined outputs, each driven by an action plan and results-based budget.
3. PACC Palau should contribute where possible to the development and implementation of a comprehensive national strategy for climate change adaptation in Palau, with strong strategic and institutional linkages to complementary integrated natural resource management and related programs.

PACC Solomon Islands – Recommendations

Bureaucracy, the remote location of the principal demonstration site, and lack of capacity have been significant impediments to project implementation, particularly relating to the demonstration activities. The MTR endorses the recent appointment of a Demonstration Team Leader to build on and extend his recent ACOM-funded food security work on Ontong Java.

1. The project needs to focus strongly on building on and extending the successful work done through the ACOM project on Ontong Java.
2. Over the remainder of the project, innovative ways of sharing substantive ideas, experiences and lessons within countries and across the region should be trialed. Both the OJ V&A assessment and the lessons from Temotu and OJ documented by the PACC Solomon Islands Demonstration Team Leader are highly suitable for dissemination trials.
3. The ineffectual, and incomplete, communications strategy should be discontinued, and replaced with a strong focus on relevant capacity building and knowledge sharing, with minimal external agency or consultancy input. Rather it requires some targeted support to enhance the knowledge and capacity of the Demonstration Team Leader, and using him as a resource person to guide the re-design of PACC Solomon Islands and contribute to more effective project design in the other PACC countries.

PACC Achievements in Water Resources Management

Baseline Assessment and Selection of Water Sector and Demonstration Sites and Measures

40. Six of the 14 countries in the PACC program selected the water sector, covering water resources management, and water supply and/or wastewater infrastructure. The selection of the water sector was arrived at during the initial in-country consultation missions as part of the project design development process in 2006. The selection appears to have been made by a qualitative assessment of weight of opinion of need, prioritisation and co-funding opportunity. However the selection of the demonstration theme and demonstration site is less clear, with no broad V&A assessment or formal hot spot analysis being undertaken. As such the strategic value of the demonstrations appears not to have been formally evaluated.
41. Outcome 1 is described as ‘Policy changes to deliver immediate vulnerability-reduction benefits in context of emerging climate risks implemented’. This component of the project has been used by the participating countries to support a wide range of governance initiatives, some of which are policy and some of which are not, some of which are broad high level multi-sectoral approaches and some of which are sectoral and/or issue specific. In many cases the PACC project is contributing to an on-going climate adaptation, disaster management and/or sectoral governance initiative. As such it is difficult to apportion the added value the PACC project has made to these initiatives.
42. The six PACC water countries are reliant on **rainwater** (Marshall Islands, Tonga, Tuvalu and Tokelau); **groundwater** (Marshall Islands, Tonga and Niue); or **alternative sources** (Nauru – desalination; Nauru and Marshall Islands – seawater or brackish water systems for sewerage). None has significant surface water resources (i.e. rivers and or lakes). It is also notable that all six current PACC water demonstration projects focus on increasing drought resilience. In these ways, PACC is implementing a very narrow portfolio of water projects.
43. Given their natural characteristics, none of the countries that chose water projects for PACC are piloting adaptation strategies and measures for surface water management, such as dry season low flow situations and storm event flood flows; nor are they able to pilot and evaluate use of surface waters in conjunction with other water sources. Across PACC the water management and adaptation options being trialled are therefore significantly limited, which has reduced the relevance of the regional project and lost the opportunity for adaptation learning and replication in PACC countries that are dominated by surface waters.
44. The PACC countries that do have significant surface water and experience intense rainfall, flooding and associated impacts, were guided during the PDF towards another sector: for example PACC Fiji is working in flood-prone coastal catchments, but from the perspective of agriculture and food security; PACC FSM is working on the design of coastal roadways, to withstand increased intensity of rainfall and surface water run-off. As a consequence, across the whole current PACC portfolio of sectoral projects, there is inadequate attention being given to a range of key climate adaptation issues, such as intense surface water management, flood management, including soil erosion and landslides; and stormwater drainage including urban wastewater management. Significantly, PACC is missing the opportunity to consider these and associated issues within more integrated solutions to climate adaptation, such as artificial groundwater recharge enhancement and improved watershed management. All PACC country projects would have been more relevant and effective if they had been guided towards developing integrated, multi-sectoral climate adaptation strategies and measures. This approach should be considered for further phases of PACC and PACC+ work and in any comparable programs.
45. The current PACC water projects are also heavily biased towards supply-side solutions, with only the Marshall Islands explicitly targeting reduction of losses from the water management infrastructure. It would be useful to increase the projects’ attention to water resources management measures and water conservation; to counter-balance the focus on water supply infrastructure improvements, typical perhaps of water aid projects. Similarly, the projects should integrate climate forecasting or early warning systems into their plans and interventions. Each of

the six PACC water projects has the primary objective of increasing resilience to existing climate variability and climatic hazard, but none have adequately considered future climate change in the design (in contrast with the PACC coastal projects; refer to PACC Cook Islands, FSM and Vanuatu).

46. Three of the six water countries were absolute and prescriptive in their identification and explicit description of proposed adaptation solutions, ahead of any attempt to assess other priorities, available strategies or options. More usefully, Nauru (alternative sources), Tonga (unspecified water resources) and Tuvalu (integrated water management plan) did not specify the adaptation measure at the outset. There are two demonstration projects focussing on rainwater harvesting, with nothing to distinguish between them based on the PDF-B and ProDoc descriptions provided. Again, the MTR considers that the relevance and effectiveness of the PACC Project has been reduced by the limited scope, narrow focus and poorly integrated approach of its climate adaptation water management work.
47. Across the six PACC water projects, there has been no obvious systematic planning and preparatory work; no guidance from an assessment of climate change impacts on reducing water resources availability (rainwater or groundwater) and/or increasing water demand prediction, to inform the engineering design of the infrastructure interventions. Project preparation and planning appear to be based on existing data sets for rainfall (Niue, Tonga, Tuvalu, Marshall Islands and Tokelau); negligible data for groundwater (Tonga); and current approximate estimates of water demand (all). Household surveys have been undertaken in Nauru, Niue, Marshall Islands (Laura) and Tokelau to support household selection and logistical construction planning.
48. The PACC Project Document emphasises a participatory or “community-based” approach to the assessment of vulnerabilities and climate adaptation needs, and the planning of adaptation strategies and specific measures. Each of the PACC water country projects has undertaken a variety of local community assessments – V&A, SEA, CBA – with guidance and training from the PACC regional support team. Most of these consultation and assessment exercises have been carried out too late in the process to have been useful for the design of the pilot – demonstration projects, especially considering that many decisions had been made as early as 2006; and the designs of the water adaptation pilots have not been updated significantly since.

Progress towards planned Outcomes and Outputs

PACC Nauru

49. In Nauru, a V&A was completed in 2012, including a cursory national assessment and a more detailed consideration of the two PACC locations. The assessment considered existing vulnerability and resilience rather than future climate change, but nonetheless identified options to increase resilience to climate variability. The method of ranking resilience enhancement measures was arbitrary, both in terms of criteria used and values/ weightings applied.
50. Outcome 1: Mainstreaming Output 1.1: Incorporating Climate Adaptation into National Water and Sanitation Policy - The PACC PMU has been actively involved in development of the National Water, Sanitation and Hygiene Policy, which promotes an holistic approach to delivering sustainable water management in Nauru. Climate adaptation is one of the primary themes within the policy. Output 1.2: Climate Change Adaptation Action Plan for the National Water and Sanitation Policy - The CCAP NWSHP is presently awaiting endorsement of the PACC Technical Committee and the project steering committee. The CCAP articulates a series of activity groups or strategies at the national and community levels which will contribute to increasing resilience to drought, including freshwater demand conservation measures, increasing rainwater harvesting, exploring alternative resources, awareness raising and education, and improving water governance. The PACC project is supporting the drafting of Nauru’s Drought Management Strategy including a draft Drought Resource Action Plan, Water Supply Emergency Plan and Water Conservation Plan. These strategies include drought preparation and response and incorporate a range of measures, from climate forecasting and short term responses (e.g. water

conservation) to medium term mainstreaming into infrastructure planning and education. These are presently waiting technical review by the project committee.

51. Institutionally the PACC has assisted with setting up the Water Unit, which will now take responsibility for planning improved water management, including climate forecasting and drought advisories to the national drought committee. A Joint PACC-IWRM Committee is used by both projects and has ensured careful coordination of Outcome 1 and Outcome 2 strategies and activities in country. A close collaboration between the PACC and IWRM projects has resulted in a coordinated approach to water governance improvements addressing climate adaptation and other sustainable water management issues. The policies and strategies appear robust and if implemented should substantially improve the resilience of Nauru to drought and increase the population's capacity to adapt to further climate change in the future. It would be valuable to extend PACC's focus beyond the water sector and promote integration of climate adaptation with coastal management, food security and other requirements to achieve resilience and sustainable development on the island.
52. The extent to which PACC has added value to the NWSHP, which is primarily funded by the Integrated Water Resources Management project, is impossible to determine, as the two projects have joint technical and steering committees, and appear to be implemented together in Nauru as a single coordinated initiative. The CCAP appears to be an entirely PACC-led initiative albeit in coordination with the development of the NWSHP implementation plan presently under development and supported by the IWRM programme. If implemented this should provide a strategic and robust response to climate change impacts on the water sector.
53. Outcome 2: Adaptation Demonstration PACC Nauru is piloting the use of solar stills to purify brackish groundwater for potable uses; rehabilitation of the aged seawater reticulation system for mains sewerage; and installation of domestic rainwater tanks. Small solar stills, novel to the Pacific islands, are being installed in 20 households. They appear to function well, delivering approximately 80 litres per day per household. Day-to-day operation and maintenance costs are minimal. System maintenance costs have arisen early when panels have been damaged by high winds; this issue requires a robust on-island solution rather than shipping in replacement units each time. The solar stills are a valuable option to pilot on Nauru, where rainwater harvesting is historically problematic due to mining dust on roof catchments.
54. In other PICs also the technology has the potential to augment household rainwater harvesting during dry periods and be integrated into the rainwater harvesting system. The performance, durability and useful lifespan of the stills requires a thorough monitoring and evaluation program to be maintained for a number of years. The seawater reticulation rehabilitation component is in detailed assessment and design phase prior to procurement of materials and construction. It appears to be an entirely appropriate strategy to significantly reduce freshwater demand.
55. The PACC project must be used to carefully monitor and document the design, performance, capital, operating and maintenance costs and issues encountered in practice. Saline water reticulation systems have been problematic to maintain in the Pacific region, due to high corrosion rates and vulnerability of intakes and outfalls to stormwater surges. Nauru needs to focus on the sustainability of the intervention, including appropriate design and construction of the intake (or use of brackish groundwater instead), minimising environmental impact, such as groundwater contamination, as well as ensuring appropriate levels of technical and asset management are developed and retained, and the necessary tariff systems are put in place to ensure the above are available. The inefficiency and time taken for the process of assessment, design, procurement and construction process are concerns, and should also be monitored and procedures streamlined where possible.
56. The PACC should also make efforts to promote the use of brackish water use in general, not just at the communal scale but also at the household (from hand dug wells) and urban scales (e.g. Majuro), especially within atoll environs where groundwater is already compromised and brackish. However great care needs to be taken when installing any sewerage system in the vicinity of a freshwater lens (such as Laura) where leakage will release both saline water and

wastewater effluent into the freshwater resource. In these areas a combination of leakage monitoring, more resilient pipelines (e.g. double linings) and appropriate location of the sewer mains (near to the coastline and within brackish groundwater) needs to be used to minimise contamination risk into the groundwater body. Indeed the use of sewerage systems (especially saline ones) may be an inappropriate solution within a freshwater lens – construction de-watering alone having the potential to cause substantial damage.

PACC Niue

57. In Niue, a V&A assessment is understood to have been undertaken but has not been made available to the MTR. No PACC-SEA has been identified. A CBA has been completed which usefully highlights the financial incentives (introduction of public water supply tariffs) and social management (rainwater harvesting operation & maintenance) dimensions that the adaptation pilot project needs to address, both of which could usefully be developed in PACC+. Technically the CBA makes certain assumptions about the existing water supply system (as the alternative scenario) which if not correct have a substantive impact on the CBA conclusions. The lesson here is the CBA is only as good as the technical (as opposed to economic) expertise available to the CBA.
58. Outcome 1: Mainstreaming. Output 1.1: National Climate Change Policy developed – The NCCP completed in 2009 is a multi-sectoral mainstreaming policy framework with elements covering awareness raising, data sharing and application, adaptation, mitigation, governance and mainstreaming and regional and international cooperation. The NCCP was facilitated by SPREP and SOPAC. PACC Niue is also supporting the passage of the National Water Resources Bill, which was drafted in 2006.
59. Output 1.2 Joint National Action Plan on CCA and DRM developed – PACC Niue is providing support and contributing to the development of a Joint National Action Plan on Disaster Risk Reduction and Climate Change. A draft JNAP has been developed in 2012. The JNAP, like the NCCP, is a multi-sectoral approach, with specific strategies on governance, awareness, resilient communities (including food security), secure energy production and disaster preparedness.
60. A Joint PACC-IWRM Committee is used by both projects and has ensured careful coordination of Outcome 1 and Outcome 2 strategies and activities in country. It is unclear whether the Niue Climate Change Policy was implemented by PACC or as part of on-going earlier initiatives. In 2011 policy implementation progress was reported across all policy elements in most sectors. Ownership of the policy appears therefore to be strong, assuming progress is as a result of coordinated policy implementation rather than ad hoc programmes and sectoral activities. With the NCCP and JNAP it is difficult to attribute results to PACC inputs or to other projects and programs; it would be useful for PACC Niue to strengthen the specification of both its planning and monitoring of results and impacts.
61. Outcome 2: Adaptation Demonstration The PACC project adaptation pilot in Niue is household rainwater harvesting, described in the PACC ProDoc as a drought resilience measure. In the CBA however it is justified as a water security measure for the periods of cyclone-related power outage, identifying that Niue has been proven to have abundant groundwater resources to provide adequate drought resilience. PACC+ has committed funds to replicate the rainwater harvesting nation wide. Construction has yet to commence but the tendering process (for PACC and PACC+) is reported as being in hand and construction is targeted to commence April 2013. The demonstration therefore appears to be on track.
62. The project needs to ensure design standards are appropriate for the system to be resilient against intense storm damage. This might mean for example securing tanks with cyclone chains. PACC must ensure the initial phase of construction adequately tests and evaluates the cyclone resilient rainwater harvesting system design and construction techniques and demonstrates their adequacy before wider replication. PACC needs to promote the Niue adaptation approach regionally as a safeguard against water supply 'outage'; and the need to build storm vulnerability assessments and subsequent resilience into the design and operation of water supply systems, at household, village and town scales.

PACC Marshall Islands

63. In Marshall Islands, the V&A assessment drafted in 2012 is limited to an assessment of the proposed pilot measure to increase resilience of airport-to-DUD freshwater infrastructure to existing climatic hazards, including coastal and rainfall events. The CBA completed in 2012 has highlighted the relative costs of the different asset improvement options, as well as the full market cost of no action alternatives (bottles and desalination). The CBA assumes all additional infrastructure costs (such as the full cost of the runway extension) are attributable to the water supply improvements, whereas in actuality the only relevant costs are those for enhancing water capture (the runway requiring drainage systems and even emergency water removal pumps anyway). Furthermore, and like all the CBAs completed, the findings are presented in terms of a B:C ratio. The consequence is that the CBA places as much value on a small improvement in water availability for a small cost as it does a major one. This leads the demonstration project to focus on a very minor intervention in terms of reduced vulnerability per capita, rather than identifying the substantial opportunity presented by the airport runway upgrade. Whilst the CBA is thus a useful piece of work, it uses wrong assumptions and considers only intervention efficiency rather than intervention effectiveness.
64. Outcome 1. Mainstreaming Policy and Plans The 2008 logframe identifies that PACC RMI will focus on a national water conservation and adaptation policy; by 2012 the PMU has made relatively little progress in this direction. During the 3 years of PACC implementation, a number of climate change national governance initiatives have commenced and/or have been on-going. This includes the 2010 National Climate Change Policy Framework and the 2012 JNAP. It is understood PACC has contributed to these consultations.
65. PACC RMI has liaised to some extent with the IWRM project, as both are water sector projects with closely overlapping objectives and the same time frame; and both have focused work on the same atoll. Unfortunately they are housed in separate agencies, RMI OEPPC and EPA respectively, and have tended to compete or steer clear of one another, rather than integrate their efforts and attempt to find synergistic results²⁴. The two projects have a Joint PACC-IWRM Project Steering Committee; a National Water Task Force has been set up under the IWRM project; and PACC has contributed to development of a National Water and Sanitation Policy. While the PACC project has been involved in the country's climate change policy initiatives and in the separate water policy work, it is not clear what specific contributions PACC has added to the consultations, policy drafting and technical planning, or whether any of it was significant. As in other PACC country PMUs, there is a need to strengthen both the planning (specification of substantive objectives) and monitoring of results and impacts.
66. Outcome 2: Demonstration Project The PACC pilot project in Marshall Islands focused on the densely-populated Majuro atoll, and aimed to demonstrate improved drought resilience by a) water demand management measures; in close conjunction with b) enhanced rainwater capture as part of extending the main airport runway. The scheduled runway extension works provided the significant co-financing for the PACC project, and the main task planned for PACC was relatively simple: to ensure that the design of the extension works included suitable drainage and sump pumps to capture rainwater falling on the runway. During PACC RMI's development, inception and mobilisation, the specific adaptation measures to be piloted changed at several stages, and the ideas proposed in the country consultations were reduced to a single narrow measure specified in the 2008 PACC ProDoc, to install a cover on one of the main reservoirs, to reduce evaporation losses; an alternative proposed later was to install a new reservoir lining, to reduce leakage losses. To date, neither of these simple alternatives has been installed and monitored in practice, indicating the inefficiencies of the PACC project's operations.

²⁴ The MTR finds that overall there has been insufficient collaboration both regionally and in some of the common participating PICs, to bring together the two parallel UNDP-GEF projects PACC and IWRM, and use them creatively, efficiently and to greatest effect.

67. The project has purchased bulk flow meters and these are being installed in 2012 at key points in the system, which connects the existing runway catchment, reservoirs and groundwater wells. This will enable flows throughout the system to be measured and therefore controlled. In particular, pipeline leakage can be reduced and groundwater use regulated with some precision. Both these are key issues for Majuro, with upward of 50% leakage reported in the distribution system, and the Laura freshwater lens being an irreplaceable natural asset at severe risk of being degraded. As an additional activity, which has not been adequately planned, the PACC project has also conducted a household survey in Laura, the principal community in which the IWRM project is engaged, with a view to installing domestic rainwater tanks.
68. The MTR finds that the installation of an evaporation cover or replacement lining will provide negligible lessons, has limited replication value and does not constitute “additionality”. This is simply routine infrastructure maintenance work that is overdue, and does not justify UNDP-GEF or SCCF project funding. The MTR was advised that additional water storage has already been constructed on Majuro with aid funding, with no reference to the PACC project, and that another donor has offered to simply replace the existing reservoirs with new upgraded structures.
69. On the other hand, there are few PACC demonstration projects focussing on demand side strategies, and the MTR finds that the use of bulk flow meters, as part of a more holistic strategy to reduce Unaccounted-for Water (UfW), reduce water demand, and reduce extraction from the atoll’s precious freshwater lens, is a key water management tool that is of relevance region-wide. The PACC RMI project should assist strengthening of both water supply side and water demand side strategies for improving the drought resilience of the Majuro water system. In doing so several important adaptation measures already being undertaken on Majuro should be enhanced:
 - a. Design and management of airport runway and apron as municipal-scale quality rainwater harvesting facilities.
 - b. Conjunctive use of rainwater harvesting with managed groundwater abstraction;
 - c. Leakage reduction as a water demand management strategy; and
 - d. Water conservation incentives and measures for end users, including the use of financial tariffs to incentivise household rainwater harvesting and restrict reticulated water use;
 - e. Saline water reticulation for sewerage to reduce freshwater demand.
 - f. Effective sewage waste water treatment and disposal.
70. The MTR recommends that the Government of Marshall Islands use the resources of the PACC project to facilitate enhancements to the design and operating procedures (surface cleaning and weeding; maintenance of coastal vegetation fringe to reduce salt-water spray) of the Majuro airport runway. The Majuro runway is being extended at present. This provides an ideal opportunity to introduce design features to increase rainwater collection and piping to the existing reservoirs. The net increase costs to the total costs for construction of the runway are likely to be negligible, assuming the existing airport extension design includes some sort of drainage system to rapidly remove rainfall. This would provide a highly valuable demonstration (as well as direct outcome) for RMI in terms of climate adaptation of national infrastructure planning. Climate change risks include storm surge inundation of the runway apron, salinizing rainwater and potentially either contaminating the freshwater supply or reducing the freshwater yield from the runway. Majuro provides an excellent opportunity for PACC to integrate water sector and coastal sector climate adaptation.

PACC Tonga

71. In Tonga, V&A and SEA assessments were undertaken of the Hihifo District demonstration area only. They confirmed the existing vulnerability of the six village communities to water shortages and water scarcity (not due to climate change) and to future climate change risks. A Hihifo-PACC

Water Committee was set up to provide a formal communication mechanism between the PMU and the project beneficiaries. No CBA is scheduled.

72. Outcome 1. Mainstreaming Output 1.1 Incorporate climate change risks into water resource management legislation, policies and plans: PACC Tonga has facilitated the development of a National Water Policy (NWP). This was developed over a 3 month period (Jun-Aug 2011) and has been approved by Cabinet. The process was led by the Ministry of Environment and Climate JNAP advisors and consulted widely with the key water stakeholders and PACC Technical Working Group. The NWP covers institutional arrangements, climate change mainstreaming, data sharing and use, understanding climate impacts, coordination and partnership, and climate change resilience. The structure is very similar to that of Tonga's 2010 JNAP. PACC has reviewed the existing draft National Water Resources Management Bill, after the approval of the NWP. The Bill has been cleared by Attorney General and is now with Law Review Committee.
73. Output 1.2 Climate Change Adaptation Action Plan for Water Resource Management: PACC Tonga has also facilitated the drafting of a National Water Management Plan, with sections on Governance and Management; Research and Assessment; Appropriate Technology and Infrastructure; Communication and Awareness; Training and Capacity Building; and Financing and Sustainability. The draft NWMP was prepared three months before the drafting of the NWP.
74. The MTR considers that climate adaptation has been usefully mainstreamed throughout the National Water Policy; but is concerned that the NWP does not contain sufficient policy guidance on other aspects of sustainable water management, including for example wastewater management. There are similar weaknesses in the draft NWMP. As the National Water Resources Management Bill focuses mostly on water resources management, the MTR is concerned that insufficient sectoral strategy is being put in place for the water sector. It would be valuable to strengthen the draft NWMP to address the water sector in an adequately holistic approach; PACC Tonga is directed towards the Pacific Regional Action Plan on Sustainable Water Management as a guiding framework.
75. Outcome 2: Demonstration Project In Tonga the demonstration project is focused on increasing drought resilience at the district level, through improved water resources use and management. The selected district's existing water supply is a combination of household rainwater harvesting and village and district scale groundwater-fed reticulation. The district is known to be underlain by brackish and saline groundwater, and existing wells become brackish during extended dry periods.
76. To date the project has designed the improved water supply scheme and had the design independently peer reviewed. Four new production boreholes have been drilled near the existing well field, plus three observation boreholes; construction of three 45,000 litre storage tanks has commenced; and procurement (*via* SPREP) of the transmission pipelines, pumps, power generators, treatment equipment and flow meters has been initiated. Construction of the pipelines, location of the storage tanks and commissioning of the system are expected to take no more than 4 months in total. There is however considerable uncertainty over how long the procurement process will take. The regular process of funds transfer from UNDP via SPREP RPMU to Tonga PMU has been problematic and UNDP has resorted to direct payment process. The PMU has also raised concerns over land ownership and road access to the proposed storage tank locations.
77. The project strategy to increase drought water security through exploiting (even importing) groundwater resources to augment rainwater harvesting is an entirely reasonable approach. Groundwater provides considerable storage and is less vulnerable to dry seasons than rainwater harvesting, but nonetheless is still vulnerable to extended droughts. In addition to developing infrastructure, the PACC project will need to address a) improving management of the groundwater resource, including monitoring of climate change impacts and abstraction; and b) to improve management and maintenance of new water supply infrastructure, to prevent excessive leakage occurring in the future. Indeed provision of new water supply infrastructure to replace an older leaking one is not an adaptation option nor is it a sustainable or repeatable strategy,

requiring as it does capital investment from an external source. PACC Tonga needs to focus beyond water supply infrastructure upgrades and address a number of broader issues:

- a. Sustainable groundwater monitoring and management.
 - b. Sustainable operation and maintenance of the water supply infrastructure; and
 - c. Developing community behavioural responses (self-regulation) to reduce water demand especially during periods of sustained drought.
78. The community management of the water supply infrastructure needs to be more than simply operation by an adequately trained plumber, and must include sufficient revenue collection through tariffs to support maintenance of the system (including and especially leakage detection and reduction) and capital re-investment in the system over decade-long time-scales. Such tariffs will also serve to reduce water demand on the groundwater system and increase rainwater harvesting whilst the rainwater is available. Flow meters at each household will enable accurate tariff collection based on groundwater use, and will facilitate consumer behavioural change. The community water system governance arrangements will need to be accountable and transparent because of the tariff collection process.
79. The community will also need to make informed choices on its water demand and adapt to the climatic impacts on the freshwater lens that it is exploiting. This will require PACC Tonga to carefully explore and develop groundwater resource monitoring procedures with the relevant government agency (*i.e.* Hydrogeology Unit) such that the agency evaluates the risk of derogation of the freshwater lens in a timely manner and provides an early warning (if required) for the community to respond to by suppressing its water demand (*e.g.* rationing). In this way, the community can adapt to increase in climate pressures on the groundwater resource.

PACC Tuvalu

80. In Tuvalu, a combined V&A and SEA of the Lofeagai community demonstration site was completed in 2011. This consisted of a qualitative assessment of general vulnerability to existing and future climate variability, with a specific focus on water adaptation options. A CBA has been completed in mid-2012. The CBA confirms the benefit of the resilience enhancement measure to the community and the government, compared to 'business as usual'. As with other CBAs it does not explicitly consider the added adaptation value, nor does it consider the added value beyond the water supply value itself.
81. Outcome 1. Mainstreaming The planned outputs for Tuvalu changed between inception and 2011-2012. Output 1.1 was water sector policy incorporating climate change risk and resilience. PACC has contributed to the National Water Policy developed under the IWRM project. The NWP has recently gone to Cabinet and is expected to go to Parliament in December 2012. Output 1.2 National Climate Change Policy (NCCP) has been developed with the assistance of PACC; it was endorsed by Cabinet in its hearing on February 2012 and was also tabled before Parliament in March 2012. The NCCP takes a multi-sectoral, holistic approach to climate change, covering adaptation actions, data sharing and forecasting, governance, infrastructure and energy security, and disaster preparedness. PACC has also contributed to the policy implementation plan known as the National Strategic Action Plan for Climate Change and Disaster Risk Management (2012-2016), a multi-agency supported initiative. A Joint PACC-IWRM Committee has contributed to a coordinated approach between these two projects in both Outcome 1 and 2.
82. Although specific contributions and deliverables by PACC Tuvalu are difficult to isolate in this multi-agency environment, PACC appears to have successfully engaged with the plethora of climate adaptation initiatives in the country as well as the more holistic water sector consultations and strategies underway. In the remainder of the project, it will be important to increase monitoring and evaluation of the quality and effectiveness-in-implementation of the current array of climate change-related policies and plans.
83. Outcome 2: Demonstration Project The 2008 ProDoc refers to the PACC demonstration in Tuvalu as establishment of an integrated village water management plan. In practice the project is focused on communal rainwater harvesting. It is understood that construction was halted for a

substantial time but is not progressing, with an estimated completion date of early December 2012. In conjunction with a) existing household rainwater harvesting; and b) the eco-sanitation intervention being implemented by the IWRM project, the PACC pilot work will contribute towards an integrated approach to village freshwater and wastewater management.

84. Communal-scale rainwater harvesting is significantly under-utilised in the Pacific; it has the potential to readily provide strategic drought period water supply once household rainwater harvesting systems have been depleted. A critical issue encountered in other PICs has been to ensure sound management of community systems and particularly the distribution of water. PACC Tuvalu must commit project resources to build community capacity to adequately assess and resolve this issue; for PWD to retain ownership and control access to communal water storage may provide a simple (but not community-controlled) solution to the management issue.
85. No integrated village water management plan seems to have been drafted or followed. The focus of PACC Tuvalu needs to move beyond construction of a rainwater storage tank onto the promotion, facilitation and ultimately demonstration of integrated water resources management, as an approach to improve climate change resilience. Components of the village plan could include household rainwater harvesting, communal rainwater harvesting, freshwater demand suppression through eco-sanitation (dry or zero flux toilets), and perhaps brackish well water use for flush toilets. The PACC project in Tuvalu should also include water conservation measures (including self-rationing protocols) and linkage of behavioural change responses to rainfall forecasting initiatives.

PACC Tokelau

86. In Tokelau, no V&A, SEA or CBA is known to have been undertaken. The communities have however directly been involved in the project needs assessment process.
87. Outcome 1. Mainstreaming Output 1.1 Tokelau Climate Change Strategic Framework 2011-2015 has been endorsed by the General Fono.
88. Outcome 2: Demonstration Project Tokelau was not part of the original PACC Project and is still not part of the GEF funded PACC design. Tokelau is however benefiting from the additional funding made available from AusAID in 2011. The PACC project in Tokelau has received technical and financial support to improve household rainwater harvesting. The Tokelau project is piloting a variety of approaches to improve household rainwater systems, including:
 - a. Installation of new plastic tanks;
 - b. Retrofitting of existing tanks with internal bladder bags; and
 - c. Using bituminous paints/ sealants to re-seal, re-use and repair existing (but perhaps leaking) rainwater tanks.
 - d. First flush and other 'enhanced' rainwater harvesting techniques are also being trialled.
89. The demonstration project has correctly identified that rainwater harvesting improvements can and should include the assessment and re-use of existing household infrastructure where possible, cost-effective and sensible to do so. Where project resources are limited, such approaches may be more effective in terms of maximising the water storage, rather than solely introducing new tanking options. Consistent with this strategy, PACC Tokelau should promote maximising the use of house roof catchments by including full guttering to buildings. Similar to PACC Tuvalu, PACC Tokelau should also extend the project's activities to include water conservation (including developing self-rationing protocols) and linking these behavioural change responses to rainfall forecasting initiatives.

MTR Recommendations for PACC Water Resources Projects

In the absence of any PACC water countries focusing on surface water management issues (watershed management, flooding, sedimentation, drought low flows) due to the countries selected, it is recommended that PACC should extend its attention to surface water management vulnerability assessment and adaptation, as a primary contributor to food and coastal security in Fiji, PNG, FSM and Palau. Such strengthening of the PACC project would significantly increase the relevance of the project to water management and all water users in the PICs facing surface water management issues and requiring surface water and integrated water resources management adaptation solutions.

PACC Nauru – Recommendations

The PACC project has been focused narrowly onto water, whereas an integrated strategy to build resilience to climate change – for all sectors, island-wide – would be significantly more relevant and effective; Nauru's food security and basic ecosystem functions are also vulnerable to climate change. The trialing of alternative water resources is appropriate but the medium to long term reliability of the infrastructure is uncertain, hence the PACC project needs to commit sufficient resources and effort to adequately evaluate the sustainability of these approaches.

1. The performance, durability and useful lifespan of the solar stills require a thorough monitoring and evaluation program to be maintained for a number of years, and the findings shared and promoted as part of the adaptation demonstration purpose of PACC.
2. It will be valuable also for PACC Nauru to carefully monitor and document the design, performance, capital cost, operating and maintenance costs and technical capacity required to sustain in practice a reticulated brackish/ saline wastewater system; and again disseminate the findings in clear, innovative and effective ways.
3. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, and enable community adaptation responses (water conservation, rationing etc.) to be initiated.
4. In the remainder of the project and using a small amount of PACC+ funds if required, PACC Nauru should promote and facilitate a whole island integrated planning and development approach to water security, local food production and climate adaptation, recognizing the role of gender in management. This should include a strategy for the long-term management of Nauru's brackish groundwater. Elements of the strategy should comprise appropriate measures to prevent further contamination of groundwater from salt water sewerage system leakage, inappropriate wastewater discharge, inadequate solid waste management and pollution controls.

PACC Niue - Recommendations

The project in Niue has been hampered by a weak assessment of country vulnerability and adaptation options and an inadequate project design. The rainwater harvesting demonstration is incorrectly being designed as a drought resilience measure, when it is actually an adaptation to increased cyclone hazard. The project needs to commit resources and effort to refocus on cyclone resilience planning.

1. The PACC rainwater harvesting demonstration should be re-specified to focus on increasing resilience against cyclonic damage (winds and rain), so as to be operational immediately post-cyclone, including not only construction design but also household management and recognising gender specific roles
2. The project should contribute to the preparation and implementation of an integrated water supply and wastewater cyclone resilience strategy across the island, including the reticulated groundwater schemes.

3. Through awareness raising and capacity building PACC should contribute to strengthening community and utility preparedness for cyclone events, including early warning systems and immediate preparedness response measures (including coastal and other sectors).

PACC Marshall Islands – Recommendations

The MTR finds that the PACC project in Marshall Islands is failing to take a systematic, strategic and dynamic approach to enhancing climate resilience of the country's water resources, supply and wastewater systems. The outer islands require priority attention as well as Majuro's municipal water and wastewater systems. Project management capacity and reform need to be aligned with a clearer strategy and systems approach.

1. The PACC project and its lead agency should engage without further delay with the runway extension project to ensure increased rainwater harvesting and coastal storm surge protection, through the infrastructure design, operating procedures, and coastal vegetation planting.
2. PACC should fund MWSC to develop and implement a leakage detection and reduction program for the main pipelines between Laura, the airport and the DUD; making use of the installed flow meter information to identify and prioritise repairs. Secure government or aid financing for the reservoir evaporation covers and linings; use SCCF funds only for technical specification and design works. Facilitate specification and installation of Laura rainwater harvesting by others; not using SCCF funds.
3. The Water Task Force should commission an assessment of the climate change risks and responses required to improve the resilience of the seawater sewage system; including storm surge damage to the seawater intake and wastewater disposal outfall.
4. PACC RMI should coordinate development and promotion of a food and water security & adaptation strategy for the whole country, based on climate projections²⁵ linked to food and water strategies. Plan, promote and systematically implement a program of water and food security for the Outer Islands, making use of a strengthened extension program; integrate rainwater harvesting, groundwater management and non-freshwater usage sanitation approaches at the communal and household scale, including addressing gender.

PACC Tonga – Recommendations

The project fails to identify water resource responses to climate change as a critical component for delivering increased community resilience and participatory adaptation; PACC needs to improve integration and communication between water resources management and the target communities.

1. PACC Tonga should enable improved engagement of the Hydrogeology Unit to actively monitor and determine the freshwater lens volume, whether the resource is reducing, stable or expanding; and should provide notification to community whether to reduce abstraction.
2. The project should plan and facilitate improved community infrastructure management, to include tariff collection by the community and equitable gender inclusion to support adequate long term maintenance and encourage both groundwater demand suppression and conjunctive rainwater use.
3. The project should increase efforts to build capacity of communities, especially women, to adapt their water demand, through conservation, rationing, rainwater and brackish wastewater use, in order to sustain fresh groundwater resource availability during predicted dry periods.

²⁵ For example, those generated under the Pacific Climate Change Science Program for 13 of the PACC countries. Australian Bureau of Meteorology and CSIRO. 2011. Climate Change in the Pacific.

4. PACC+ funding should be used to plan, design, pilot and establish a coastal zone management framework that includes improvement to water resources and water supply resilience; community food security; and the development of village and district scale integrated resilience strategies and plans.

PACC Tuvalu – Recommendations

The project focus is predominantly limited to construction of communal rainwater harvesting infrastructure, and needs to ensure both adequate operation and maintenance of this new approach and integrate its use into household water and wastewater management strategies.

1. PACC Tuvalu should explore, develop and facilitate introduction of appropriate community water governance arrangements, recognizing the vital role of women in sustaining communal water storage, including equitable water allocation and long term maintenance.
2. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, to enable community adaptation responses (water conservation, rationing etc.) to be initiated.
3. The project should extend the household and community water conservation and demand reduction measures it is piloting and demonstrating, to include awareness and education on water wastage, tank leak repairs, rationing, dry eco-sanitation and brackish groundwater use for toileting.
4. PACC should strengthen promotion of integrated communal water and wastewater planning and management more widely, incorporating existing household rainwater harvesting practices and recently introduced dry eco-sanitation and brackish wastewater use.

PACC Tokelau – Recommendations

The project focus is only on household rainwater harvesting infrastructure storage and treatment improvements with limited consideration of rainwater capture, alternative water sources and demand management; and of coastal zone risks and the role of improved water availability on food security.

1. The project should increase its focus on maximizing rehabilitation, to include improving the rainwater catchment areas, and storing excess (overflows) water in the ground.
2. The project should assist development of national capacity to access and use rainfall forecasting, and develop community notification protocols to advise on climate change impacts on available freshwater resources, to enable community adaptation responses (water conservation, rationing etc.) to be initiated.
3. PACC Tokelau should promote integrated water and wastewater planning and management, including household and communal rainwater harvesting, dry eco-sanitation and brackish wastewater use, and water demand conservation and demand reduction strategies (as per Tuvalu).
4. The project should include an assessment of potential fresh groundwater resources, and if feasible introduce, monitor and evaluate infiltration gallery technologies used in atoll islands in Kiribati, Marshalls and Tonga.

PACC Achievements in Coastal Management**PACC Cook Islands****PACC Kosrae, FSM****PACC Samoa****PACC Vanuatu**

90. Four of the 13 PICs participating in PACC chose the coastal sector and have developed their PACC work programs to focus on protecting or strengthening coastal infrastructure. During the PDF phase (2006-2008) each country had to identify specific locations at which to pilot and demonstrate climate adaptation of coastal infrastructure. The main objective of the PACC project in the four coastal sector countries and the pilot sites selected are summarised in **table 6**.

Table 6: Outcome 2 Objectives and Pilot Locations – PACC Coastal Projects

PACC Country	Outcome 2. To design and demonstrate adaptation measures:	Pilot locations
Cook Islands	To strengthen and modify coastal infrastructure to withstand storm waves and raised sea-levels; and to increase its operational utility.	Mangaia Harbour
FSM, Kosrae	To modify the design of coastal road construction, to withstand increased torrential rain and surface water run-off, raised sea-level and storm waves.	Kosrae Circumferential road, Tafunsak - Walung sections (RS3 & 4)
Samoa	To safeguard coastal village buildings and roads from climate change and sea-level rise impacts.	1. Tafitoala village 2. Lefagaoali village 3. Lalomalava village
Vanuatu	To safeguard coastal road and other infrastructure from climate change and sea-level rise impacts.	Epi Island coastal road, airstrip, wharf, buildings

Achievements towards Outcomes 1 and 3

91. The aim of component 1. of the PACC project was to incorporate climate change considerations into the national and sectoral governance systems, referred to as “mainstreaming”. The PACC Coastal projects have tended to focus their policy support work on their chosen sector of “coastal management and associated infrastructure”, rather than on the national policy framework concerned with climate change more generally or for example the JNAP covering CC and DRM. While the PACC coastal countries have developed new climate change policy and legislation during the period of the PACC project (for example GoV in 2011 drafted the Meteorological, Geo-Hazards and Climate Change Bill), the PACC PMUs have tended not to extend their work into this broader arena. **PACC Samoa** undertook a useful review and gap analysis of Samoa’s climate change policy framework, but this was followed by a focus on sectoral policy needs.
92. It is interesting to note that of all the country projects, the PACC project in **FSM Kosrae** has been the most ambitious and probably the most effective in pursuing a broad agenda for climate adaptation, not only in Kosrae State, but nationally in FSM and more broadly in Micronesia and the Pacific. The MTR considers that the professional history and experience of the PACC Kosrae Coordinator, and the close engagement of the PACC EA, KIRMA, and its Director, are major factors contributing to this success. It has also been important that they have taken a diverse and dynamic approach towards Outcome 1: the project has not simply contributed to a series of policy drafting exercises, but has also actively facilitated collaborative programming, institutional strengthening and technical assistance work among a variety of other programs and projects concerned directly and indirectly with climate change, in Kosrae, FSM or more broadly. This has led to a number of important potential and actual partnerships for PACC and related climate adaptation initiatives. The MTR considers work of this type towards Outcome 1 is of particular significance because of the abundance of developing programs with climate adaptation-related

objectives. The actions from FSM and Kosrae have taken the PACC project furthest towards the concept of forming a framework for climate adaptation programming in the region, or at least the sub-region of Micronesia, and provide a good model for the other PACC country projects, and for the key agencies engaged in the region, including especially UNDP and the other GEF Agencies, and SPREP and its sister CROP agencies.

93. The PACC Coastal projects, including PACC Kosrae, have worked more on governance in their 'sector'. **PACC Vanuatu** has been effective targeting a number of policies and plans that form the governing framework for infrastructure development in the country, under the mandate of the PWD and its Ministry of Infrastructure and Public Utilities (MIPU). It is relevant that PWD is the lead Executing Agency for PACC. It will be important in the remainder of the project to complete the work that has been started on the Public Roads Act, Code of Practice for Surface Water Drainage, and National Building Code for Vanuatu, and develop the new standards for climate resilient infrastructure development.
94. **PACC Kosrae** also is showing leadership in facilitating new policy: following an intense 2-year process the Kosrae State Code was amended with ratification of the Kosrae Climate Change Act 2011, under which all new infrastructure developments, especially roads and buildings, are required by law to take climate change into consideration, in design and construction. The next steps planned by the PACC Coordinator are to assist stakeholders in Kosrae to apply and implement the legislation in Kosrae; and to use the Kosrae legislation as a model for the other three FSM States, and also more widely in the region. Also under the 2011 Act, Kosrae State, guided by the PACC project, has opted to regulate climate change adaptation by means of modifying their Environmental Impact Assessment (EIA) system. EIA expert from SPREP has conducted workshops in FSM, in 2011 and 2012, for the SLM and PACC projects; with the objective of designing the EIA regulations. One of the significant partnerships formed by the PACC Coordinator is with the SPC-GIZ CCCPIR project, with the objective of updating and upgrading Kosrae's 2000 Shoreline Management Plan, including advice and guidelines on coastal adaptation actions for Kosrae. The MTR considers this to be a highly relevant activity for PACC Kosrae and recommends that preparation of a whole-island coastal management and adaptation strategy should be specified in a revised PACC FSM project plan.
95. **PACC Samoa** has made less progress towards strengthening the policy framework or enabling environment for adaptation of coastal zone management or infrastructure, which the MTR considers may be attributed to the relatively weak strategic leadership provided to the project by PACC Samoa's Executing Agency and Steering Committee; compounded perhaps by the lack of a clear agency mandate for coastal zone management in Samoa. Work was started on formulation of a national adaptation strategy for coastal and riverside management; and the MTR finds that it would be a useful contribution for PACC Samoa to continue work on this strategy, drawing lessons from its results from component 2. and continued monitoring. More focused policy work was initiated on two important coastal management issues – the extraction of sands from beaches and coastal lagoons; and the conservative management of local catchments and watercourses. The MTR considers that the lack of rigorous plans for these actions contributed to their ineffectiveness. The former action to develop Sandmining management policy does not seem to have been progressed. The latter action produced Water Resources By-Laws for the village of Tafitoala, but the MTR suggests that the technical quality of the policy is inadequate.
96. All the PACC projects have also organised activities under component 3, which have been merged to some extent with component 1 in the form of community awareness-raising or extension work as a foundation for participatory planning. **PACC Vanuatu** advised the MTR that they had not considered component 3 relevant to them, but more concerned with the RPMU organising a program of technical support. Nevertheless, at least two good quality and interesting videos of the situation on Epi island have been made by or for the PACC Vanuatu project: Vital Roads – describes graphically the poor condition and vulnerability of the coastal infrastructure, and the value of the roadway, airstrip and boat landing facilities to the local community and economy; and the PACC Community consultation video records the intensive consultative meetings between local community members and the PACC team. PACC Samoa has

also carried out community awareness-raising about climate adaptation and coastal management issues. **PACC Kosrae** took a more proactive approach and targeted the whole of the island State community raising issues of Kosrae's climate change vulnerabilities and strategies for adaptation and building resilience. The approach provides a good basis for inclusive integrated adaptation programming.

Outcome 2 – Coastal Adaptation Demonstration

Selection of Coastal Sector and PACC Pilot-Demonstration Sites:

97. The selection of situations and sites at which to pilot and demonstrate adaptation measures in each country was made initially during the PACC PDF consultations in 2006. Countries were presented, in the 2006 PDF consultations, with a set of criteria for identification of the adaptation pilot-demonstration project:

- a. "A strong fit/alignment with the ... Government's existing programmes
- b. All necessary baseline assessments have been carried out, and additional activities are ready for implementation, and,
- c. Ability to co-finance and ability to deliver."

Government agencies were required to select, first, one of the three sectors, then the actual pilot site. The process was not rigorous or scientific: in all countries, the tendency was to select the least-well serviced sector; there were sufficient projects in the pipeline in the other two 'sectors'.

98. For the countries choosing adaptation of coastal management, there were no guidelines and there is no record of discussions of what exactly "coastal management" might include; during the PDF phase, a number of terms – "coastal areas", "coastal management", "coastal development" – were used inter-changeably. Subsequently the phrase used was "Coastal zone management and associated infrastructure", and in practice all countries have focused their coastal adaptation work narrowly onto protection of coastal infrastructure; refer to **table 6**.
99. In **Cook Islands**, although climate change impacts on freshwater resources and agricultural crops were raised as issues, the coastal sector was chosen on grounds of immediate need: there had been 5 cyclones the previous year (2005) which had caused serious, widespread damage, including coastal erosion and flooding and structural damage to buildings, wharves, harbours and airports; and there were good opportunities for co-financing to be provided, including the NZAID Cyclone Recovery & Reconstruction Program; Outer Islands Development Partnership Arrangement; Cook Islands Investment Corporation; ADB-supported Preventative Infrastructure Master Plan Program; and ADB Cyclone Emergency Assistance Loan program.
100. The first pilot site options were for construction of Avatiu Breakwater in Rarotonga, which had been studied in 2004 as part of ADB's Climate Adaptation in the Pacific (CLIMAP)²⁶ project; or for re-design and re-development of a damaged harbour, road or airport on an outer island. Infrastructure re-development plans were under preparation for several sites, and the greatest potential for co-financing was considered to be a harbour in the Southern Group or Manahiki island's airport in the Northern Group. A short list was identified of Rarotonga-Avatiu Breakwater, Mauke or Mangaia Harbour, or integrated coastal zone management and airport re-development of Manihiki Island or ICZM of Pukapuka Island. It is unclear from the wording of the 2006 PDF report, but it seems that Mauke Harbour was chosen, but later rejected in the light of an engineering report that the proposed re-development was impractical.

²⁶ The ADB CLIMAP project was intended "to mainstream adaptation through integrated risk reduction into program and project operations of the ADB to better respond to country needs; and (ii) to mainstream adaptation on a pilot basis in two ADB member countries, i.e. the Cook Islands and the Federated States of Micronesia (FSM)." CLIMAP prepared case studies in FSM and Cook Islands, and PACC was planned to utilise the study's results in both countries. While this eventuated in FSM Kosrae, PACC in Cook Islands selected an alternative pilot-demonstration site.

101. Late in 2006, Manahiki Airport re-development was substituted as the pilot site for PACC, with the focus to be on hard and soft measures to protect areas of coastline, as a strategy for protecting the airport. In 2008, this decision had to be rescinded apparently as the Manihiki Airport re-development proceeded before the PACC project was started, in 2009. (The problem was referred to ambiguously as “slippage in co-financing for Cook Islands (Manihiki Airport)”. Mangaia Harbour was selected as the substitute site, not least because the GoCI allocated NZD 1.8 million to the re-development project. This would be co-financing, while the PACC project would “address the broader issue of coastal management that is plaguing the harbour”. Refer to PACC Project 2009 Annual Report.
102. In **PACC Kosrae, FSM**, selection of both the coastal sector and the Kosrae pilot site for the PACC project were made prior to the PDF visit, based also on the 2004 study carried out under ADB’s CLIMAP project. As a consequence, the PDF team met with only two agencies, the national Department of Economic Affairs, and the State environment agency, Kosrae Island Resource Management Authority (KIRMA); and it is clear that little or no wider consideration was given to FSM’s specific vulnerabilities or adaptation needs. According to the 2006 PACC PDF report, “based on the (ADB CLIMAP) case studies, the FSM National Climate Change Country Team (NCCCT) had decided that PACC project would focus on the roading project in Kosrae since the design of the road had been climate proofed already by the CLIMAP project.”
103. The roadway project was to complete the Circumferential road around Kosrae island, by constructing approximately 16 km of un-built sections round the west and south coasts. The CLIMAP case study had concluded that it would be less expensive in the long-term to improve the road construction standard, thereby enhancing its resilience to climate change impacts and reducing maintenance costs. Much of the PACC PDF report for FSM was taken directly from the final report on the case studies, “Climate Proofing: A Risk-based Approach to Adaptation” (2004/2006. ADB). Significantly, the Government allocated nearly USD 7 million to the roadway construction, which enabled USD 1m of GEF-SCCF funds to be allocated to the PACC project in Kosrae, to be used to improve the road design.
104. For **PACC Samoa**, the decision on sector and PACC sites had been made by the NCCCT prior to the 2006 PDF consultations: PACC would be used as an opportunity to fund the coastal management project defined in the 2005 NAPA²⁷, which was to implement Coastal Infrastructure Management (CIM) Plans that had been the main output of an earlier Samoa Infrastructure and Asset Management (SIAM) project. By 2006, CIM Plans had been prepared for 15 Districts (of the total 43 Districts), and these became the PACC pilot locations specified in the 2006 PDF Report and the 2008 PACC Project Document. In contrast to the other PACC coastal projects, where co-financing was available for the infrastructure construction and SCCF funds were to be used to enhance the design and cover the additional costs of “climate proofing”, in Samoa the SCCF funds were the only funds available for any installation or construction, and the co-financing was the funds already spent on preparation of the CIM Plans.
105. The actual sites proposed for the PACC project changed several times since 2006: at the 2009 PACC Inception workshop, GoS presented an amended plan, to provide protection for 4 coastal communities and 2 river communities. Immediately afterwards, the process of mobilising PACC and confirming pilot sites was severely disrupted by the 2009 earthquake and tsunami and their aftermath. PACC became instead a source of funding to provide immediate security to communities that had suffered storm wave damage from the tsunami and cyclones. Over the 3 years since the tsunami, the PACC project has supported shoreline protection works for 3 villages. Unfortunately, the PACC project was not used as an opportunity to work out

²⁷ This decision was directly contrary to the 2006 PACC PDF Proposal, which stated: “Neither will (the PACC project) pick up any activities identified in the NAPAs... For example the Samoan NAPAs identified activities that needed urgent and immediate action. The PACC will focus on long term activities linked to sustainable development not identified in the immediate action list of the Samoan NAPAs. The more urgent list will be left for funding under the LDCF.”

systematically how best Samoa's coastal areas could be managed, in the face of future climate change impacts, sea-level rise and tsunamis.

106. In **PACC Vanuatu**, the decision to focus on coastal management and infrastructure was taken early in the PDF consultations by the Chair and Vice-Chair of the NACCC, on several grounds: a) water and food sectors were already provided for; b) "the majority of the country's outer islands are facing serious coastal erosion caused by storm surges and coastal flooding"; c) assessments of storm damage had been done; and d) "co-financing would be readily available from current and future (infrastructure) rehabilitation budgets." At a meeting with the PWD, the coast road on Epi island, Shefa province, was agreed as the location for the PACC adaptation pilot, with "the proposed focus to increase the resilience of coastal roads, resources and human settlements to the impacts of climate change." The decision was influenced largely by the availability of co-financing: Vanuatu had just received over USD 65 million from the US Millennium Challenge Corporation to fund "11 infrastructure projects including roads, wharves, airstrip...". Epi island was to benefit from "upgrading of Lamien Bay wharf and the construction of a warehouse" with MCC funds. USD 2.90 million from MCC was earmarked for the PACC Vanuatu pilot location of Epi island. However, this was not genuine co-financing: even during the same consultations, it was stressed that "road construction or maintenance on Epi will not be covered by MCC." 2006 PDF Vanuatu Report p.23

Assessment, planning and preparation of climate adaptation measures

107. Following selection of the sector and pilot sites, and over the past 3 years of implementation, the four PACC Coastal countries adopted different approaches and have progressed at different rates towards achieving Outcome 2. A problem for the PACC country teams was that none started off with an adequate plan or agreed strategy to guide their actions, and the MTR finds that this proved to be a significant barrier to efficient and effective implementation. The few paragraphs in the 2008 Project Document given to the project EAs and Coordinators on the four coastal country plans for Output 2.2 were unsatisfactory as the only plans to implement 5 year projects with budgets totalling USD 18 million.
108. Of the four PACC coastal projects, Cook Islands and Vanuatu have followed reasonably systematic processes. PACC **Cook Islands** organised a major geo-spatial study in 2010-11 of the target coastal zone of Mangaia Island, modelling climate change impacts, especially storm waves and sea-level rise; this enabled development of a sophisticated Coastal Calculator to inform the engineering design of the coastal infrastructure adaptation measures.
109. In **Vanuatu** also, good preparatory work has been carried out, although not guided by a clear strategy or plan: local climate change and sea-level rise models have been developed; preliminary ground survey of the selected coastal area on Epi Island has been conducted; marine environment baseline studies have been started; and a Preliminary Environmental Assessment has been prepared. (It is notable that these assessments and other preparatory activity have been funded *ad hoc* by other projects, because of failures of PACC funds transfers to Vanuatu).
110. The other PACC coastal projects, in **Kosrae** and **Samoa**, do not seem to have prepared and followed any systematic plan. The main reason is that both countries thought that the assessment and planning work for their component 2 had been done already: in Kosrae, they understood that the preparatory work had been done in 2004, under the ADB CLIMAP case study. Similarly in Samoa, the belief was that the preparatory work had been done during the compilation of Coastal Infrastructure Management (CIM) Plans under the previous World Bank SIAM project. This had been the rationale for selecting the two countries' PACC pilot projects in 2006; adaptation action could be expedited without further assessments. As a consequence in both Kosrae and Samoa, there has been no clear strategy, and little further preparatory assessment or planning work has been done. Another factor is that the countries relied on the generic plan provided in the PACC Project Document and on the generic guidelines and tools provided by the PACC RPMU and regional advisors.
111. The PACC Project Document emphasises a participatory or "community-based" approach to the assessment of vulnerabilities and climate adaptation needs, and the planning of adaptation

strategies and specific measures. Each of the PACC-coastal country projects has organised some form of local community engagement, with guidance and training from the PACC regional support team on techniques and tools (V&A, SEA):

- a. In **Cook Islands**, the island Council has been involved and informed about each stage of the PACC program, and information has been made available throughout the island community. The major geo-spatial survey done by NIWA-SOPAC seems to have formed the V&A process for the Mangaia community. There does not seem to have been a significant emphasis placed on local community engagement or on gender considerations.
- b. In **Samoa**, the relatively simple process has been to convene meetings with the leaders and inhabitants of the selected villages. The discussions considered a simple set of alternatives and options preferred by various sections of the community – with separate discussions for leaders, women and young men’s groups – for protecting the local shoreline, managing the river catchment, and addressing perceived management issues.
- c. In **Vanuatu** a major series of community workshops was held on Epi island, apparently with good participation of men, women and community leaders, to share knowledge and ideas about climate change, coastal management, local environmental and resource use issues, and about options for managing and protecting the public infrastructure.
- d. In **FSM - Kosrae**, a different approach has been taken: rather than engaging people only in the immediate issues at the selected pilot site, the PACC Kosrae project team has organised briefings, seminars and activities for the whole of the island State community, targeting schools, leaders, men and women’s groups, and covering the broader issue of Kosrae’s climate change vulnerabilities and strategies for adaptation and building resilience. This approach seems to be working well and provides a good foundation for an inclusive longer-term adaptation & resilience program or campaign.

Design of Specific Coastal Adaptation Measures

112.A crucial step in the development of the pilot-demonstration project is preparation of a sound design for the adaptation measure, based on the results from the prior survey, assessment and consultation process. The four coastal projects have not been managed well in this regard; none has yet produced a comprehensive model design for the coastal adaptation pilot-demonstration works.

- a. PACC **Cook Islands** has made most progress: a 2012 Project Design Report for Mangaia Harbour re-development has been prepared by the Ministry of Infrastructure & Planning. However it falls short of providing comprehensive design specifications for a “climate resilient coastal harbour”; it needs to make clear how the 3 sets of expertise – a) engineering; b) climate, sea level and wave modelling; and c) coastal planning and management – have been brought together to produce an integrated design for management of that length of coastline and re-development of the harbour. (The MTR understands that PACC Cook Islands is already addressing these issues, after they were raised in the PACC CBA exercise).
- b. In **Kosrae**, “climate proofing” the road has required larger drainage culverts and a raised road base to be specified. However, there is no overall design for these works and no available documentation of how climate change modelling data were applied, and what engineering standards were used to determine culvert specifications, etc.
- c. In **Samoa**, the PACC project has virtually completed implementation of the pilot projects, rock sea walls at three village sites, yet the works have apparently been done with only a simple standard engineering drawing for guidance, and were designed without apparent up-to-date advice on sea level or storm wave action. No design document was prepared to detail the specifications of the coastal adaptation works to be done. On technical grounds, the works carried out have been inadequate: the seawalls are longer than recommended in the CIM Plans and have been constructed in isolation rather than as

part of broader ecosystem based coastal management; the impact of the rock wall construction is already apparent, particularly on wave energy translation and sediment transport on the areas adjacent to and below the rock wall.

PACC Samoa has also completed the first draft of the Demonstration Guide (Output 2.1) – “to provide a comprehensive explanation of how to... implement... adaptation measures... in order to build capacity for implementation of similar future projects.” The MTR recommends that the draft should be strengthened in the remainder of the project. It will be important to include information about modelling of climate change and sea-level rise impacts at the selected sites; a rigorous analysis of the planning process and design decision making; an account of the engineering standards applied; and the results from monitoring the effectiveness of the adaptation measure in practice.

- d. PACC **Vanuatu** has not prepared an overall strategy or a detailed plan of what is to be done on the coast of Epi island. The PWD is producing engineering drawings of different components of the works – airstrip planting, beach erosion controls, road design profiles – and it will be important following the MTR for the project PMU to reappraise and plan how these might contribute to an effective climate adaptation strategy for the area of coastline being targeted.

MTR Recommendations for PACC Coastal Management Projects

PACC Cook Islands – MTR Recommendations

PACC Cook Islands is focused on re-development of the Mangaia Island Harbour to enhanced design specifications, with the aims of strengthening the durability of the infrastructure to withstand more intense storm waves and raised sea levels, and extending its accessibility and operational utility in stronger wind and wave conditions.

1. Case Study documentation: the project must strengthen the documentation and evaluation of the processes that have been followed for re-development of the harbour within an island/ coastal zone management, development and adaptation plan. Major steps requiring documentation and evaluation have included a) assessment, research, survey and community consultation; b) application of the Coastal Calculator to determine the storm, wave and sea level conditions that the harbour design and structure must allow for and must withstand; c) specification of performance standards that must be met; d) engineering design for the harbour re-development; e) construction management and commissioning.
2. Financial planning and management: the project must prepare a rigorous and transparent financial plan for all aspects of the harbour re-design and re-construction, with the surrounding coastal management planning and implementation.
3. Additional attention needs to be given to the following:
 - a. Preparation of a coastal zone management, development and adaptation strategy for Mangaia; with the harbour re-development plan as a major integral part.
 - b. Immediate establishment and operation of environmental monitoring program over the coastal area and harbour site; with baseline and historic record established.

PACC Kosrae, FSM – MTR Recommendations

The relevance and effectiveness of the PACC project in Kosrae have been limited by the early decision to “climate proof” new sections of the island’s coastal road, rather than develop a broader strategy to plan and demonstrate effective climate adaptation measures in coastal zone management.

1. The PACC project should be used to prepare a comprehensive Coastal Management Adaptation Strategy for Kosrae, planning adaptation of all aspects of Kosrae’s coastal land-

use, management, conservation and development to climate change impacts, in broad stages for the next 30-50 years. This should be integrated with actions to be supported under the CCCPIR.

2. Within the CMAS, the PACC project should be used to support design and demonstration of a broad range of climate adaptation measures for Kosrae's coastal zone management: for roadway planning and design standards; coastal zone building development; shoreline/ beach management; solid and sewage waste management; water and power distribution grids; coastal vegetation, coastal land, gardening/ farming.
3. As part of CMAS planning, and modification of the State's Infrastructure Development Plan, there should be a review of the wisdom, necessity and value of constructing a complete circumferential road around Kosrae, given the geography, ecology and economy of this island, and the likely future climate change and sea level rise impacts. The PACC project should not continue to facilitate construction of the incomplete Kosrae coastal road sections RS3-4. It is inappropriate use of GEF funds. Through KIRMA, PACC should design, advise on and facilitate the development of the partially constructed Tafunsak roadway into a low impact "green lane" walking and bike track and single light vehicle track, with minimal environmental impact, and landscaping and rehabilitation of the roadway edges and margins; any construction should be lightweight and low-impact, and not paid from PACC/ SCCF funds.
4. The PACC project should contribute its experience and knowledge to formulation of a comprehensive long-term climate adaptation strategy for FSM (each of the four States), as a framework within which multiple agencies and projects can work efficiently and effectively, subsidiary to the National Climate Change Policy.

PACC Samoa – MTR Recommendations

The PACC project in Samoa has not followed rigorous decision-making processes a) to assess coastal vulnerabilities and plan coastal adaptation strategies, building on the District CIM Plans; and b) to plan, design, implement and monitor the effectiveness of the pilot adaptation measures implemented at three sites. Instead, sea walls have been constructed, which were not as recommended in the relevant CIM Plans, and which are not technically sound and appropriate coastal resilience building measures. The work done to date should not be extended, but it is worthwhile to properly monitor, document, analyse and draw lessons from what has been done.

1. The PACC project should prepare a project plan, work plan and integrated results-based budget to complete the existing three adaptation demonstration pilots, with the following components. No PACC work or funding should be extended to other pilot sites:
 - a. Working with PPCR, PACC should support preparation of an integrated coastal zone management and climate adaptation strategy for each of the two Districts it has targeted, incorporating and expanding on the respective CIM Plans.
 - b. The PMU should design, install and implement a model coastal monitoring system for the two Districts and three PACC pilot sites.
 - c. The project should extend work with the local communities in the selected Districts to develop a long-term strategy for adaptation to climate change in the coastal zone, which needs to tackle the reality that progressive relocation away from the existing coastline will be required as sea level rises.
 - d. It will be valuable for PACC Samoa to conduct and document a careful objective appraisal of the successes and shortcomings in the process followed by the project at the three pilot sites and apply the lessons to 1a. above and to the development of the draft Demonstration Guide.
2. The PACC PMU within MNRE should contribute its experience and lessons to support establishment of and to participate in a national institutional framework and programmatic

focus to climate change adaptation that is currently being developed in Samoa with the support of PPCR.

PACC Vanuatu - Recommendations

The PACC project in Vanuatu has not progressed, in the absence of a clear strategy, project logical framework plan, and functional project administrative arrangements with SPREP and UNDP.

1. PACC should prepare a fresh project strategy and plan to govern and guide implementation of PACC in Vanuatu. It should encompass both PACC and PACC+, and should be planned for implementation over a sufficient number of years to achieve its purpose with a suggested minimum duration of 4 years. Work on preparing the fresh strategy and plan should be started in Q4 2012 – Q1 2013. The revised project plan should include a revised budget, aligned to the project outputs framework, and integrated with co-financing that will be required for major development components.
2. NACCC (MGD and PWD) should strengthen the management and execution of PACC Vanuatu, with a PACC Task Force under the Climate Unit, to coordinate the line agencies' execution of PACC project actions. Recruit a full-time PACC executive officer to strengthen the PACC PMU, to work under the direction of the PACC Coordinator in PWD and closely with the NACCC PMU.
3. The project should be re-designed to achieve the broad purpose of demonstrating climate-resilient coastal management on Epi island, within the context of developing a coastal zone management and adaptation strategy, and with specific adaptation demonstration components for coastal infrastructure and coastal and marine ecosystem management.
4. The plan should include a proposed second coastal management and adaptation location, to be implemented in parallel with cross-learning, with the Epi Island site. PACC+ funds should be proposed for the coastal adaptation planning and design components of the second location; and again co-financing should be integrated into the budget for any infrastructure development costs.