UNDP Project Document

Governments of The Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

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Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries

The geographic scope of this regional project covers the Pacific Ocean, focussing on 14 Pacific Island Countries. The **Goal** of the project is aligned with the GEF Pacific Alliance for Sustainability umbrella program and will '*contribute to sustainable development in the Pacific Island Region through improvements in natural resource and environmental management'.* The overall **Objective** is '*to improve water resource and wastewater management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resource Management (IWRM) and Water Use Efficiency (WUE) plans'*. This will be based on best practices and demonstrations of IWRM approaches.

The project is consistent with the GEF IV strategic objective for International Waters: (a) '*to play a catalytic role in addressing transboundary water concerns by assisting countries to utilize the full range of technical assistance, economic, financial, regulatory and institutional reforms that are needed'*, through supporting and building on existing political commitments and through promoting sustainable water use and improved water management now, making it easier to address the challenges of the future as climatic variability affects water resources further. More specifically the project will deliver outcomes under GEF IV Strategic Programme III (SP-3) through working with communities to address their needs for safe drinking water and other socio-economic benefits of sustainable and safe water resources, including balancing environmental requirements with livelihood needs. The project will deliver across a range of MDG targets using IWRM approaches (MDG 7) as the wider development entry point, and will help countries utilize the full range of technical, economic, financial, regulatory, and institutional measures needed to operationalise sustainable development strategies for waters and their drainage basins (both surface and ground water).

The project consists of four components. **Component C1** will use country-driven and designed demonstration activities focusing on sustainable water management to utilize Ridge to Reef IWRM approaches to bring significant environmental stress reduction benefits. Demonstration projects will act as catalysts for replication and scaling-up approaches to improve national water resources management, and regionally to support the Pacific in reducing land based pollutants from entering the ocean. **Component C2** will develop an IWRM and WUE Regional Indicator Framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as an entry point. **Component C3** will focus on Policy, Legislative, and Institutional Reform for IWRM and WUE through supporting institutional change and re-alignment to enact National IWRM Plans and WUE strategies, including appropriate financing mechanisms and supporting and building further political will to endorse IWRM policies and plans to accelerate and support pre-existing SAP and other Pacific Regional Action Plan work. **Component C4** provides a Regional Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication.

The duration of the project will be five years and will be supported by a number of other regional projects and programs as co-financers totalling over $80m.

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Acronyms

ACP	Africa, Caribbean and Pacific
ADB	Asian Development Bank
BPoA	Barbados Plan of Action
CBD	Convention for Biological Diversity
CoP	Conference of Parties
CSD12	Commission for Sustainable Development (Conference No. 12)
EA	Executing Agency (of GEF)
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agricultural Organisation (United Nations)
HYCOS	Pacific Hydrological Cycle Observing System
GDP	Gross Domestic Product
GEF	Global Environment Facility
GWP	Global Water Partnership
IA	Implementing Agency
ICM	Integrated Coastal Management
IWCAM	Integrated Coastal and Watershed Management
IW: LEARN	The International Waters Learning Exchange and Research Network
IFC	International Finance Cooperation (World Bank)
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LBS	Land-Based Sources (of Pollution)
LDC	Least-Developed Countries
LME	Large Marine Ecosystem
MEA	Multinational Environmental Agreements
NEAP	National Environmental Assessment Plan
NGO	Non-Governmental Organisation
OP	Operational Programme (of GEF)
PDF	Project Development Facility (of GEF)
POPS	Persistent Organic Pollutants
SIDA	Swedish International Development Agency
SIDS	Small Island Developing States
SOPAC	South Pacific Applied Geoscience Commission
SBAA	Standard Basic Assistance Agreement
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
WF	Water Facility (of EU)
WHO	World Health Organisation
WSP	Water and Sanitation Programme
WSSD	World Summit on Sustainable Development
WUE	Water Use Efficiency

SECTION I: Elaboration of the Narrative

PART I: Situation Analysis

Context and Global Significance

1. Pacific Island Countries (PICs) vary considerably in their size, geomorphology, hydrology, economics and political approaches. The Pacific region has a wide variety of island types ranging from the large, high volcanic islands characteristic of Papua New Guinea to the tiny low coral atolls of Kiribati and the Marshall Islands in Micronesia. Some PICs consist of a few relatively sparsely inhabited islands while others have much more densely populated island groups. Niue, a single 259 sq. km. Island (and one of the world's smallest self-governing states) with a population of less than 2,000 has no natural surface water features and is entirely dependent on rainfall harvesting and groundwater. In contrast, Papua New Guinea with a population of over 5.5 million and an area of nearly half a million sq. km has more than 11,000 km of waterways, including several large river systems. Consequently, there is a need for a variety of different water governance and resource management strategies and approaches focusing on different scales, and different levels of capacity and need to protect and manage the freshwater environment in PICS, including understanding the links and mitigating the negative effects of land based pollutants entering coastal receiving waters.

2. Despite the different size, resources, and level of development across the Pacific region, PICS do share some common environmental features that can have a profound influence on their development. Geographically, many of the island countries are small, low-lying and isolated which makes them vulnerable to climatic influences such as storms, drought and sea-level rise. Yet many of these same islands are globally significant with regard to biodiversity. Small islands may have relatively limited biodiversity from the point-of-view of species number but, by virtue of their isolation, they are frequently high in rare and endemic species. Pollution levels are generally higher in poorly-developed small islands as a result of lack of infrastructure and options for storage, as well as the frequently porous nature of soils and rocks. The water-related ecosystems and critical habitats associated with International Waters are integrated parts of island ecosystems. International Waters extend far inland and far out to sea. This is due to the nature of the global hydrological cycle linking watersheds, estuaries, and coastal and marine waters through transboundary movements of water, pollutants, air and living resources. The UN Development Assistance Framework (2008-2012) highlights the need for economic growth, poverty reduction, and sustainable environmental management as key development outcomes for Pacific Small Island Developing States (SIDS).

3. The ability of SIDS to manage their resources and ecosystems in a sustainable manner while sustaining their livelihoods is crucial to their social and economic well being, and is clearly directly related to GEF's mandate for protection and sustainable management of biodiversity and international waters[1]. In SIDS the majority of the population dwells on and earns a living from the coast. This concentrates pollutants and other environmental degradation along the coastal strip, the estuarine environment and inshore marine areas. The small and fragile ecosystem nature of small islands has resulted in low ecological resilience to pollutants and changing land-use practices. This is of immediate concern to countries that are endowed with naturally rich terrestrial, coastal and marine biodiversity. The Pacific contains the most extensive system of marine habitats globally (especially coral reefs) which are critical to maintain biodiversity. These habitats play a number of different roles, and are recognised as being globally significant as natural filters of land-based pollution and as natural protection against storms and sea level rise. The natural filters help maintain the health of

[1] The project is consistent with the GEF IV Strategic Objective to address transboundary water concerns, and specifically under GEF IV Strategic Programme III (SP-3) focusing on addressing overuse and conflicting uses of water resources (with a specific focus on SIDS to protect community surface and groundwater supplies).

offshore waters, ecosystems and associated species including oceanic fisheries through their function as breeding, nursery, and feeding grounds.

4. Waste from coastal cities and harbours causes pollution in the coastal water environment and also the wider marine ecosystems in which they are eventually discharged. Ocean currents along the coasts on which human development occurs carry pollution through deeper waters, affecting neighbouring islands (often neighbouring countries in the Pacific) and further to the continental shelves. The impact of this pollution can cause public health hazards, destroy breeding grounds of coastal and marine fishes and have serious negative effects on biodiversity. The full impacts of these pollutants are not well known[2]. What is clear is that the use of agricultural fertilisers, increasing livestock numbers, deforestation of unique catchments and increased sedimentation, increasing coastal dwellings and human sewage all impact the nitrogen cycle, increasing the loading of pollutants into coastal waters and creating marine 'dead zones' where oxygen is depleted and water quality is severely restricted. Within the last two decades or more, the special needs of SIDS have been recognized through a number of globally significant conferences and high-level international meetings.

5. The United Nations Conference on Environment and Development (Rio de Janeiro, 1992)[3] made one of the earliest references to the particular vulnerability of Small Island States to global environmental changes, and highlighted their special needs within the Global Agenda 21, the international programme of action for achieving sustainable development within the 21st Century. Agenda 21 recommended that a global conference and periodic meetings on the sustainable development of SIDS should be convened. In recognition of this recommendation, the international community and the SIDS governments met in Barbados in 1994 and adopted the Barbados Programme of Action (BPoA)[4]. The BPOA was therefore born out of the Global Agenda 21 and consists of specific actions and measures to support sustainable development of the Small Island Developing States (SIDS).

6. In 2002, the international community convened at the World Summit on Sustainable Development (WSSD), in Johannesburg[5], to review the Global Agenda 21. Once again, SIDS were high on the agenda and the World Summit issued a number of statements related to SIDS that identified priorities, and requested that global resources be targeted to address these priorities. The Johannesburg Plan of Implementation identified the need for actions at all levels to urgently assist SIDS in the removal of constraints preventing sustainable development within the context of sound environmental management. The requirements adopted by WSSD which are relevant for SIDS include:

- The need to provide support, including for capacity-building, for the development and further implementation of freshwater programmes for Small Island Developing States, specifically the Global Environment Facility focal areas; and
- The need to provide support to Small Island Developing States to develop capacity and strengthen efforts to reduce and manage waste and pollution and building capacity for maintaining and managing systems to deliver water and sanitation services, in both rural and urban areas.

[2] The impact of land based pollution is most often visually seen and therefore understood in coastal and shallow water areas. However, the area of ocean comprising the Coral Triangle, for example, contains 75% of all the coral species known to science, more than 3,000 species of reef fish and commercially important pelagic species, six of the seven species of turtle, migrating populations of whale sharks and manta rays and a number of marine mammals, the effects on which land based pollution is not well known (*WWF – The Coral Triangle – The centre of marine biodiversity*).

[3] Report of the United Nations Conference on Environment and Development. Rio de Janeiro. 3rd-14th June, 1992. (United Nations publication Sales No. E.93.1.18 and corrigendum).

[4] Report of the Global Conference on the Sustainable Development of Small Island Developing States, Bridgetown, Barbados. 25th April–6th May 1994. (United Nations publication Sales No. E.94.1.18 and corrigenda)

[5] Report of the World Summit on Sustainable Development. Johannesburg, South Africa. 26th August–4th September, 2002. (United Nations Publication Sales No. E.03.11.A.1 and corrigendum)

7. The WSSD also re-confirmed the international community's support for the UN Secretary-General's Millennium Development Goals (MDGs). Among other commitments of support to developing countries, the MDGs adopted the target to halve by 2015 the number of people without access to basic sanitation, and to halve by 2015 the proportion of people without sustainable access to safe drinking water.

8. Furthermore, a new target to develop integrated water resources management and water use efficiency plans by 2005 was adopted, although this ambitious target has made little progress in many countries. In January 2006 UNEP published their plan to support countries in developing national IWRM plans[6] to help move this process forward through supporting networks and partnerships, and providing road-mapping and sector assessment support.

9. In January 2005, the international community met in Mauritius to discuss and review achievements within the BPoA (SIDS +10). The meeting renewed the international commitment and pledges to the MDGs as they relate to SIDS, and adopted the Mauritius Strategy for Further Implementation of the BPoA. This Strategy addresses the issues relating to SIDS and freshwater resources. It notes that:

> *'SIDS continue to face water management and water access challenges, caused in part by deficiencies in water availability, water catchment and storage, pollution of water resources, saline intrusion (which may be exacerbated, inter alia, by sea-level rise, unsustainable management of water resources, and climate variability and climate change) and leakage in the delivery system. Sustained urban water supply and sanitation systems are constrained by a lack of human, institutional and financial resources. The access to safe drinking water, the provision of sanitation and the promotion of hygiene are the foundations of human dignity, public health and economic and social development and are among the priorities for SIDS'.*

10. The strategy continues by explaining the cooperative commitments made between SIDS in the Caribbean and Pacific region (the Joint Programme of Action for Water and Climate), and reaffirms the need to take further and stronger action toward meeting the relevant MDGs, and calls upon GEF to assist in particular with capacity building for the development and further implementation of freshwater and sanitation programmes, and the promotion of integrated water resources management.

11. GEF is already providing assistance on related issues to a large number of SIDS within the Caribbean through the Integrating Watershed and Coastal Area Management in SIDS (IWCAM)[7], and is currently developing similar assistance initiatives targeting the Atlantic and Indian Ocean SIDS with support from the European Union Water Facility. SOPAC and CEHI (Executing Agency for the GEF IWCAM project) have signed an MoU and are already sharing information regarding communication approaches, demonstration project design and implementation. The SIDS network will be instrumental in the development of SIDS IWRM guidelines and exchange of best practices and appropriate technologies. Existing inter-regional collaboration between SIDS from the Pacific, Caribbean, Indian and Atlantic Oceans (at the 3rd World Water Forum and SIDS meeting in Mauritius) has already established a close working partnership between SIDS. South-South collaboration is guided by a Joint Programme for Action (JPfA) endorsed by SIDS regions at the 3rd World Water Forum.

12. The inclusion of the Pacific Region into the GEF SIDS portfolio will effectively ensure that all GEF-eligible global SIDS are receiving a substantial level of assistance to address their more pressing issues related to water resources management and efficient use within the context of the GEF Operational Strategies and WSSD IWRM/Water Use Efficiency targets.

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[6] UNEP Support for Achieving the IWRM 2005 Target – "Accelerating the Process". January 2006, UNEP Collaborating Centre on Water, Denmark.

[7] http://www.iwcam.org/

13. Water availability at both surface and ground level is generally unreliable unless suitable storage facilities and management regimes have been adopted. The relatively short length of access to surface water flows (compared to larger islands and continental countries) limits opportunities for abstraction and for storage methods. The strong dependence on agricultural production (for domestic demand and export) places a priority on expansion in this sector by any means available. This creates pressures on the relatively small areas of critical habitat available on these small islands which are in high demand for cultivation and livestock, and which are then heavily fertilised and dosed with pesticides resulting in chemical pollution throughout small island watershed systems. In some cases, prioritisation and subsidisation of water for irrigation then exacerbates water shortages and problems related to environmental flows. In addition, there is frequently an absence of effective water storage and distribution, inappropriate allocation and abstraction, and an absence of long-term planning for water resource conservation. All of these concerns and many other closely related issues threaten water resources management and efficient use within the participating PICs.

14. Many of the Pacific SIDS therefore share similar problems with regard to water management and conservation, land-based sources of pollution, and issues of environmental flow relating to habitat and ecosystem protection. It is further recognised that SIDS have specific concerns related to climate change and sea level rise. SIDS also have specific needs and requirements when developing their economies. These are related to small population sizes and human resources, small GDPs, limited land area and limited natural resources.

15. In acknowledgment of this vulnerability and the particular needs of small island countries, the Sustainable Integrated Water Resources and Wastewater Management (IWRM) programme has been formulated to addresses sustainable water management in Pacific Small Island Developing States. The IWRM Programme will support the GEF-PAS in contributing to the development in the Pacific Islands Region through improvements in natural resource and environmental management, reflecting country priorities to address water and land development issues in the International Waters focal area in relation to SIDS, while also delivering significant global environmental benefits. IWRM is a relatively new approach in the Pacific Islands. Yet, the concept and approaches it embodies; the need to take a holistic approach to ensure the socio-cultural, technical, economic and environmental factors are taken into account in the equitable development and management of water resources - has been practised at a traditional level for centuries in the Pacific Island Countries.

16. The notion that all activities affect each other, given the very small landmasses involved in the Pacific, is well understood by people living in the islands. The concept of competing land pressures, the choice of whether to use precious land for agriculture, water reserves, a school or recreation area, are appreciated at the household, village and wider community level. In particular, every coastal village community understands the connection between activities on the land and in the sea, as they impact on freshwater, fishing stocks and coral reefs. Pacific Island Countries are especially vulnerable to cyclone and drought events. The small size of the catchments, shallow aquifers and lack of natural storage affects all water users from urban and rural water supplies, commercial forestry, subsistence agriculture, and the fisheries/reefs and tourist developments.

17. The need for both drought and disaster preparedness plans are recognised as national priorities in many Pacific Island Countries. Additional mounting evidence has suggested that pollution on land from inadequate wastewater disposal, increased sediment erosion and industrial discharges are detrimentally impacting coastal water quality and in turn damaging reef ecosystems and fishing stocks which sustain entire island populations. This has led to changing managing practices to not only consider the watersheds and groundwater, but also the receiving coastal waters. Within the Pacific this concept is referred to as water management from *Ridge to Reef*.

18. Recently Pacific Island leaders agreed that sustainable development should be one of the four goals in the *Pacific Plan*, with improved natural resource and environment management as a strategic objective. Identified actions include the development and implementation of enabling environments

at the national level, principally national sustainable development strategies based decision-making processes; the development and implementation of national and regional policy on sectoral and cross sectoral issues, including fisheries, land, waste management, biodiversity conservation, energy, climate change, and disaster risk management; and facilitating access to appropriate financing for environmental initiatives including through the GEF. Fresh water impacts upon all the cross-sectoral issues identified in the Pacific Plan, from fisheries to disaster risk management.

19. The aim of this regional project is to improve water resource and wastewater management and water use efficiency in Pacific Island Countries to balance over and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans based on best practices and demonstrations of IWRM approaches. The project will use country-driven and designed demonstration activities focusing on sustainable water management to utilize Ridge to Reef IWRM approaches to bring significant environmental stress reduction benefits. Demonstration projects will act as catalysts for replication and scaling-up approaches to improve national water resources management, and regionally to support the Pacific in reducing land based pollutants from entering the ocean.

20. The project will work within the Pacific Region with the following countries: the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Figure 1 shows the geographical area of the project, the countries involved, and the title of each national Demonstration Project.

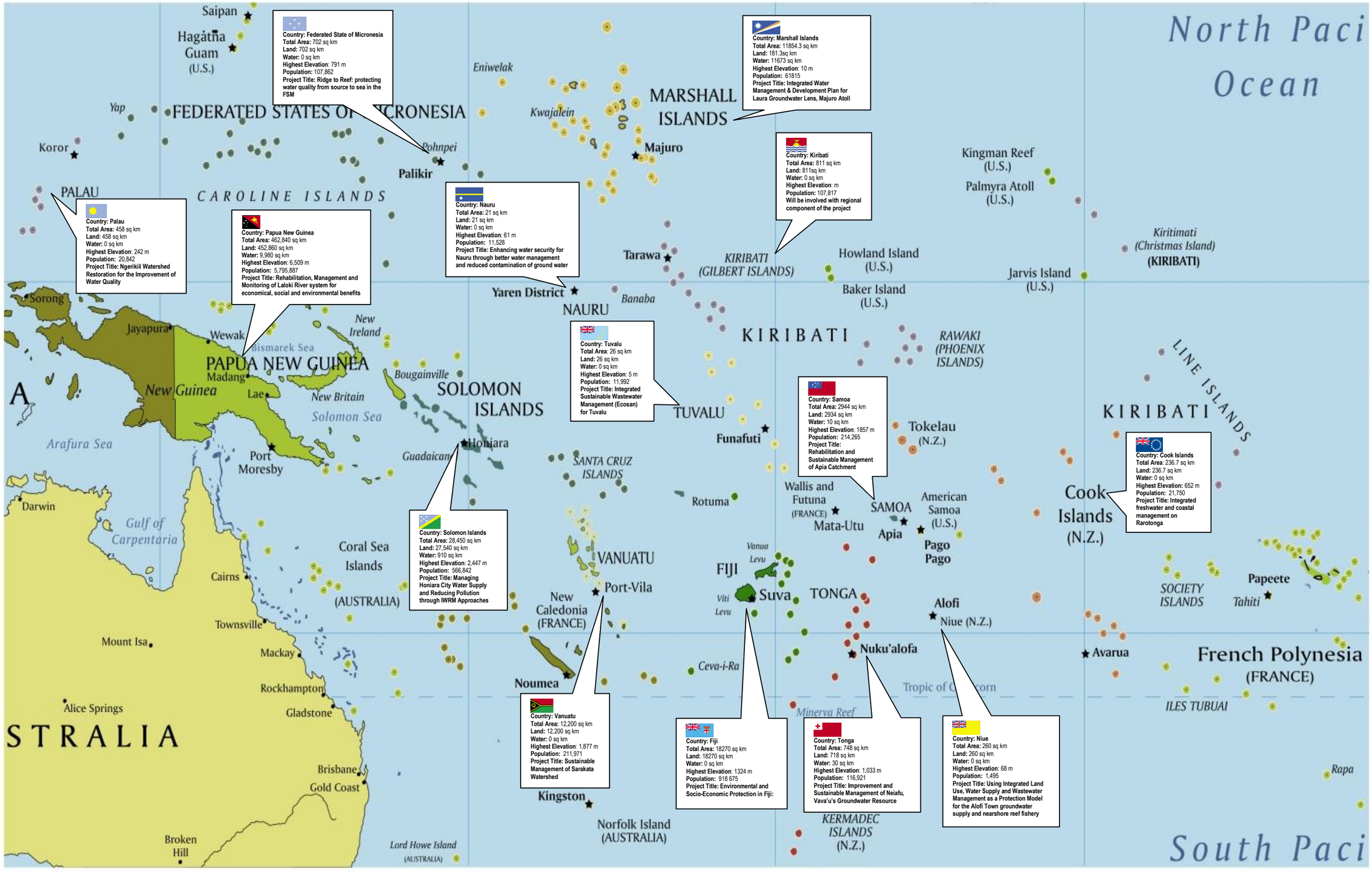


Figure 1: Pacific Island Countries involved in the Sustainable Integrated Water Resources and Wastewater Management (IWRM)
Demonstration Project Titles are also presented

Threats, root causes and barriers analysis

Threats

21. Pacific SIDS (Small Island Developing States) currently face serious water resource and environmental stress issues - challenges that continental countries are likely to face in coming decades. Combined with limited human and financial resources SIDS are faced with finding innovative and locally appropriate and adaptive solutions to address these challenges.

22. The Strategic Action Programme (SAP) for the International Waters (IW) of the Pacific Islands (1997) developed a strategy for the integrated sustainable development and management of IW to address the priority concerns for PICs. The SAP proposed the need to address the root causes of degradation of IW through regionally consistent, country-driven targeted actions that integrate development and environment needs and promote good governance and improved knowledge approaches. Although separated by vast distances, Pacific Islands are linked and controlled by the wider freshwater and marine environment.

23. The SAP identified a variety of priority concerns for PICs from:

(1) pollution of marine and freshwater (including groundwater) from land-based activities;
(2) physical, ecological and hydrological modification of critical habitats; and
(3) unsustainable exploitation of living and non-living resources.

24. Pacific Island Countries have agreed more specifically on the principal environmental concerns for the region as:

1) Degradation of land include deforestation (high islands), agro-deforestation (high and low islands), soil erosion and coastal erosion;
2) Degradation of freshwater quality;
3) Degradation and loss of habitat;
4) Proliferation of waste in various forms on land and into fresh and marine waters;
5) Depletion or loss of coastal/inshore living marine resources and other species.

25. The majority of the issues identified in the SAP are transboundary in nature, as these issues are common across all SIDS across the Pacific. The prevalence of these issues is likely to have serious detrimental and cumulative effects on International Waters, seriously impairing the health of small islands ecosystems, and the fresh and marine water environment.

26. Table 1 summarises the key environmental threats to the Pacific Region as identified by the SAP Process. Water and climate related threats are the focus of the Pacific Regional Action Plan of Sustainable Water Management (Pacific RAP). The Pacific RAP focuses on turning key threats into sustainable solutions through a series of key actions, agreed to by 16 Heads of State in the Pacific Region. All Pacific Island Countries involved in this project, utilising their National Water Advisory Groups/Committees, identified the threats to their water based environments as part of the Global International Waters Assessment Process to identify the root cause and barriers to reversing environmental stress and to address water resources issues (see Table A1 in Annex 1). This information was presented in National Hot-Spot Analyses, Diagnostic Analysis Reports, and in the IWRM Synopsis in Pacific Island Countries report. Further information on Threats identified by each country can be found in Table A2, Annex 1.

27. During the project design phase, Pacific Island Countries identified that their available water resources were of very limited size, mostly due to small land mass areas and close proximity to coastlines. In the more populated areas, population densities (especially on capital atoll islands) can become so great that water demand exceeds water availability. In some volcanic islands competing water demand in urban catchments results in complete loss of stream flows and degradation of downstream users supplies. Water quality degradation in urban areas, and especially in low-lying

atoll islands (where groundwater is <1m below ground surface) from numerous dispersed sources is widely sited.

Table 1: Key Environmental Threats to the Pacific Region

Threats to:	**Threat 1**	**Threat 2**	**Threat 3**
1. Critical species and habitats consist of several forms of land based pollution	• Nutrients derived from sewage, soil erosion and agricultural fertilisers due to changing land-use practices and urbanisation (contributing to the pollution of surface and groundwater) • Nutrient overloads particularly affect coral reef ecosystems, weakening the reef carbonate skeleton and smothering the reef with alga • Solid-waste disposal and sedimentation. Sedimentation is derived from soil erosion, dredging, coastal development, and upstream, inland activities including depletion of forest resources and related habitat destruction	• Physical alterations of the sea-bed or coastline in particular through destruction of fringing reefs, beaches, wetlands and mangroves for coastal development and by sand extraction	• Overexploitation from overfishing (esp. urban areas). Weakened natural marine ecosystem resilience in the face of chronic threats such as overfishing, pollution, elevated nutrient levels and sedimentation. Mitigating these threats is vital for species and habitats themselves, but also for the sake of the overall health of fresh and marine systems*
2. Living marine resources	• Over-exploitation of inshore fisheries exacerbated by destructive fishing methods, including explosives and various types of toxic compounds	• Chronic environmental degradation with gradual rather than sudden changes in the resources, making the relationship between cause and effect less obvious and transparent, reducing the likelihood of timely and appropriate action being taken	
3. Non-living resources, specifically the quality of both fresh and marine waters	• Threat from land based sources of pollution. These derive in particular from sewage and poor sanitation practices, sediments (soil erosion, agriculture, forestry, poor land-use practices), urban run-off, agro-chemicals, and solid waste • Dwindling supply and quality of freshwater resources • Groundwater is at particular risk because its loss or degradation is often irreversible	• Beaches, reef-flat sand and coastal aggregates are threatened by overexploitation. Extraction rates far exceed natural replenishment rates • Degradation of the coastal and marine resources that form the ecological and economic foundation of many Pacific communities	

Notes: Information taken from the *Strategic Action Programme for International Waters of the Pacific Islands Region* and the ADB *Pacific Region Environment Strategy*. * Pollutants enter the sea through streams, rivers and groundwater. Pollution of fresh water leads to the pollution of coastal receiving waters, and in lagoon environments with limited marine flushing, the effects can be exacerbated. For further information see Hajkowicz, S., and Okotai, P. 2006. *An Economic Valuation of Watershed Pollution in Rarotonga, The Cook Islands*. IWP-Pacific Technical Report no.18.

28. The majority of urban areas in the Pacific are supplied with water by urban service providers. A shortage of technical capacity, as well as inadequate funding, is often sited in the reports as the reasons behind high water losses (leakages, theft, poor metering) in the systems. However, in some countries per capita household demands are still excessively high, despite water conservation campaigns. Water treatment plants often operate beyond their design limits, and fail to cope with high flows, especially during periods of high turbidity. A lack of sufficient drinking water quality monitoring in many countries then fails to ensure these problems are resolved quickly. Water treatment plants are often unable to cope with the demand due to poor infrastructure, lack of financial and human resources, and expanding populations.

Root Causes

29. Pacific Island Countries recognise that their water resources are small in size, and that due to this small size they are highly vulnerable to climate variability. Time lags between a climatic extreme and a water shortage could be as small as a week for countries entirely reliant on rainwater, or up to a month for those reliant on surface water, and even six months for some groundwater bodies. Flooding, especially that associated with cyclonic rainfall events, can be near instantaneous, and outside of Papua New Guinea, arrive less than 6 hours after the rain storms. The ability to manage such rapid on-set of drought and flooding (sometimes concurrently) within countries is limited.

30. Populations of PIC's are small in global terms, ranging from around 5 million in PNG to less than 2,000 people in Niue. The majority of countries have a population of between 50,000 to 200,000. The comparatively small size of populations and the lack of natural resources is a severe constraint to economic growth in most countries, and creates particular governance and management challenges. The constraint of geographical isolation limits trade between the region and other regions, between countries and within countries. Distance also imposes high costs and limits interchange in such fields as education, health and professional disciplines, all of which are important to the water sector.

31. The region has great diversity and complexity in population, as well as socio-cultural features and economic conditions among three geographic divisions, namely, Melanesia, Micronesia and Polynesia. While the scattered islands in the Pacific region contrast in their socioeconomic settings, geography, culture and resource base, high rates of urbanisation and an absence of urban management practices, skills and commitment to comprehensively tackle urban problems are commonplace. The growing need for effective urban management will become one of the most significant development issues for Pacific Island Countries in the 21st century as governments and communities are unable to keep pace with rapid urban growth. In some parts of Polynesia and Micronesia, population growth is almost completely offset by emigration. This reflects the related socio-cultural concern resulting from small size and isolation – the difficulty of retaining active and younger people, particular those who wish to receive or are educated to higher levels. On average, approximately 40% of the Pacific population now live in urban areas, a trend that is increasing[8]. National urban growth rates are 50 to 100% higher than overall national population growth rates (which are high at av. 2-3% p.a.). Education, lifestyle choices, increasing centralisation of government sector bureaucracy, moderate industrialisation and private sector development have all fuelled the population movement to cities and towns, further reflecting the permanency of the rural urban migration.

32. In addition to urban population growth, squatter settlements are increasing and housing densities continue to rise, domestic household and industrial waste is increasingly visible as collection systems (if they exist) try to match supply. Access to basic water, sanitation and road infrastructure cannot keep up with the demand for services, with peri-urban land tenure issues and the temporary nature of settlements making the situation difficult to manage. The rate of urbanisation will stretch the capacity of PICs to keep pace with basic services (water supply and sanitation), increasing urban and wastewater pollution, urban and peri-urban land degradation and water degradation from inadequately controlled development, and the difficulty of applying measures for effective water management.

33. Resolving land tenure issues and balancing traditional customary rights to land with those of the 'public interest' is a recurrent theme that lies at the heart of many attempts to improve both urban management and land planning generally throughout the Pacific. This includes the planning and protection of water resources including water catchments and groundwater lenses. However, the reality is that both urban and non-urban environments are increasingly fragile and under enormous pressure for change from both population and development pressures. The need for governments and communities to work together to find new solutions to improve the quality of life is now paramount.

[8] Carpenter, C., and Jones, P. 2004. *An Overview of Integrated Water Resources Management in Pacific Island Countries: A National and Regional Assessment*. SOPAC Miscellaneous Report 554. Report prepared for the Global Water Partnership for CSD 12.

Successful IWRM and governance arrangements in the Pacific must incorporate an approach to land tenure and local accountability that adequately involves traditional decision-makers while at the same time enabling more modern forms of development to be introduced. The failure to deal directly with land tenure and traditional organisations has caused projects to fail in the past. Land tenure is relevant to water resources management and water governance because traditional ideas about land tenure and family and community rights can create complexity when it comes to identifying the right to take, use and manage water. Dealing with land and its underlying socio-cultural norms and values are an integral part of dealing with the governance of IWRM in PIC's.

34. The economies of PICs cover a mixture of sectors including natural resources (for example, forest products, marine fisheries) and minerals, although some PICs have minimal resources. Mining has been a dominant economic activity in some PICs, but has also brought serious environmental impacts in some cases. The exploitation of natural resources has not always been well governed, particularly in cases where external interests have dominated. Tourism is an extremely important contributor to many economies in the region, with the balance between tourism development and environmental sensitivity increasingly difficult to maintain. Tourism is a significant consumer of water in those locations where facilities have been developed, and may also contribute to the pollution of freshwater and marine waters. Large-scale tourism is seen by some as contributing to environmental degradation and causing concern about the environment. The pollution of water resources is of concern chiefly where the disposal of wastes is affecting freshwater lens and coastal marine waters. Within the Pacific region, commercially organised agriculture is a major part of national economies, with few exceptions. Copra is still an important sector in many countries as it supports and augments the village economy in rural areas. The sugar industry is important in Fiji. There is little irrigation in the region, partly because many PICs do not have land resources to allow agriculture as a significant sector and partly because irrigation is not a traditionally practiced activity.

35. In addition, the relatively recent independence of most PIC's means that they are attempting to establish national identities against their history of dominant external cultural and organisational forms inherited from colonial times. Such a process demands sensitive consultation with governments and officials on proposals for change. These factors will be taken into account in the implementation of the IWRM project through diplomatic and respectful engagement and participation. The most important social issue for IWRM and water governance generally is the need to ensure that water projects and management measures are designed and implemented in a consultative manner, so that clear understandings are negotiated with those who are affected or need to participate. If solutions are designed without respect for traditional cultural attitudes and social structures, commitment will not be obtained and long-term success and sustainability is unlikely. A lack of such cooperation and lack of understanding of the prevailing socio-cultural order has characterised many projects in the past. Such issues can also be a problem for officials of central government agencies in their relationship with regional and rural communities.

36. The region is highly vulnerable to general climatic factors such as the El Niño and La Nina cycles and climate variability and change. Climatic change will impact on water availability including the potential threat of sea level rise to low-lying islands and coastal zones. PICs exhibit significant differences in their territorial and physical characteristics, which are reflected in the characteristics of their water resources. The larger countries have elevated land (with some areas having high rainfall over 4,000 mm per year), other countries cover areas less than 100 sq miles, some comprising a single island only and some comprising numerous small low lying islands. Pacific Island surface water characteristics differ based on their geological formation. Perennial streams and springs occur mainly in high volcanic islands such as Samoa where the permeability of the rock is varied. Many streams are in small steep catchments and are not perennial. Some flow for several hours or days after heavy rainfall while others flow for longer periods but become dry in droughts. Freshwater lagoons and small lakes are not common but are found on some small islands. These can occur in the craters of extinct volcanoes or depressions in the topography. Low-lying coral islands such as Kiribati do not have fresh surface water resources except where rainfall is abundant. Many

small island lakes, lagoons and swamps, particularly those at or close to sea level, are brackish and not suitable for drinking water.

37. Groundwater is an extremely important water resource in the Pacific region, although volumes are limited in comparison to 'mainland' regions. Perched aquifers commonly occur over horizontal confining layers (aquicludes) in volcanic terrains. On many small coral and limestone islands, the basal aquifer takes the form of a 'freshwater lens' (or 'groundwater lens') that underlies the whole island but varies in width and depth. Basal aquifers generally have larger storage volumes but are vulnerable to saline intrusion owing to the freshwater-seawater and consequent seawater intrusion. When considering water resources management, PIC's may be grouped into those countries with: *(1)* low-lying islands in which surface water is limited or virtually absent apart from rainfall runoff, and *(2)* those islands with significant surface water resources, namely the 'high' volcanic islands and territories, such as Papua New Guinea (PNG), the Solomon Islands, Vanuatu and Fiji.

38. PNG, for example, has some of the wettest territory in the world, but also experiences prolonged dry spells in other low-lying and island areas, which are subject to El Niño climatic fluctuations. On small islands, where the only usable resource apart from rainwater is in the form of fresh groundwater lenses no more than several metres deep, the resource is highly vulnerable to damage through over-use or inappropriate use or pollution and degradation. Examples of atoll countries of this nature are Tuvalu, the Marshall Islands and Kiribati.

39. The region is subject to disasters caused by storm events, climatic disasters and may experience drought from time to time. Cyclone damage and droughts have been sufficiently severe to lead to calls for major international assistance by some countries – which have been affected by drought, loss or damage to water supplies, infrastructure damage or pollution of water sources resulting from the foregoing events. Niue and to a lesser degree Samoa most recently received international assistance for major damage from Cyclone *Heta* in January, 2004. In summary, there are common factors of concern in PIC's but also great variety in physical and hydrologic conditions including climate vulnerability. This is a feature that reinforces the need for a targeted approach to water issues from country to country within the Pacific region.

Barriers

40. Integrated Water Resource Management (IWRM) as an overarching national governance approach to water has not been widely used in the Pacific, although most PICs have made some advances in the water sector generally[9]. This includes institutional arrangements for water resources management and supply and the application of IWRM and catchment principles at the local and regional levels (including the development of partnerships). Across the Pacific Region it is important to take into account the cultural differences between PICs and the nature of the different water management issues they face. This includes the often different situations they face within the same country (especially between main and outer islands). IWRM and Water Use Efficiency (WUE) in PICs needs to work at local (community), national, and regional levels to address the fragmented sectoral and organisational approaches.

41. Regional, national and local partnerships are essential to sustain activities that promote change over the long term and to foster support and resources for new approaches. The Pacific Partnership on Sustainable Water Management played a pivotal role in the development and implementation of this project. The use of the Partnership is a unique approach for regional project implementation and many members have been identified as co-financers and capacity building support for this project.

42. The similarity of the water and environmental problems faced amongst Pacific Countries, and their solidarity on these issues is a vital component to ensure existing political will, the promotion of

[9] Carpenter, C., and Jones, P. 2004. *An Overview of Integrated Water Resource Management in Pacific Island Countries: A National and Regional Assessment.* Status Report for GWP – Integrated Water Resource Management (IWRM). SOPAC Miscellaneous Report 554.

action based on the SAP for International Waters, and the delivery of the Pacific Regional Action Plan on sustainable water Management (Pacific RAP) which builds on the SAP and identifies six key action areas:

(i) improving assessment & monitoring of water resources to reduce water pollution;
(ii) coping with island vulnerability;
(iii) improving communication, awareness and participatory action;
(iv) improving access to technologies;
(v) strengthening institutional arrangements; and,
(vi) leveraging additional financial resources.

43. Further information on the Pacific RAP is provided in Annex 2. As part of the project design activities water and environmental problems have been identified by the countries including: (i) limited water resources susceptible to over-exploitation and pollution; (ii) vulnerability to climate variability; (iii) insufficient political and public awareness of the role water plays in economic development, public health and environmental protection; (iv) high urban water losses, poor water conservation & inadequate drinking water treatment; (v) poor wastewater management resulting in widespread pollution; (vi) fragmented institutional responsibilities, weak policies, communication & coordination; (vii) conflicts between national versus traditional rights; (viii) inadequate financing due to poor cost-recovery and limited 'economies of scale'; and (ix) weak stakeholder linkages both within and outside the water sector.

44. Based on national and regionally identified needs for improved water resources management, building on SAP Priority needs and Pacific RAP consultations, this project is designed to assist countries in removing the barriers which limit the region in removing key environmental threats. The strategy for doing this is integrated water resources management (IWRM). The multiple nature of water resources and their uses needs to be reflected in a move away from traditional sector approaches to what has become known as integrated water resources management. At its most complex level IWRM involves cohesive decision-making concerning the development and management of water resources for various uses, with all decisions made and agreed upon by relevant stakeholders.

45. In many Pacific Island Countries there is limited understanding of the economic and public health importance of safe water at the political level, except during extreme periods such as droughts and flooding. As water is critically important to every sector, no one agency or sector has responsibility, the issue has no political champion, and the issue does not get the political support, be it budgetary, institutional or prioritisation that it requires. Similarly, whilst the public generally understands the value of water to their daily lives, it is either assumed to be always available or given insufficient priority over other issues (e.g. health, education, income), despite being implicitly important to achieving these more valued family goals.

46. There is currently little formal communication and coordination both at the planning and the implementation stages between departments, ministries and agencies across sectors when it comes to water resources allocation, usage, pollution prevention, monitoring and management (such as public health, fisheries, tourism, the environment, power generation, commercial enterprises). Where attempts at integration have been made, some have been overly ambitious (often following 'western' models) and have suffered due to poor political and institutional commitment. Improved capacity in countries is required to implement and sustain integration and coordination between sectors and this role is often an additional part of existing staff workloads.

47. Some countries have made progress in improving the linkages within their water sectors, including improved water providers, water resources protection agencies, and environmental health officers and departments. However, linkages beyond the water sector remain fragmented, with few formal or informal linkages at any level between the water sector and agriculture, forestry, tourism, power generation and environment. With so few linkages, the drive and purpose required for institutional reform is often lost and unsupported with resources, civil society demand or government drive. Furthermore, the lack of skills and systems in monitoring and evaluation, including indicator

development does not allow for progress to be monitored, and for lesson learning on what works and what does not work to take place. The need to link sustainable approaches together, and to learn from interventions, including multi-level and cross-sectoral approaches to understand cumulative effects and benefits remains an urgent need in PICs.

48. Within PICs there are traditional values, beliefs and rights that if not adequately recognised, considered, consulted and resolved may become significant if not insurmountable barriers to any forms of improved water and land management. The most obvious of these is the issue of customary land ownership, and the associated rights of land usage, access, purchase and even water usage. Many countries are aware as to how these conflicts can be resolved, usually through extensive community engagement, but for these approaches to work and be sustainable they require time and patience during implementation with longer term time scales to promote lasting change.

49. The size of the Pacific SIDS populations and economies prevents '*economies of scale*' being available, as they are in larger countries. The costs of operating a water service provider, a regulator, an environmental health department or a water resources agency, are higher per capita, thus resulting in limited human and financial resources available to fulfill these functions. Insufficient cost-recovery mechanisms due to cultural, political or technical reasons, by water and wastewater service providers contributes to under staffing, inadequate maintenance levels and ensuing water losses, water and wastewater treatment failures and pollution.

50. The majority of urban areas in the Pacific are supplied with water by urban service providers. A shortage of technical capacity as well as inadequate funding are limits the ability of the service providers to address the problems they face such as high water losses (leakages, theft, poor metering) in the systems, which therefore leads to unnecessary costs, temporary supplies, etc. However, in some countries per capita household demands are still excessively high, despite water conservation campaigns. Water treatment plants often operate beyond their design limits, and fail to cope with high flows, especially during periods of high turbidity. A lack of sufficient drinking water quality monitoring in many countries often fails to ensure these problems are resolved quickly. Water treatment plants are often unable to cope with the demand due to poor infrastructure, lack of financial and human resources, and expanding population pressure.

51. Furthermore, within the 14 countries involved in the project only a few capital areas have any sewerage systems, with the vast majority of the Pacific population dependent upon on-site sanitation systems, most of which are unmanaged and often ineffective. Groundwater pollution is wide spread, especially in the low-lying atoll countries. Of the capital areas serviced by sewerage systems, few work to the original design standards, discharging untreated or inadequately treated sewage effluent into the near shore environment and local fisheries. Inadequate wastewater management was identified as the single largest cause of freshwater contamination in the Pacific by the UNDP International Waters Programme (2000-2006)[10].

52. Pacific Islands Countries identified a lack of water resources expertise and baseline knowledge as being a fundamental barrier to any informed decision-making on water resources management and protection, including IWRM. Based on the project design phase, and closely aligned with the GEF IV strategic objective for International Waters and MDG targets barriers to implementing IWRM in PICS are summarised in Table 2.

[10] http://www.sprep.org/iwp/index.asp

Table 2: Summary of Barriers to Implementing IWRM to Reduce Environmental Stress in PICs

No.	Barriers to Sustainable Water Resources and Wastewater Management in PICs to Ensure National and Global Environmental Benefits
1	Insufficient knowledge of water resource distribution, flow and management. Inadequate and inefficient capture, storage and distribution of water resources
2	Insufficient education, training and capacity in the broad field of integrated water resources management and water use efficiency (at various levels including government, private sector and community), including difficulty of retaining qualified and experienced staff
3	Lack of access to, and awareness of appropriate technologies and methodologies for IWRM and WUE (including wastewater management and sanitation)
4	Lack of access to models and demonstrations of IWRM and WUE at national and catchment level appropriate to PICs and SIDS
5	Inappropriate policy, legislation, planning and administration due to weak governance structures and the low priority and understanding of public goods
6	Rising development pressures on small taxation base, environment and natural resource management provided with inadequate resources (due in part to poor understanding and knowledge of actions at the local, national, and regional scale)

Annex 3 provides an assessment of each Pacific Island Country's water and related sanitation management status.

Stakeholder Analysis

53. The primary stakeholders for the project are the 14 governments of the SIDS (particularly those institutions dealing with Water Resources Management and Wastewater Management) and the people in the community dependent on access to clean water and requiring more sanitary conditions related to waste handling and treatment on a day-to-day basis. In this respect, the entire population of each of the SIDS will be a beneficiary. However, there are expected global benefits expected through the demonstration of IWRM and WUE methodologies that are applicable to all SIDS, through the securing of sustainable clean water resources for the islands. In addition to national government stakeholders, key commercial and public sectors will also benefit considerably from the project, particularly those which are already dependent on clean and easily available water. These include tourism, agriculture, health, environmental, food-processing and other selected industries.

54. The private sector should also benefit as opportunities arise for the development and implementation of activities and initiatives within the water resources management and wastewater treatment sector. In particular, more cost-effective and pragmatic approaches to related issues within the small-island context will require the evolution of customised technologies and specific sales and services that can be developed and fine-tuned by the private sector as investment and business opportunities. The project will aim to develop a high level of involvement and collaboration with the private sector at the earliest stages of project development and implementation, based on supporting countries to identify where private sector engagement and support can occur.

55. The NGO community will have a significant stakeholder role in promoting awareness of water management and use issues and concerns, especially in demonstration projects areas and in presenting the linkages both to human welfare and to sustainable resource, ecosystem and environmental management. NGO's have already been actively involved in assisting national institutions in the design of the demonstration proposals, and will be involved in project implementation, in some cases as implementing organisations, capacity building support, or co-financers. The importance of the NGO community will not be overlooked by the project and on-the-ground capacity building of NGOs will be an integral part of the project.

56. At the local/demonstration site level, the Project will focus on community involvement for watershed and resource management, and will also look at the capacity building requirements at this level. The communities will benefit from improvements in resource management and the sustainable maintenance of water quality, both with regard to their living environment as well as their health and welfare. One area that requires treating with some delicacy is the region-wide situation regarding

land ownership and rights to water resources. This will require extra efforts and careful diplomacy at the community level in order to develop suitable mechanisms for resolving these issues in the context of IWRM and WUE.

57. Annex 4 contains a table which summarise the primary stakeholders involved in each of the Demonstration Projects. Many of these are co-financers, and have already been consulted regarding project focus and planned activities. Annex 4 contains further information concerning stakeholder engagement during the project design phase and communication needs and approaches for the project during full implementation.

Baseline analysis

58. At present many Pacific Island Countries face similar problems regarding water management and conservation, land-based sources of pollution, and issues of environmental flow relating to habitat and ecosystem protection. It is further recognised that SIDS have specific concerns related to climate change and sea level rise. SIDS also have specific needs and requirements when developing their economies. These are related to small population sizes and human resources, small GDPs, limited land area and limited natural resources.

59. The Strategic Action Programme (1997) for the International Waters of the Pacific Islands developed a strategy for the integrated sustainable development and management of IW to address the priority concerns for PICs. The SAP proposed the need to address the root causes of degradation of IW through regionally consistent, country-driven targeted actions that integrate development and environment needs and promote good governance and improved knowledge approaches. The Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) was endorsed by Pacific Heads of State in 2003. The Pacific RAP provides a coordinated and agreed strategic framework for sustainable water management, placing water firmly on Pacific national and regional agendas, recently reiterated by PIC Leaders at the Asia-Pacific Water Summit in Japan (December, 2007). Building on the SAP, this Pacific IWRM Project evolved through a combination of discussions between the PICs, GEF Implementing Agencies, and SOPAC regarding the needs and priorities for water resources management following the development of the Pacific RAP.

60. Country Diagnostic Analysis studies have revealed the barriers that Pacific SIDS have to overcome to in order to implement IWRM. These include:

- Limited and fragile water resources susceptible to over-exploitation and pollution, but with little technical management capacity to exploit and protect them; vulnerability to climate variability resulting in rapid onset of flooding and droughts and follow on effects (threats to public health, damage to infrastructure, reduction in quality of existing fragile water resources);

- Insufficient political and public awareness of the critical role of water in supporting economic development, public health and environmental protection;

- Excessive urban water demand due to high water losses and poor water conservation and inadequate drinking water treatment due to limited technical resources;

- Inadequate wastewater management resulting in widespread freshwater and coastal water pollution due to reliance upon on-site septic tanks and poorly maintained sewerage systems;

- Fragmented national water governance due to little formal communication and coordination between government departments;

- Conflicts between national versus traditional rights, especially balancing the needs of land and water resources planning with customary land ownership;

- Inadequate financing of water and sanitation provision due to poor cost-recovery but also a lack of 'economies of scale' for funding resources, health and environmental protection; and,

- Weak linkages to other stakeholders both within the water sector but particularly to other economic sectors, public health and the environment.

61. The current baseline scenario for the region is in part due to low capacity and therefore working practices and understanding. This is a result of the fragility, size, vulnerability and limited human and financial resources available to SIDS. IWRM is a valuable entry point for capacity development, helping to foster inter-disciplinary skills through utilizing local knowledge and integrating this into monitoring to ensure that cause and effect are understood by all stakeholders. GEF support has already alerted projects and programmes (through the ICA process) to everyday and more strategic links which can be made with other national and regional initiatives. There is an urgent need to move the Pacific forward in this respect – the difficult communications and large distances between nations reduces the impact of strategic approaches and the Pacific RAP and Pacific Partnership will be significantly strengthened and enhanced through the support offered by GEF under the PAS.

62. By 2013 Pacific Island Countries will have raised the baseline in managing and coping with water resources management, pollution and environmental stress and climate vulnerability. This will lead to a more sustainable use of water resources, a reduction in water related health problems, supporting watershed protection, improving biodiversity, and reducing land degradation. PICs have already identified the priority needs for the region through the Pacific RAP, allowing national governments and donors to focus investments on priority concerns and to highlight capacity development needs. Through the use of national inter-sectoral committees and the Hot-Spot Analyses countries have identified the need to make a step change from the current business-as-usual approach and the urgent need for them to integrate water resource planning and management across sectors.

GEF Alternative Scenario

63. The project Alternative scenario will put Integrated Water Resources Management as the primary approach for sustainable water and wastewater management at the national level across the Pacific, leading to strengthened regional knowledge exchange and learning, enabling the Pacific to become the foremost region to adopt IWRM and respond as a region to common problems.

64. Local stakeholders will be made aware of water management issues and the intrinsic links to environmental problems and ways to mitigate those problems, learning lessons from demonstration activities and incorporating project based learning into local decision making to reduce environmental stress. This will be supported through co-financing from the EU Water Facility which will support the learning of project based lessons into national policy, legislation, and IWRM and Water Use Efficiency Plan development to achieve failing MDG targets.

65. The Alternative scenario will deliver both national and regional lessons learned and guidance on dealing with a range of issues prioritized by the PICs themselves. By ensuring that the selection of Demonstration project areas and subject focus has been transparent using existing committees and mechanisms, and focuses on nationally identified priorities the alternative scenario builds on existing ownership in delivering evidence based recommendation from demonstration activities and will improve understanding of drivers for environmental change in fragile situations.

66. Building on national ownership, demonstration activities will focus on both technical and socio-economic issues, recognising that although Pacific SIDS face similar technical problems regarding water resource management (based on their hydrogeology) the human and cultural diversity across the region needs to be taken into account when dealing with water and humans as integral components of the ecosystem. This is important not only for achieving project success at the demonstration level, but is important in terms of delivering support to communities across a range of socio-economic needs using IWRM as the mechanism. This will not only help countries achieve

Demonstration project success at the national level, but as a region helps to deliver wider benefits linked to the MDGs and the UNSGAB Hashimoto Action Plan, but this will be directly attributable to interventions under the GEF IV Strategic Programme and the GEF- PAS.

67. Lessons learned from country-driven and designed Demonstration activities will add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and Ridge to Reef approaches to reduce environmental stress in SIDS. Lessons will contribute to national and the regional knowledge base. Demonstration projects will act as catalysts for replication and scaling-up approaches to improve national water resources management, and regionally to support the Pacific in reducing land based pollutants from entering the ocean. Ownership of the interventions and the outcomes from Demonstration activities by the stakeholders (especially the communities) involved is critical to support sustainable livelihoods and provide incentives for local, to national and global environmental gains. Project staff and stakeholders will be supported wherever possible to help countries overcome some of the national capacity barriers faced.

68. The lessons will be shared between Demonstration Project groups, PICS in general, national IWRM APEX Bodies and other mechanisms. Engagement of Water Champions will demonstrate leadership potential at the national level and move the management of water resources and pollution sources beyond the current status quo. Despite existing national donor involvement and government approaches strengthening IWRM approaches at the national level will have significant cross-sectoral benefits and will accelerate the implementation of the Pacific Regional Action Plan on Sustainable Water Management. Policy processes and legislation will be improved in support of national governance approaches.

69. UNDP will manage the Demonstration Project **Component 1 (C1)** of the project[11]. Demonstration approaches will provide local benefits leading to long-term livelihood changes to ensure greater sustainability and water security, regional policy reform, and an improved natural resource base wider than water alone. National and Regional replication and scaling-up will help deliver global environmental benefits. Demonstration interventions will aim to reduce environmental stress, improve community access to clean water, support innovative approaches to determine the best use of water resources (both technical and allocative efficiency), reduce water related health risks through protection of water supplies, and/or reduce sewage releases into the fresh and marine water environments. National Demonstration Projects will focus on how water is used and managed as a tool for adaptation to climate variability. Improving the way water is managed and used now will make it easier for SIDS to cope with demographic, economic and climatic changes in the future.

70. UNEP will manage some and support other remaining project components which include:

- **C2: IWRM and WUE Regional Indicator Framework** that will produce, analyse and implement IWRM indicators and monitoring to ensure project impact and provide SIDS with a regional monitoring tool, utilising EU co-financing and working with the GEF funded Caribbean IWCAM project;
- **C3: Policy, Legislative and Institutional Reform** for IWRM and WUE through strengthening National IWRM governance structures, institutional reform for IWRM implementation and acceleration of existing best practice approaches and technologies, including the drafting on IWRM Plans in line with the failing MDG target (C3 will be entirely co-financed); and,
- **C4: Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication** to improve project management, monitoring, integration, financing, networking and knowledge. Regional knowledge sharing and learning to develop regional and global SIDS capacity and replication of demonstration project best practices will be supported using GEF funds and co-financing support. By adopting inter-disciplinary approaches SIDS have the opportunity to use IWRM as the best approach to manage their water resources and fragile habitats, providing health benefits, improved

[11] The full title of the UNDP Competent [C1] of the project is **Demonstration, Capture and Transfer of Best Practices in IWRM and Water Use Efficiency (WUE)**.

food security, socio-economic improvements, and strengthened social capital and resilience to climate variability.

71. EU Water Facility co-financing (for Component C3) provides a unique opportunity to develop national IWRM Plans, building on Demonstration activities and lesson learning and sharing between countries. By 2013 PICs will have raised the baseline in managing and coping with water resources management, pollution and environmental stress and climate vulnerability. This will lead to a more sustainable use of water resources, a reduction in water related human health problems, support to watershed protection and re-forestation, improving biodiversity, and reducing land degradation.

72. The Alternative scenario will accelerate ongoing processes, which requires an adaptable approach taking into account the differences between PICS. IWRM is in itself a process and PICs are all at different stages of this process. Furthermore, this process does not have an end in itself, as IWRM is a mechanism which calls for constant adaptation as lessons are learned and changes in approach are required. Mainstreaming this flexible approach into normal working practices will be the key challenge in delivering the Alternative Scenario.

PART II: Strategy

Institutional, sectoral and policy context

73. The Freshwater Chapter *of the Mauritius Strategy for the Further Implementation of the Barbados Programme of Action (*BPoA+10) gives due recognition to the prioritising of water and sanitation on the SIDS global agenda and SIDS national agendas during the "Water for Life" Decade. The Mauritius declaration re-emphasised the outcomes of the 3WWF "*Water in Small Island Countries*" session which specifically calls for the implementation of the Joint SIDS Programme for Action on Water and Climate (JPfA), the Pacific Regional Action Plan on Sustainable Water Management, and the fostering of South-South partnerships between SIDS.

74. The product of an eight month consultation in preparation for the 3rd World Water Forum (3WWF), the Pacific RAP provides a strategic framework for achieving sustainable water management in the Pacific. This Pacific IWRM project will focus on the implementation of actions identified in the Strategic Action Plan, and the Pacific RAP, notably:

1. improving assessment & monitoring of water resources to reduce water pollution;
2. coping with island vulnerability;
3. improving communication, awareness and participatory action;
4. improving access to technologies;
5. strengthening institutional arrangements; and,
6. leveraging additional financial resources.

75. This is evident in the initiatives taken by countries on water resource management and the increased political support given by governments to prioritise water and sanitation in national sustainable development strategies. Pacific leaders attending the first Asia-Pacific Water Summit in Japan (December, 2007) agreed that real solutions to PIC water problems are urgent, particularly with deteriorating conditions of freshwater resources due to the impacts of global warming on fragile island eco-systems. Table 3 contains summary information to IWRM Status and the national water policy situation in each country.

Table 3: IWRM Status of Participating Countries

Country	IWRM Status
Cook Islands	At present no national water policy or strategy exists but this is currently under development. An Island Water Catchment Management Committee exists on Rarotonga, and a Waster Safety Planning Committee provides strategic input. Under Component C3 a national IWRM APEX Body is currently under development
Federated States of Micronesia*	Four separately governed states, with their own water utility and Environmental Protection Agency (EPA). Discussions are currently underway with FSM regarding the most appropriate form of IWRM Plan and policy development. This could include an overarching national framework, within which 4 State IWRM Plans sit. A Water Advisory Group meets at the National level and this process requires strengthening at the State level.
Fiji	Through the Programme for Water Governance Fiji has drafted a national water policy and a draft Water Resource Act. Fiji has also formed a National Water Committee and formulated a draft strategy to support the IWRM process. Cabinet has since adopted the Policy as an Interim Policy, requiring wider consultation. The future IWRM process in Fiji will need to raise awareness and understanding of IWRM to ensure political commitment to dealing with complex land ownership issues. There is a risk that urgent issues such as flooding and access to safe water supplies will take over arching policy processes, resulting in disjointed and fragmented water management. At present utility reform is driving the change, but this is not linked to water resource protection and management steps.
Kiribati	The main challengers in Kiribati relate to politicized resource management approaches, lack of government awareness and political will, and the dispersed nature of the land and population, all leading to a delay in adoption of draft national water plans, policies and legislation. This was partly addressed through the Programme for Water governance, by supporting the reformation of the Kiribati Water Supply and Sanitation Coordination Committee. It is recognised that capacity need to be developed in a wide range of areas supporting IWRM: from policy making to technical expertise and community participation in decision-making. A draft National Water Policy has been drafted and is currently under review. Kiribati policy forms a challenging situation given the different needs of Tarawa and outer islands. Kiribati also suffers more than other countries with restricted human and technical resources.
Marshall Islands*	A water and sanitation master plan does exist, and is supported by the well defined utility and Environmental Protection Agency. However, the Marshalls suffer from restricted human and technical resources and population pressure on fragile groundwater resources used for drinking. The Islands are

	also subject to fluctuations in saline levels of the groundwater and current investigations are ongoing supported by the EU HYCOS project. National IWRM APEX Body support is required and cross-sectoral learning and understanding needs to be enhanced.
Nauru	Draft national water plan completed 2001, but little coordinated approach or agreed institutional responsibilities since. At present support is ongoing from Component C3 to support Nauru in developing a sanitation action plan and policy, supported by the Demonstration Project to focus on sanitation and freshwater availability issues. Recent borehole drilling in Nauru has yielded poor results on finding fresh groundwater suitable for drinking. Reverse osmosis plants use large amounts of energy and require consistent financing to keep them serviced and workable.
Niue	The small population allows for relatively rapid movement with IWRM issues and policy development. Recent support from UNESCO has provided a draft Water Resources Bill 2008. Component C3 is currently working with the Government of Niue in taking this forward, including looking at the rising costs of energy for pumping and aims to provide the Government with information on possible tariff setting rates to recover the energy costs, or alternative energy options for pumping such as solar and wind energy. A National Water Committee exists and will be further supported under C3 with a support post.
Palau*	An increasing demand for potable water and contamination of surface water resources due to increasing population pressure and urbanisation is of immediate concern to Palau. A Water Safety Planning Committee does exist, supported with WHO and SOPAC programmes. Palau requires further support to set up a National Water Resource Committee and for community and awareness raising to limit the pollution problems. Further information is required on integrated land use and planning and regulatory approaches to control surface pollution.
Papua New Guinea	There is an urgent need to apply IWRM principles and approaches at the catchment level. Several institutional, legislative, operational, strategic, capacity and public awareness related barriers have been identified to move forward the water resource management prospects nationally. This includes supporting the National Water Association and formalising the National Water Committee, and assisting the Government in formulating a vision for water development, developing a water resource policy, reviewing and finalising the current water services policy, and review institutional and regulatory mechanism to manage the national water reserve.
Samoa	Samoa has move forward rapidly with developing water policies and support fro the sector through recent large scale donor funding. However, support has been sector focused and IWRM has yet to be widely introduced in terms of cross-sectoral multi-level approaches. Water and energy demands cause conflicts over use, and water demand management measures are required to cope with expanding demand for supply. Increasing population and land use pressures, and traditional governance approaches challenge the application of IWRM, including the coordinated and integrated planning and management of water and land related activities.
Solomon Islands	The Solomon Islands has faced periods of political instability, which has made it difficult to focus government attention on a single issues such as water. Water resources management has been fragmented due to a lack of national policy and community awareness. Through the EU funded Programme for Water Governance, key government representatives got the chance to exchange experiences with Samoa, which has already come far in the process of improving water governance. The Solomon's have drafted a National Water Resources Policy and Legislation, formed a temporary water group and drafted Terms of Reference. Further support is required during wider national consultation on the policy as challenges need to be addressed, such as resoling water ownership issues and raising awareness on water resource management issues, links to land0use practices, whilst taking into account low literacy rates in rural communities.
Tonga	Tonga has recently drafted a revised Water Management Bill. Still in a draft form, the Bill requires further cross-sectoral consultation. At present IWRM is a challenge due to conflicting and confusing institutional mandates concerning water and environmental management. Support is required for information capture and exchange on technical issues, especially hydrological information for drought vulnerability. There is no comprehensive law in Tonga dealing with water ownership, management and protection of water resources, nor a specific land us policy. A complex traditional land tenure system exists. A National Water Resources Committee does exist and the development of the committee in dealing with the complex issues will be supported.
Tuvalu	Rainwater harvesting, improved wastewater management to reduce contamination of valuable drought resistant groundwater, and protection of marine shore fisheries from land based pollution are three key focal areas for Tuvalu's IWRM approaches. Collaboration between government institutions and the NGO sector are urgently required, including households. Composting sanitation systems are required to address the use of fresh water for toilets and poor septic tank systems. A Water and Sanitation Master Plan exists, and requires further consultation and support to implement.
Vanuatu	A recent National Water and Sanitation strategy has been recently drafted which has had wide consultation during its development. The Strategy is now awaiting approval by the Government. A National Water Committee exists and has met regularly during the development of the strategy. Support is required to help integrate sectors and move forward approval of the Strategy to start n the development of IWRM planning.

Notes: adapted from after SOPAC Miscellaneous report 554 – Carpenter and Jones. * These countries follow the American legal system and not a Westminster based system.

76. National water policy reform is already occurring in many countries as they face increasing pressure on their water resources and receiving coastal waters. However, fragmented institutions, low national capacity, and lack of awareness raising and political support limit the ability of countries to move policy development forward. The SAP and Pacific RAP help to provide root causes and barriers to implementing IWRM, and provide a framework for implementation. The EU Water Facility project will help to strengthen existing policy and planning and assist countries to develop national IWRM plans, supported by the GEF project focusing on demonstrable sustainable water management to reduce environmental stress and improve water use efficiency.

Project Rationale and Policy Conformity

77. The project will specifically contribute to achievement of the MDG targets for water supply and sanitation as spelled out in the national sustainable development strategies and specifically the MDG target of setting processes in motion towards National IWRM Plans.

78. The project is consistent with the GEF IV strategic objective for International Waters: (a) '*to play a catalytic role in addressing transboundary water concerns by assisting countries to utilize the full range of technical assistance, economic, financial, regulatory and institutional reforms that are needed'*, through supporting and building on existing political commitments (such as the Pacific RAP) and through promoting sustainable water use and improved water management now, making it easier to address the challenges of the future as climatic variability affects water resources further.

79. More specifically the project will deliver outcomes under GEF IV Strategic Programme III (SP-3): Balancing overuse and conflicting uses of water resources in transboundary surface and groundwater basins (*with a specific focus on SIDS to protect community surface and groundwater supplies)* through working with communities to address their needs for safe drinking water and other socio-economic benefits of sustainable and safe water resources, including balancing environmental requirements with livelihood needs. The project will deliver across a range of MDG targets using IWRM approaches (MDG 7) as the wider development entry point. The project will help countries utilize the full range of technical, economic, financial, regulatory, and institutional measures needed to operationalise sustainable development strategies for waters and their drainage basins.

80. Regional groups of SIDS often experience common water-related environmental problems (for example, inadequate protection of water supplies, coupled with poor wastewater management and saltwater intrusion) that can be addressed through the GEF in the context of altering sectoral activities on each island state to meet sustainable development goals. SIDS share common environmental problems, and potential solutions to those problems, that reflect the partnership between their representative regional organizations and the capacity and institutional building needed on each island state to more comprehensively address these problems. This strengthens the requirement for international cooperation among sovereign island states as they seek to identify and utilize cost-effective and appropriate measures to protect their water resources. The full project seek to address the need to evolve and develop more effective inter-sectoral coordination and management, and further intend to develop strong coordination mechanisms and sharing of experiences and best practices between SIDS not only on a regional level but on a global level.

81. A review of GEF engagement in the Pacific highlighted that a GEF business-as-usual approach in the Pacific would continue to deliver sub-optimal results and unsustainable outcomes[12]. The GEF-PAS programmatic approach is designed to offer several advantages over the existing approach, including providing a stronger donor cooperation framework. Protection of fresh water resources remains a priority for GEF in the Pacific, with coastal and marine waters suffering from factors such as the discharge of nutrients derived from sewage, soil erosion, agricultural fertilisers, improper solid waste disposal, over-exploitation of fisheries, land clearance activities, and in many locations the cumulative effects of many of these activities.

[12] *Views and Lessons: Effectiveness of the Global Environment Facility in the Pacific*. Final Report, October, 2004. Delta Networks and Pacific Environmental Consultants.

82. The Objective is aligned with UNDP's country assistance strategies including the United Nations Development Assistance Framework (2008-2012). The project will directly address the currently failing MDG target for countries to develop integrated water resources management and water use efficiency plans by 2005. Improved water management also provides a cross-cutting entry point to addressing a number of other MDGs. In fragile SIDS, the improved management of water resources, and adoption of no regrets approaches into water management practices at the local level will also contribute to achieving other MDGs such as reducing poverty, eradicating hunger, ensuring environmental sustainability.

Project Goal, Objective, Outcomes and Outputs/Activities

83. The overall **Goal**[13] of this project is:

> *'To contribute to sustainable development in the Pacific Island Region through improvements in natural resource and environmental management'.*

84. The project will focus on freshwater (surface and ground) and coastal receiving waters through the overall project **Objective** which is:

> '*To improve water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans'.*

85. The overall project Objective will be achieved through four Component objectives and outcomes summarised in Table 4 below. The full project logframe can be found in Section II. The project has been designed to focus on the achievement of results – the relationship between various elements in a results chain over time (from input to output to outcome to impact). The project therefore focuses on delivery of outcomes for each of the four components to achieve the component and therefore overall project objective. This focus on outcomes relies on the demand side of the project which is outside the control of the Executing and Implementation Agencies, and where a response to the project outputs results in outcomes being achieved. In this project the likely change expected is human behavioural change. Therefore, this project will focus on results to be achieved and therefore delivery of project outcomes in order to achieve the objective and deliver for the larger goal of the GEF PAS. This process is important even after the end of the project as replication and scale-up activities should only be initiated once it becomes clear that the project intervention approach is likely, and already is, generating the expected demand side of behavioural response to signify project success (i.e. outcomes are likely to or are being achieved from the start of implementation).

[13] Note that the **Goal** of this project is aligned with the GEF-PAS to ensure the strategic programmatic goal is driving all projects under the GEF-PAS.

Table 4: Summary Project Logframe

Impact [IM]	***Project Goal:*** To contribute to sustainable development in the Pacific Island Region through improvements in natural resource and environmental management				1.
	Overall Objective: To improve water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans*				2.
	Project Components				
	C1: Demonstration, Capture and Transfer of Best Practices in IWRM and WUE	**C2**: IWRM and WUE Regional Indicator Framework	**C3**: Policy, Legislative and Institutional Reform for IWRM and WUE	**C4**: Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication	
	Component Objectives				
Effectiveness	Practical demonstrations of IWRM and WUE focused on removing barriers to implementation at the community/local level and targeted towards national and regional level learning and application	IWRM and environmental stress indicators developed and monitored through national and regional M&E systems to improve IWRM and WUE planning and programming and provide national and global environmental benefits.	Supporting countries to develop national IWRM policies and water efficiency strategies, endorsed by both government and civil society stakeholders, and integrated into national sustainable development strategies	Sustainable IWRM and WUE capacity development, and global SIDS learning and knowledge exchange approaches in place	3.
	Component Outcomes				
	Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management	National and Regional adoption of IWRM and WUE indicator framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point	Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions	Improved institutional and community capacity in IWRM at national and regional levels	
Efficiency	Outputs [OP]				4.
	Activities (Inputs [IP])				

Notes: This table briefly summarises the Logframe in Section II. Efficiency and Effectiveness are evaluation criteria.
* In line with the Johannesburg Plan of Implementation and the Pacific Regional Action Plan on Sustainable Water Resource Management.
1. GEF-PAS and post project evaluations will be required to monitor impact and achievement of overall project goal.
2. The overall objective should be achieved by the end of project implementation.
3. At this stage, the delivery of project outcomes are external to the project and the agencies responsible. Favourable stakeholder responses are required for component outcomes to be realised and component objectives to be achieved, leading to achieving the overall project objective.
4. Delivery of these aspects of the project are internal to the project and agencies responsible.

86. Project impact is difficult and expensive to measure and is usually immediately evaluated post-project. This approach does not take into account the longer term impact and influence of project interventions, and is difficult to do due to attribution problems. Outcomes represent the first demand-side behavioural response that can be expected in the project intervention causal chain, can be more easily attributed to project interventions, and are the weakest link in the causal chain as they involve a change in behaviour which is outside the control of project agencies. Therefore, if the project

outcomes can be observed during the lifetime and at the end of the project, the casual chain will have held true and each outcome can be validated, leading to delivery of project objective.

Component C1:	**Demonstration, Capture and Transfer of Best Practices in IWRM and Water Use Efficiency (WUE)**
Objective:	Practical demonstrations of IWRM and WUE focused on removing barriers to implementation at the community/local level and targeted towards national and regional level learning and application
Outcome:	Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management
Output 1.1:	Improved access to safe drinking water supplies
Output 1.2:	Reduction in sewage release into coastal receiving waters
Output 1.3:	Reduction in catchment deforestation and sustainable forest and land management practices established
Output 1.4:	Water Safety Plans developed and adopted
Output 1.5:	Integrated Flood Risk Management approaches designed and developed
Output 1.6:	Expansion in eco-sanitation use and reduction in freshwater use for sanitation purposes
Output 1.7:	Improved community level engagement with national institutions responsible for water management
Output 1.8:	Increase in water storage facilities
Output 1.9:	Technical and Allocative Water Use Efficiency approaches designed and adopted
Output 1.10:	Identification and adoption of appropriate financing approaches for sustainable water management

87. Significant work has already been undertaken as part of the design phase of this project to update water management understanding, including threats, root causes and barriers analysis in the PICs. Each of the 14 Pacific Island Countries, through SOPAC support, and with UNDP and UNEP technical support and advice, produced a national IWRM Diagnostic Report. Each report provides a comprehensive picture of the status of water resources and environment in each country, and the barriers to implementing an IWRM approach, focussing on institutional policy and legislation, financing, and human capacity to implement IWRM. These Diagnostic Reports provide a valuable national baseline for each country to work from, and for understanding the demand and implementation required for IWRM in PICs. Diagnostic Reports are available for download from the SOPAC website. Furthermore, a Synopsis of these reports has been produced and published and is available for download[14]. The Pacific IWRM Synopsis has been widely disseminated across the Pacific Region, and has been shared with other projects, including IWCAM in the Caribbean. Diagnostic Reports and the IWRM Synopsis form part of this submission.

88. Each country also performed an environmental Hotspot Analysis. Guidance was provided on the HSA process following the standard Global International Water Assessment (GIWA). Selection of Hot Spots and Sensitive Areas was conducted through existing consultative national water mechanism, or in some cases these consultation committees were established and will be further developed by the EU Water Facility co-financing programme. The Hot Spot Analyses identified the key technical and geographical areas for Demonstration Project focus, and also provided a starting point for choice of replication sites from the start of the project. Identifying replication sites and approaches from the beginning is critical if momentum is to be sustained, and if wider stakeholders at both the community and national level are to become involved in IWRM approaches and understanding water and environmental management. Hot Spots and Sensitive Areas are presented in Annex 1.

89. Each country developed a Demonstration Concept Paper based on the key hotspot area identified in the HSA and aligned with GEF and national priorities. In some cases the Executing Agency or other national/regional specialists were required to assist countries in developing their Concept Papers, funded by the project. Demonstration Concept Papers were shared with GEF International Waters and UNDP/UNEP for review and comments on eligibility. Combined with Executing Agency comments, feedback was provided to all countries. Using standard templates to

[14] http://www.sopac.org/tiki/tiki-index.php?page=IWRM+Outputs

ensure equity of opportunity and to allow for accurate comparison, full Demonstration Projects were developed with Executing Agency and national/regional specialist support where required.

90. Thirteen countries have produced comprehensive Demonstration Project proposals[15]. Demonstration approaches will provide local benefits leading to long-term livelihood changes to ensure greater sustainability and water security, regional policy reform, and an improved natural resource base wider than water alone. National and Regional replication and scaling-up will help deliver global environmental benefits (supported through other project components). Demonstration interventions will aim to reduce environmental stress, improve community access to clean water, support innovative approaches to determine the best use of water resources (both technical and allocative efficiency), reduce water related health risks through protection of water supplies, and/or reduce sewage releases into the fresh and marine water environments. Projects will focus on how water is used and managed as a tool for adaptation to climate variability. Improving the way water is managed and used now will make it easier for SIDS to cope with demographic, economic and climatic changes in the future. Projects are summarised in the Table below. Full Demonstration Proposals are provided as part of this submission.

Table 5: Demonstration Project per Country and by Sub-Group

IWRM Sub-Group	Country	Title of Demonstration Project	GEF Support ($)
1. Watershed Management	**Federated States of Micronesia**	**Ridge to Reef: Protecting Water Quality from Source to Sea in the FSM**	500,000
	Project Purpose:	*Improved drinking water quality and a significant reduction in pollutants entering fresh and marine waters around Pohnpei Island and in Chuuk State*	
	Palau	**Ngerikiil Watershed Restoration for the Improvement of Water Quality**	587,400
	Project Purpose:	*Improved water quality through reducing soil erosion and sedimentation, nutrient, fertilizer and pesticide pollution, solid waste disposal, forest protection to reduce the possibility of invasive species and wildlife habitat loss*	
	Papua New Guinea	**Rehabilitation, Management and Monitoring of Laloki River system for economical, social and environmental benefits**	568,500
		To promote the sustainable use of the Laloki River water resources for the economic and social benefit city and the surrounding area	
	Samoa	**Rehabilitation and Sustainable Management of Apia Catchment**	525,000
	Project Purpose:	*To rehabilitate and manage the Apia catchment in a sustainable manner in order to improve the quality and quantity of the water resources for enhanced water supply and hydropower generation, socio-economic advancement and reduced environmental adverse impacts*	
	Vanuatu	**Sustainable Management of Sarakata Watershed**	516,328
	Project Purpose:	*To prepare an integrated Sarakata Watershed Management Plan involving the existing Sanma Provincial and National Water Resources Advisory committees and stakeholders. It will provide a model from which lessons can be learnt and best practice replicated in other watersheds*	
2. Wastewater Management & Sanitation	**Marshall Islands**	**Integrated Water Management and Development Plan for Laura Groundwater Lens, Majuro Atoll**	500,000
	Project Purpose:	*To implement the agreed remediation strategies for the protection of the Laura Groundwater Lens and to raise public awareness for protection and promotion of sustainable development of the groundwater resources at Laura through building capacity of members to understand the water related issues affecting the community.*	
	Nauru	**Enhancing water security for Nauru through better water management and reduced contamination of groundwater**	500,000
	Project Purpose:	*To adopt a system of affordable as well as a working system for the sustainable integrated water resource and management of wastewater*	
	Tuvalu	**Integrated Sustainable Wastewater Management (Ecosan) for**	564,000

[15] Kiribati did not submit a final Demonstration Proposal, although they did submit a Demonstration Concept Paper. Kiribati did not attend the Third Project Steering Committee Meeting in Suva, 5-8 November 2008 (the final meeting in the project design phase). At the meeting the Project Steering Committee agreed a new deadline for submission of outstanding project documents and Kiribati was informed of this.

		Tuvalu	
	Project Purpose:	*To demonstrate that improved sanitation technology and practices can provide protection of primary and secondary water resources, marine biodiversity, livelihood, and food security, and practically demonstrate the links between public health and the conservation of natural assets*	
3. Water Resources Assessment & Protection	**Cooks Islands**	**Integrated freshwater and coastal management on Rarotonga**	501,163
	Project Purpose:	*To demonstrate through a process of policy change, capacity building and technical information gathering and management, the delivery of improved water quality in the freshwater and near coastal environments and an improved water resource management structure*	
	Fiji Islands	**Environmental and Socio-Economic Protection in Fiji: Integrated Flood Risk Management in the Nadi River Basin**	500,000
	Project Purpose:	*To improve flood preparedness and integrate land and water management planning within the Nadi Basin using an integrated flood management approach.*	
	Niue	**Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model for Alofi Town Groundwater Supply and Nearshore Reef**	500,000
	Project Purpose:	*To develop a sustainable national IWRM capacity and institutional framework by demonstrating the effectiveness of IWRM approaches to protecting the groundwater supplies and near-shore fisheries of Alofi Town from polluting and potentially land-based*	
4. Water Use Efficiency & Water Safety	**Solomon Islands**	**Managing Honiara City Water Supply and Reducing Pollution through IWRM Approaches**	515,000
	Project Purpose:	*To demonstrate management strategies and protection measures for critical watersheds, aquifers and well-fields within Honiara city*	
	Tonga	**Improvement and Sustainable Management of Nieafu Aquifer Groundwater Resources in Vava'u Islands**	519,000
	Project Purpose:	*Improved understanding of the quality and quantity of surface water, groundwater, rainwater, coastal receiving waters, and their vulnerabilities to land based pollution*	

Notes: Detailed summaries of each National Demonstration Project are provided in Annex 5. Full Demonstration Proposals are provided in Volume II of the submission.

91. Lessons from the demonstration activities and approaches (process, technical, socio-economic) will be captured by national project staff, IWRM APEX Bodies, and the Regional Project Coordination Unit. Final outputs and outcomes from each Demonstration Project will be fed into a regional warehouse facility at the IWRM Resource Centre for dissemination. Direct linkages will be made with IW:LEARN. Support for these activities will be provided from co-financing and the other Components of the project. In summary:

- Lessons learned from Demonstration activities will reduce environmental stress, and add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and Ridge to Reef approaches in SIDS;
- The project will address national priority issues as identified through the GIWA Hot-Spot analysis and Diagnostic Analyses Reports, and will help national government deliver multiple benefits at both the national and global level through the transfer of experience, lessons learned and new knowledge. A key element of this and all the Components of the project will be the capture and replication of best practices;
- Lessons and best practice from Demonstration activities will be transferable to other sectors through national institutions and through cross-sectoral IWRM APEX Body membership to ensure lessons are applicable to sustainable land use practices and management, biodiversity, National Adaptation Programmes of Action, National Action Plans for Disaster Risk Reduction and National Sustainable Development Strategies;
- All Demonstration projects will include socio-economic baseline and target indicators to ensure that both positive and negative socio-economic impacts are understood as a result of project interventions. Sustainability relies on both the livelihood and environmental gains as a result of project interventions;
- Demonstration activities will provide evidence based learning to policy makers, providing a new benchmark in terms of national learning and project design, feeding those lessons regionally, and

globally, adding to global knowledge on dealing with IWRM approaches and environmental stress reduction through the GEF and other co-financing donors;
- Demonstration activities will feed directly into policy development and IWRM planning, providing long term national sustainable development through improved natural resource and environment management.

92. The solution to the problems identified, and the most cost-effective and efficient way of removing these barriers is to adopt Integrated Water Resource Management approaches. The project strategy will therefore promote Integrated Water Resources Management (IWRM), a globally recognised approach, throughout the region.

Component C2:	**IWRM and WUE Regional Indicator Framework**
Objective:	IWRM and environmental stress indicators developed and monitored through national and regional M&E systems to improve IWRM and WUE planning and programming and provide national and global environmental benefits
Outcome:	National and Regional adoption of IWRM and WUE indicator framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point
Output 2.1:	Process, Stress Reduction, Environmental and Socio-Economic Status, WUE, Catalytic, Governance, Proxy, and X-Cutting Regional Indicator Framework (RIF) established and in use
Output 2.2:	Participatory M&E adopted within Demonstration Projects [C1] and mainstreamed into national best practice
Output 2.3:	Improved institutional capacity for monitoring and support for action on findings across the region, including Pacific RAP progress for water investment planning

93. Component 2 [C2] focuses on the development of a Regional Indicator Framework based on Demonstration Project implementation, and other national and regional lessons and experience. Lessons and approaches will continue to be shared with the IWCAM project in the Caribbean throughout the project. The objective of C2 is to develop a suite of indicators to improve IWRM and WUE planning in the future, leading to demonstrable national and global environmental benefits. The Framework will then form a valuable tool for future projects, and will provide a framework for the addition of future indicators as a regional learning mechanism. Activities are summarised below.

94. Support to National Demonstration Projects through training and regional backstopping in the development of indicators for Demonstration Projects. This will include support in general logframe development. At the national Demonstration Project level initial indicators have already been identified, and these will be reviewed during the project pre-inception and inception phases to ensure that the indicators are appropriate and SMART, and that the baseline, or proxy baseline information is available to monitor progress.

95. The approach will be based on Participatory Monitoring and Evaluation (PM&E) and lessons on the approach will be shared with IWRM APEX Bodies and other government stakeholders as a model for replication into other projects, programmes, and sectors, such as National Sustainable Development Strategies, National Environment Action Plans, National Action Plans for Adaptation, National Action Plans for Disaster Risk Reduction, etc. Further information on PM&E is provided in Part IV (Monitoring and Evaluation approach) and in Annex 6. National Baseline indicators and monitoring systems will be used and supported wherever possible to ensure new approaches are mainstreamed into current methods. The approach will work at four levels, with each level providing indicators which can be aggregated up to the next level and rolled-out over the region and shared globally:

1. **Demonstration Project** – to ensure individual projects identify indicators and they provide a tool for measurable progress to be identified (and where poor practice can be identified);
2. **National** – project level indicators applicable at the national level will be adjusted/scaled-up appropriately to be of use at the national level, facilitated by the IWRM APEX Body and Demonstration Project staff. This will include supporting project staff to develop national

monitoring plans for IWRM using EU co-financing support (adopting a standardised reporting approach[16]);

3. **Demonstration sub-group** - demonstration level indicators will provide an effective way of monitoring progress, and will be aggregated at each of the Demonstration Project Group[17] levels to enable projects to learn from each other as part of the project twinning approach. This may include where possible project exchange visits within sub-groups to learn from each others projects and to monitor and provide advice to projects on their progress, backstopped by the Regional Project Coordination Unit;
4. **Regional** – building on the national and sub-group levels, indicators will be scaled-up to provide regional level indicators where appropriate. This will also link to Pacific RAP and International Waters SAP progress monitoring and MDG delivery. Information and lessons will be shared with other regional CROP Agencies and the Pacific Partnership on sustainable Water Management.

96. The purpose of the Indicator Framework is to collate optimal indicators which conform to GEF's requirements of Process, Stress Reduction and Environmental Status, but will also include wider indicators using IWRM and WUE as the guiding framework. By raising the need and developing approaches for indicators countries will be supported in monitoring approaches, including improving institutional capacity for monitoring and action on those monitoring results to address water and environmental challenges through adaptive management approaches. National Project Managers and support staff, including other local support to the projects (government institutions, co-financers where applicable, NGO's, etc) will receive training in PM&E approaches. Through the collaborative working of the Project Coordination Unit and the IWRM Resource Centre, supported with consultancies where required, capacity will be developed in monitoring, and understanding the formulation and role of indicators, including the need to develop administrative processes and human and financial resources in order to act upon monitoring information. Information on such aspects as water quality, distribution efficiency, use by sector, sources of pollution, predicted supply, alternative sources, etc are vital to the process of fine-tuning and improving IWRM and WUE efforts and planning.

The following indicators will be considered within the Regional Indicator Framework:

Indicator Type	Indicator Description
Process	Policy and legislative reforms, capacity-building efforts, training, etc. (Note that this will also include 360^{o} indicators to assess if the project regional approach is the most appropriate format for addressing IWRM in PICs, and to provide feedback information for project development learning with the Implementation Agencies and GEF)
Stress Reduction	Actual physical changes at the source such as cleaner production, improved sewage treatment facilities, upgraded distribution infrastructure, etc
Environmental Status	Improvements in water quality, rehabilitation of downstream habitats previously threatened and under stress, etc
Socio-Economic Status	Access to freshwater, access to sanitation, cost of water provision, household economic information, gender aggregated indicators
Water Use Efficiency	Actual improvements in efficiency of use, including supplies delivered, reduction in unnecessary freshwater sanitation use (which depletes precious fresh water resources), leak reduction, awareness raising approaches, economic assessments, demand management approaches
Catalytic	Combined interventions impact within the project, and with other projects to monitor wider development impact
Governance	Capability – policies existing, ability to implement, managing water finances and budget, serving societies needs; Responsiveness – feedback, providers responding to society, preferences, equal right o benefit; Accountability – scrutinising what is done, access to information,
Proxy	Health data and information, water related diseases, pollution levels, etc
X-Cutting	Will combine a number, if not all of the above indicators to provide snapshot information on progress, and which will be relevant to at least 2 sectors at the same time

[16] Standardising indicator development and collection at the national allows for comparison at both the national and regional levels to strengthen data collection, standards, and quality control across the region.

[17] (i) Watershed Management; (ii) Wastewater & Sanitation Management; (iii) Water Resources Assessment & Protection; (iv) Water Use Efficiency & Safety.

97. Monitoring is only a value-added activity when action is taken based on the information provided. Through promoting community and wider stakeholder involvement in the project, and presentation of progress made within the demonstration projects the IWRM APEX Bodies will be shown project impact and approaches. These lessons will be documented at the national level. Through co-financing support the national IWRM APEX Bodies [under Component C3] the project will seek to strengthen existing monitoring approaches using IWRM APEX Bodies as the facilitator to wider sectors and senior government decision makers. This will include assisting national APEX Bodies establish indicator databases which contain initial demonstration project indicators, but which looks to broaden the indicators based on national requirements and cross-sectoral links (level 2 above). By supporting national IWRM APEX bodies in determining the most appropriate institution/agency to collect indicator information in the future and to host IWRM data the aim is to minimise duplication of effort and overlapping mandates, and to identify more efficient institutional modalities for IWRM monitoring and environment and natural resource management in general[18]. The approach also allows for creating the demand for the data through illustrating the benefits of data/indicator collection long-term. In doing this, reviews of existing data collection by the national governments may be required and National Project Management staff will be supported in this process through Components C2 and C3 of the project with the Regional PCU. This will provide national government with options: options to consider in the further development of water resource management, and in the provision of safe drinking water and sanitation, whilst protecting the environment. The APEX Bodies will be supported in techniques and approaches, working with Demonstration Project staff and other national stakeholders (including using Most Significant Change techniques) to reflect and learn from project approaches, both process and technical.

98. The Most Significant Change (MSC) technique is a participatory way of monitoring project impact[19]. It is a constant form of monitoring throughout the project cycle and provides information to people to help them manage projects and programmes. It is useful during evaluation periods as it provides data on impact and outcomes that can be used to assess performance of programmes as a whole. This has value for a regional project as national demonstration and regional capacity building activities need to be considered as an entire programme within the GEF-PAS. The MSC process involves the collection of 'stories' originating from the field level and a systematic selection of the most significant of these stories by stakeholders. MSC does not make use of pre-defined indicators, especially ones that have to be counted and measured. Pre-define quantitative indicators are often inappropriate for assessing the actual impact when considering socio-economic change and behavioural change. Unlike more traditional monitoring approaches which focus on monitoring process and outputs, and automatically link project outputs to outcomes, the MSC approach focuses on monitoring constant changes and intermediate outcomes and impact. Including stakeholders in the process allows them to understand further the impact of project changes on each other and the potential changes in people's lives, in this case through improved water supply and sanitation and reduced environmental stress, but without the pre-defined prescriptive focus which can often force projects to focus on achieving for indicator monitoring purposes alone, rather than achieving impact for overall project objective and wider project goal achievement.

99. The MSC approach is useful to understand unexpected changes as a result of the project interventions. It also helps stakeholders, and those organisations responsible for the project delivery to focus on what is most important through assessing which of the changes are the most significant, and this links to more traditional monitoring approaches, allowing identification of temporary

[18] Activities may include mainstreaming IWRM indicators from the Regional Indicator Framework into National Sustainable Development Strategies, data mining from national government agencies, establishing data recording and recovery procedures, setting new rules of engagement for future projects in terms of data collection and feedback into national systems, and establishing standards for IWRM data collection through reviewing statistic legislation.

[19] See the following for further information: Dart, J.J. 1999. *A story approach for monitoring change in an agricultural extension project*. Proceedings of the Association for Qualitative Research, International Conference, Melbourne. Dart, J.J. 2000. *Stories for Change: A Systematic Approach to Participatory Monitoring*. Proceedings of Action Research & Process Management and Participatory-Action Research. World Congress, Ballarat, Australia. Davies, R.J. 1998. An Evolutionary Approach to Organisational Learning: An Experiment by an NGO in Bangladesh. In Mosse, D., Farrington, J., and Rew, A., *Development as Process: Concepts and Methods for Working with Complexity*. Routeldge/ODI, London. Colton, S., Ward, V., and Brutschin J. 2006. *Story Guide - Building Bridges Using Narrative Techniques*. Swiss Agency for Development and Cooperation (SDC), Berne. McClintock, C. 2004. *Using Narrative Methods to Link Program Evaluation and Organization Development*. The Evaluation Exchange, Volume IX, No. 4, Winter 2003/2004. Issue Topic: Reflecting on the Past and Future of Evaluation. http://www.gse.harvard.edu/hfrp/eval/issue24/pp3.html. Also see: http://en.wikipedia.org/wiki/Most_significant_change

indicators which focus on the significance of different project impact. Furthermore, this contextual type of monitoring is easier to explain across cultures than the need to explain detailed quantitative indicators as everyone can tell stories about what they feel is most important. This encourages analysis as stakeholders are then forced to explain why they believe one type change is more important than another. The approaches contributes to a much more dynamic picture of what a project is actually doing and achieving, rather than reducing this down to more simplistic indicator progress. Nevertheless, it is important to remember that the MSC is only one technique of many and forms only part of participatory monitoring and evaluation which this project will use.

100. At the regional level, the IWRM Resource Centre based at SOPAC will store indicator information at the four levels in order to help countries aggregate the information, and learn from each other. Further training in indicator development will be provided throughout the project, including using the concept of *Storylines*, building on MSC techniques. Satisfactory projects have well designed intervention approaches and are designed to bring about specific and worthwhile outcomes based on a realistic strategy. To achieve these outcomes, projects are expected to document and achieve results (both outputs and outcomes) within the timeframe and resources allocated. Outcome focused design improved quality-at-entry by adopting, where necessary, a storyline approach. A storyline provides a suitable '*mission statement'* for a project, and helps to build stakeholder ownership by putting the problems into context and dialogue understood by all stakeholders, and not just a proportion of them.

101. Storylines have some advantages over logframe approaches in that they ask for a statement of an external problem and the intervention strategy to solve it. By stating the problem and the strategy to solve it, it is easier to understand the quality of the analysis that has led to the project[20]. Problem statements in projects without baseline indicators can lead to projects with outcomes that can not be properly verified. Storylines help embed dialogue in the project design stage which is where the added value occurs and where quality-at-entry[21] really works. For example, if a chosen project strategy is to improve capacity, a storyline helps explain the problem with capacity in the first place in a language which all stakeholders can agree on, including the identification of how performance is poor owing to low capacity, the baseline indicators for this low capacity, and the target performance indicators to show project outcome focus and success. This process encourages project stakeholders to self-analyse and understand themselves where additional support is required in a participatory and stakeholder driven manner.

102. There are four main elements to a storyline: *(i)* identification of the present problem(s) to be addressed; *(ii)* development of the strategy to address the problem(s); *(iii)* creation of a future vision of success (demonstration project objective); and *(iv)* definition of the evidence of success (including indicators). This approach has much more value when working with communities in a participatory manner, and often with key project stakeholders as they can relate more to dialogue and 'statements' of problems and intended ways to address the problems. Often quantitative indicators do not represent 'real life' to people living within project areas, and even at the national level.

103. This concept will be a key approach in ensuring that Demonstration Projects are correctly reviewed and refined in the Pre-Inception and Inception Phase to ensure that problems are understood in their particular context setting and correct baseline indicators are developed and information

[20] Without a storyline, projects typically assess project success simply on the basis of the indicators themselves, which often lack necessary context for understanding actual performance and relevance wider than the project alone. As water has the potential to impact a wide variety of sectors the context of project interventions, and the impact of them needs to be understood. Note that Storylines are one tool amongst many others and will only be used where benefit is expected. For further information see: Dart, J.J. 1999. *The Tale Behind the Performance Story Approach*. *Evaluation News & Comments*, 8, no.1., pp: 12-13. Kelly, L., Kilby, P., and Kasynathan, N. 2004. *Impact measurement for NGOs: experiences from India and Sri Lanka. Development in Practice*, Vol.14, No.5., pp: 696-701. Oakley, P., Pratt, B., and Clayton, A. 1998. *Outcomes and Impact: Evaluating Change in Social Development*. INTRAC, Oxford, U.K., and, Henderson, R. and Clothier, H. 2007. *Building a Sustainable Future: A Rapid Assessment of Perceptions Towards the Environment and Sustaianbility Issues in Rural Melanesian Communities*. Live and Learn Environmental Education. Port Vila, Vanuatu.

[21] Quality-at-Entry refers to getting the project design correct at the beginning, and baseline information to ensure that projects have the best possible of chance at success from day one. Many projects have difficulty in brining about identifiable outcomes because they are incorrectly focussed, for example: the project Goal and Objective are set too high, are non-specific or non-attributable, or are too low, and therefore focus at the output level, are supply driven, and often micro-managed, both by those responsible for executing the project, but also those responsible for funding it. Other problems include insufficient project focus and poor documentation of results and impact to demonstrate to end users the results achieved.

collected. The storyline concept also allows for each respective country to understand how their particular Demonstration Project can offer guidance and support to other countries facing similar issues. The *Storyline* approach encourages participation and the use of dialogue and stories to assess impact. At key stages of the project (e.g.: Mid-Term and Final Evaluations), introducing the concept of Most Significant Change helps focus on where the project has caused impact, where change has occurred, and where the most significant (or important) change has occurred. For project purposes, the most important change may relate to a reduction in sewage releases, but from a community level stakeholder opinion, this could mean an increase in crab or fish catch or a reduction in illness in children after swimming in near-shore waters. The key issue for the project team, working with stakeholders and through project activities, is to understand cause and effect and attribution of impact. Storylines, combined with prescriptive indicators allows for verification of approaches to minimise exogenous variables, or at least consider them in evaluating the best approach to minimise, in this case, sewage releases. Furthermore, through participatory engagement a better understanding of community, agency, national, and ultimately regional priorities can be developed[22]. Reducing sewage is not necessarily a key focus on communities, but catching food is. Explaining the linkages between these two factors through facilitating the communities in developing this understanding themselves helps promote long term behavioural change through better understanding.

104. The Pacific Regional Action Plan Matrix monitoring system will be developed within the IWRM Resource Centre at SOPAC. The project will re-design the existing matrix to provide indicators for progress monitoring in implementing Pacific RAP activities for each country. The system will be a web-based database consisting of information on projects at the national and regional level, including wherever possible project objective, indicators for project impact, budget and donor information, implementation agency, and project partners. This information will be aggregated at the Action level to deliver the Pacific RAP (and therefore address the barriers raised in the SAP), and will be useful in providing national governments and donors with information on investment gaps to allow for more strategic and harmonised donor investments in the region. Indicators for individual projects and programmes will be scaled up, using the Regional Indicator Framework to demonstrate project impact against the RAP Actions and Key Messages, as well as the MDG's presented below in Table 6. Information from the RAP matrix and the Indicator Framework will be provided to the GEF-PAS monitoring framework.

Table 6: Specific MDGs Supported by the Pacific IWRM Project

Goal	Target	Progress Indicators
Ensure Environmental Sustainability 	**Target 9:** Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources	**25.** Proportion of land area covered by forest **26.** Ratio of area protected to maintain biological diversity to surface area
Ensure Environmental Sustainability 	**Target 10:** Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	**30.** Proportion of population with sustainable access to an improved water source, urban and rural **31.** Proportion of population with access to improved sanitation, urban and rural
Develop a Global Partnership for Development 	**Target 14:** Address the special needs of landlocked developing countries and small island developing states (through the Program of Action for the Sustainable Development of Small Island Developing States and 22nd General Assembly provisions)	**34.** Proportion of total bilateral, sector-allocable ODA of OECD/DAC donors to basic social services (basic education, primary health care, nutrition, safe water and sanitation) **37.** ODA received in small island developing States as proportion of their GNIs

Note: Focussing on water provides a wider entry point than water alone. Environmental degradation is often linked to poor water use, management and understanding. Furthermore, supporting water interventions, especially in a cross-sectoral and multi-level such as through IWRM supports the achievement of the other MDGs, especially in health, food security, maternal care, etc.

[22] A simple example based on earlier IWP experience in Small Island Developing States is presented in *The Role of Local benefits in Global Environment Programs*, GEF Evaluation Office, Report No.30, June 2006 (p.122), using a rudimentary approach for Tuvalu.

105. In developing the Regional Indicator Framework, consideration will also be given to the potential role of the Environmental Vulnerability Index (EVI)[23]. The Index is designed to be used with economic and social vulnerability indices to provide insights into the processes than can negatively influence the sustainable development of countries and was created by the SIDS of the Pacific to promote sustainable development. An Index has been used to provide a rapid and standardised method for characterising vulnerability in an overall sense, and identifying issues that may need to be addressed within each of the three pillars of sustainability, namely environmental, economic and social aspects of a country's development. Vulnerability can provide a valuable indication of how sustainably humans are living within their environmental means in two ways: *(i)* the EVI simultaneously examines levels of risk and conditions now, predicting how the environment is likely to cope with future events (e.g. pre-existing environmental damage is likely to be exacerbated in the future due to lower resilience); and *(ii)* the EVI focuses on feedback and interaction – rather than focusing on state of the environment, the EVI considers past situations, and takes into account current status and potential future change in order to promote adaptive management. The EVI makes use of SMART indicators, the integration of which will be considered in the development of the Regional Indicator Framework.

Component C3:	**Policy, Legislative and Institutional Reform for IWRM and WUE**
Objective:	Supporting countries to develop national IWRM policies and water efficiency strategies, endorsed by both government and civil society stakeholders, and integrated into national sustainable development strategies
Outcome:	Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions
Output 3.1	National IWRM plans and WUE strategies developed and endorsed
Output 3.2	Implementation of IWRM approaches agreed across national, community and regional organisations
Output 3.3	Strengthened and sustainable APEX water bodies to catalyze implementation of national IWRM and WUE plans, including balanced gender membership
Output 3.4	Awareness raised across civil society, governments, education systems and the private sector
Output 3.5	Sustainability strategies developed focusing on institutional and technical interventions required for Demonstration scaling-up as part of National IWRM Plan development and implementation

106. Component C3 of the project will be entirely co-financed by the EU Water Facility. Component C3 aims to support Pacific Island Countries in fulfilling the need to develop Integrated Water Resource Management Plans and Water Use Efficiencies in line with the WSSD Plan of Implementation. A significant amount of background work has already been done in this respect, including co-financing support provided through the EU Programme for Water Governance which kick-started this process in Kiribati, The Solomon Islands, and Fiji. This project was designed in unison with the EU Water Facility co-financing. This Component has established the Pacific IWRM Resource Centre, and the Project Coordination Unit for this project funded by GEF will form part of that Resource Centre. The Resource Centre provides assistance to PICs in the development and implementation of National Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) Plans, and assists in the coordination of regional water sector support programmes implemented with partner organisations, including helping facilitate processes and partnerships for IWRM on the national, catchment and community level. Specific activities will include:

- Development and dissemination of best practice for building national and local capacity for IWRM;
- Facilitating transfer of IWRM regional practice from one PIC to another;
- Identification and documentation of existing small island IWRM practice at different scales;
- Facilitation of regional coordination on IWRM issues;
- Support IWRM issue identification and analysis, including background review and options for the future (IWRM Roadmapping support, focusing on steps required for better

[23] The EVI was developed by the Executing Agency, SOPAC, UNEP, the Alliance of Small Island States (AOSIS), International Strategy for Disaster Reduction (ISDR), the World Meteorological Organisation (WMO), Pacific Regional CROP Agencies, Italy, Ireland, New Zealand, Norway, and the University of Malta. For further information see: http://www.vulnerabilityindex.net/EVI_2005.htm

water management using IWRM principles);
- Supporting the development of IWRM planning processes on the national, catchment and community level, working with policymakers to demonstrate how considering better water management can lead to achieving larger objectives;
- Through monitoring progress in achieving the MDG targets for IWRM in the Pacific (through links to Component C2);
- Assisting countries to develop project management systems for IWRM;
- Through demonstrating the economic, social and environmental benefits of IWRM – laying down a framework for better decision-making on an on-going basis;
- Supporting multi-stakeholder and multi-sectoral partnerships (e.g. national IWRM APEX Bodies/water committees, catchment partnerships, community water committees, etc.) in IWRM planning and implementation;
- Advocating for SIDS IWRM issues at the global scale; and,
- Through promoting IWRM as a sustainable tool for addressing immediate political and public priorities in water management.

107. Activities will also include the development of awareness raising materials at different levels to ensure that communities, government workers, and national level decision-makers and politicians are made aware of the water and environmental management issues faced by SIDS, and the benefit of managing water using IWRM principles to reduce environmental stress. A Strategic IWRM Communication Plan will be developed and this will be available to Demonstration Projects to take forward at the national level, with support from the IWRM Resource Centre and the PCU. This Component will also compile and develop toolkits on specific themes relating to IWRM, such as the IWRM Planning Process, Monitoring & Evaluation for IWRM, High Level Engagement for IWRM, National Priority Issues and IWRM, Water Resources Policy and Legislation, IWRM for Media, IWRM for Youth, Institutional Reform Processes for IWRM, Stakeholder Participation for IWRM, IWRM Partnerships, IWRM and Finance, Water Use Efficiency Planning, Information for IWRM, etc. In summary, Component C3 will support the remaining 3 components of this project through:

- Supporting political and legal commitments made to utilize IWRM policies towards sustainable water use (acceleration of Pacific RAP actions);
- Strengthening National APEX Water Bodies to catalyse implementation & monitoring of IWRM plans and WUE policies;
- Promoting institutional change to enact National IWRM Plans due to multi-disciplinary nature and skills requirements; and,
- Supporting and facilitating regional, national & local stakeholder involvement in national, catchment, & community scale water governance.

Component C4:	**Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication**
Objective:	Sustainable IWRM and WUE capacity development, and global SIDS learning and knowledge exchange approaches in place
Outcome:	Improved institutional and community capacity in IWRM at national and regional levels
Output 4.1:	National and regional skills upgraded in project management and monitoring including water champions and APEX bodies for both men and women
Output 4.2:	Active twinning programmes in place between countries facing similar water and environmental degradation problems
Output 4.3:	Effective knowledge management networking and information sharing inter and intra-regional

108. Component C4 focuses on the need for national and regional capacity development. Component C3 can be divided into three core elements to deliver the component outcome: (i) capacity building, (ii) sustainability and replication; and (iii) knowledge exchange and learning. Under these three core elements the following activities will be conducted.

109. Capacity Building

- Focused on supporting Component C1 in delivery of the demonstration project activities through providing technical and project management support (in some cases through specific training

courses – see below). This includes providing support to national Demonstration Project Staff for community engagement, participatory monitoring & evaluation, facilitation and engagement approaches, including establishing Community Working Groups (CWGs);
- Using support provided from EU Water Facility co-financing [C3] and this component to improve institutional and community capacity in IWRM at regional and national levels;
- Through Component C2 of the project, support this component [C4] to improve national project management and monitoring through reviewing existing national and regional training needs, and looking at regional approaches to capacity building for IWRM in the future based on a poling and assessment of scarce national human resources amongst national government agencies (this could be through questionnaire surveys of the National IWRM APEX Bodies);
- Through training courses for PICs and identified project staff and other stakeholders. Based on feedback during the project design phase the following are subject areas that IWRM Focal Points identified as possible training courses to be conducted during the full size project implementation: logframe development and indicators; gender mainstreaming and participation; project cycle management; drafting Terms of Reference and hiring and managing consultants; project financial reporting; feasibility studies, IWRM approaches and processes; socio-economic assessment tools; economic and financial instruments for IWRM; policy development; legislation development – linking customary legislation to national legislation; community engagement and participation in projects; facilitation skills; stakeholder analysis; communication strategies and approaches; fund development and securing sustainable financing;
- Training of Trainers approaches will be integrated into the project to ensure that existing and new local and regional capacity builds and support the region, and will work inter-regionally with the Caribbean;
- Embedding water management and awareness approaches/considerations, including simple cause and effect stories/exercises into school curricula to promote consistent and long-lasting change;
- Through constant support offered to the National IWRM APEX Bodies as cross-sectoral decision making and learning bodies at the senior national level, including focussing on involving Finance and Economic Planning Units.

110. During project implementation different tools will be used to demonstrate the benefit of strategic use of economic tools at the national and regional level. The tools will provide critical information to inform the execution of components of in-country projects as well as to create an appropriate (enabling) environment to support their success. The use of economic tools to support the IWRM project is consistent with internationally recognised principles for sustainable water management. It reflects economics as a key pillar for environmentally sustainable development (along with equity and societal issues) as well as the internationally accepted 'Dublin-Rio' principle that water is an economic good and should be managed as such.

111. The IWRM project will seek to incorporate all the economic uses and values of water in its competing uses, support rational decision making for water and support the use of relevant economic instruments for its management, as appropriate. The types of economic tools that will in practice be supported in the IWRM project will vary from country to country at the national level. However, in drawing on the economic lessons learned from the recently completed Strategic Action Programme for the International Waters of the Pacific Small Island Developing States (IWP), key tools that are likely to be supported in the first instance include economic valuation of resources/ watershed degradation, feasibility assessments of project interventions and economic monitoring[24]. It is envisaged that economic valuation will be used to address the regional low levels of awareness of the true costs of current water use practices – and the benefits of doing so. This tool will be used at the national level to provide a rationale for water policy support (advocacy, raising of water as a national priority, allocation of resources for continued or improved water management) as well as to create incentives for changing behaviour on the ground.

112. Feasibility assessments will be used to ensure that alternative water management options are assessed rationally and consistently to identify the most commercially viable and economically feasible ones where several exist. Importantly, the use of this tool is expected to reveal key factors to inform the detailed design and execution of some project activities. For instance, a benefit cost

[24] Holland, P. 2006, Economics and the Pacific IWP: a summary of key activities and issues to date, February, unpublished.

analysis that identifies the use of composting toilets as key to reducing water pollution is also likely to identify factors in society that affect the realisation of any benefits (eg., taboos, communications issues etc.). Activities to address those issues (eg., information, education, social marketing activities etc.) will then be incorporated into project design to ensure buy-in at the local level and to create incentives for sustainable use. Support will be given in the IWRM project to incorporate appropriate economic instruments and monitoring of project activities. These two self reinforcing activities are also expected to build on valuation and feasibility activities. In this way, economic issues are expected to build on each other and support projects from design through to assessment.

113. While many economic activities will be conducted in-country, the project will also execute regional or sub regional activities to ensure project success. Critically, all major economic activities undertaken in the project will incorporate capacity building at the appropriate level. In the Pacific it has long been recognised that there is a lack of capacity to conduct economic analysis of natural resources for sustainable use. Although training has been provided at a regional level to address this it has never in practice been institutionalized to regional facilities such as the University of the South Pacific[25]. Therefore, to ensure the provision of dedicated training in relevant resource economics, the IWRM project will draw on existing materials to provide sub-regional and or regional training in the use of practical resource economic tools for water management.

114. In incorporating economic tools to the IWRM project, relevant lessons will be drawn from the earlier International Water Project. Following this programme, the IWRM project will aim to ensure that economic activities are strategically linked to communications and stakeholder activities. For example, economic work is expected to identify key issues that need to be communicated at a number of levels (local, national, regional) and in different ways (through media, publications, reports etc.) while drawing on participatory and communications information (stakeholders, needs etc.).

115. Based on the large number of different subjects for training, National Demonstration Project Staff and IWRM Focal Points will be provided with an outline of the regional capacity building components at the Pre-Inception Workshop in July 2008. This will be followed up by a questionnaire from the PCU to the project staff and Focal Points with a series of questions to allow the PCU to tailor a regional Continuing Professional Development (CPD) Package across the region for IWRM. This CPD approach is a cost-effective way of delivering a range of broad based skills to national project staff, in a training of trainers approach to embed further skills at the national level[26]. Invitations to the training will include other relevant GEF project staff (SLM and PACC in consultation with the agencies responsible for those projects where possible) and former IWP staff who can participate, and in some cases lead part of the CPD package in-country[27].

116. Sustainability and Replication

- Through promoting and advising PIC Governments on cost recovery schemes for water services and protection (such as PES schemes) using locally adapted solutions to sustain environmental productivity balanced with equitable use of water resource;
- Capture and assessment of lessons, best practices and best available technology from other SIDS and other related IWRM/WUE exercises through links to other regional and global SIDS projects (such as IWCAM);
- Through supporting national decision-making for management of Demonstration Projects, encouraging national project staff and stakeholders to be responsible for, and take ownership of national projects;
- Promoting and securing national budget for continuing Demonstration interventions as national approaches;
- Through streamlining any new approaches rather than adding to administrative burden;

[25] Yeo, T. 2004, Course Report: Economics in Community-based Project Management, a report to the UN Division of Ocean Affairs and the Law of the Sea, Trainmar Resource Centre, Malaysia.

[26] A similar approach was undertaken in the earlier IWP project and this was encouraged in the final evaluation of that project. See: Fox, A., Tiraa, A., and Raaymakers, S. 2007. Terminal Evaluation: GEF/UNDP/SPREP Strategic Action Program for the International Waters of the Pacific Small Island Developing States (RAS/98/G32); and, Replication Strategy, Follow-Up and New Initiatives. Working Paper 6b. Fourth Multipartite Review, 11-12 August, 2003. Apia, Samoa, SPREP.

[27] Note that in many cases the CPD programme will grow from a simple starting point of basic training based on identified needs, including (i) using a computer for core tasks; (ii) maintaining financial records and managing project funds; (iii) negotiating and managing contracts; and, (iv) basic facilitation and team management.

- Through inviting Donors at the national level to PIC IWRM APEX Body meetings to raise issues faced by countries in ensuring sustainable development within the water sector and the cross-cutting effects of not managing water resources appropriately;
- To help in identifying possible funding options for long term protection of near shore marine and forest resources are options which many PIC countries are considering within their IWRM Demonstration Projects;
- Promoting water stewardship to deliver global environment benefits throughout the project and identifying Water Champions to influence national government to provide sustainable financing for applicable Demonstration Project Staff to remain as national IWRM advisers;
- Through providing a Replication Framework during the initial Demonstration Project review period to help guide national project staff in considering replication and sustainability issues from the start of the project. The framework will be a guideline, which, with PCU support, countries can tailor their own replication approaches to be shared across demonstration sub-groups. The PCU will synthesis lessons learned and innovative approaches for regional learning (also supported by twinning and exchange visits between projects);
- Through appropriate reporting – not academic reporting but interactive and tailored feedback tools and mechanisms to promote lesson learning and take-up.

117. Knowledge Exchange and Learning

- Through the Pacific Partnership to improve networking for information sharing;
- Streamlined knowledge exchange within & between national & regional institutions using appropriate communication media and new resources;
- Networking and sharing of information and experiences within the project, and with the GEF SIDS regional partners (Caribbean and Atlantic/Indian Ocean groupings). This will include the development of a website consistent with, and in participation with, IW:LEARN. The website will also contain the Pacific RAP monitoring matrix. Other tools will also be used for communicating and sharing information, including webshots, email, skype, video[28], and presentations;
- One particularly important element of this component will be the networking and sharing of information between other SIDS regional groups (with particular consideration being given to promoting the Joint Programme for Action between the Pacific and Caribbean SIDS, and expanding this to include the Atlantic and Indian Ocean SIDS);
- Project staff and appropriate country representatives will be supported in attendance at relevant international meetings (e.g. International Waters Biennial Meetings) to allow for exchange and interaction between SIDS Projects as well as other relevant IWRM projects;
- Using Demonstration project impacts and lessons learned to raise awareness to water resource and environmental stress issues, and through national and regional promotion of what works and what does not work;
- Knowledge Exchange, Learning and Replication between PICS through website and PCU support mechanisms supported through ongoing and future regional water work (as key sustainability approaches for successful demonstration project interventions);
- Improved public awareness and media campaigns raising awareness on water issues, including public water services delivery as part of improved governance holding national services to account;
- Through solid reporting and documenting lessons learned using templates and guidance provided by the regional PCU, and feeding these lessons into the IWRM Resource Centre for wider regional dissemination;
- Twinning projects within demonstration sub-groups will be initiated at project start-up to fast track learning opportunities (this may also provide groups for sub-regional training-of-trainers approaches to provide a cost effective way to sharing information and approaches and rolling them out within sub-regions.

[28] This may include preparing video short stories on water and environmental issues faced by Pacific Island Countries and ways that the project is attempting to tackle them. Television Trust for the Environment has a wide audience through the Earth Report on BBC World and may be an effective method to share the lessons across the region, and globally. http://www.tve.org/

	Project Management
Objective:	Sustainable development approaches enhanced in the Pacific Islands Region through improvements in water resource and environmental management
Outcome:	Efficient and responsible management at the national and regional level coordinating, supporting, and facilitating project activities to improve water resources management and water use efficiency in Pacific Island Countries

118. Project Management activities will include the following:

- Implementation of day-to-day management processes (staff selection and hiring, allocation of responsibilities, disbursement of funds, procurement of equipment, etc);
- Project monitoring and evaluation (standard reporting, independent evaluations, etc);
- Assistance in networking between Regional and National Steering Committees, sub-committees and National Project Teams for all participating countries;
- Organization of technical cooperation activities between regional organizations for capacity building, water and environmental policy, and management related to the implementation of the Pacific IWRM Project;
- Organization of consultative meetings for introducing and implementing programme activities;
- Collection and dissemination of information on policy, economic, scientific and technical issues related to the project;
- Provision of support for the preparation of technical and feasibility studies;
- Preparation of regional progress reports (administrative and financial) concerning programme activities and other monitoring requirements;
- Support National project teams in the preparation of national progress reports (administrative and financial) concerning project activities;
- Establishment of and assistance in networking between specialized institutions in participating countries and technical specialists from elsewhere;
- Assistance in implementing demonstration projects through guidance and administrative support;
- Delivery of the regional components of the project with National Coordinators;
- Capturing Demonstration Project, Regional Component, and project process lessons learned and disseminating them in appropriate formats. This includes advising countries on contractual issues to ensure external consultants delivered have broad accessibility for the region and add value to the project;
- Coordination with the SOPAC Water work programme and activities to ensure relevant linkages are made between water projects, especially the EU Water Facility funded National IWRM Planning Programme;
- Coordination with other international, multilateral and bilateral activities among participating PICs related to the implementation of the project, including sourcing additional funding to ensure future sustainability of project interventions (for example, through the GEF Small Grants Programme for community initiatives, supported by National Project Staff); and,
- Programme management (financial, logistical, monitoring and strategic) particularly in the context of the UNDP/UNEP and GEF and other relevant regional projects.

119. Outputs from the project design phase are included as part of this submission, including National Diagnostic Reports, Hot Spot Analyses, and full Demonstration Proposals. Additional material produced includes a summary of the National Diagnostic Reports titled: *Integrated Water Resource Management in Pacific Island Countries: A Synopsis*. This has been available for download and distribution since December 2007 and has been widely distributed across the Pacific and to other GEF projects. Other outputs include the field tested *IWRM Community Mobilisation Guidelines* which have also been available for download and widely distributed. *The Pacific Integrated Water Resource Management Programme* Brochure is a new output and includes a poster which shows the integration between the GEF funded Demonstration Projects and regional components, and the EU Water Facility co-funding project (Component C3). Box 1 contains briefly summarises these outputs. SOPAC and many of the countries have a good working relationship with regional NGO Live and Learn Environmental Education who are co-financers of the project and will support the implementation of many activities[29].

[29] http://www.idea.org.au/default.asp

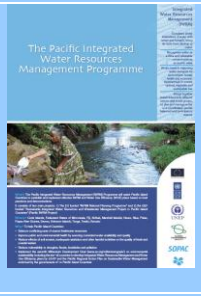
Box 1: Project Design Phase Outputs

Integrated Water Resource Management in Pacific Island Countries: A Synopsis

Under the Project Design Phase 14 detailed Diagnostic Reports summarising the status of national water resource management and assessing the barriers to implementing Integrated Water Resource Management (IWRM) approaches in PICS were prepared. This Synopsis report represents a summary of the 14 Diagnostic Reports, providing a snapshot baseline status of IWRM approaches in country. It will provide a useful monitoring report over the coming years as countries start to implement IWRM approaches. The report provides some simple solutions to achieving IWRM in small island environments.

IWRM Community Mobilisation Guidelines

Developed by regional NGO Live and Learn Environment Education, supported by SOPAC and UNDP and UNEP, the Community Mobilisation Guidelines are a key output from the Project Design phase of the project. The guidelines are a valuable resource to assist communities and facilitators working with them to look at IWRM approaches at a village and community level.



The Pacific Integrated Water Resource Management Programme Brochure

Developed by the Resource Centre at SOPAC the Pacific IWRM Brochure provides details about the projects contributing towards IWRM across the Pacific, includes brief details on the Demonstration Projects and wider governance reform activities supported by GEF and the EU Water Facility. The brochure contains a poster intended to explain to a wide audience some of the water and environmental problems faced across the Pacific Islands.

Project Indicators, Risks and Assumptions

120. Based on GEF Project Performance Results guidance indicators are identified below and in the logframe as follows: [P] represents a Process Indicator, [SR] represents a Stress Reduction indicator.

121. The Project Goal is aligned with the goal of the GEF-PAS: *to contribute to sustainable development in the Pacific Islands Region through improvements in water resource and environmental management*[30].

Objective level

122. The Project Objective is: *Improved water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans*[31].

123. At the Objective level, the indicators are: **1.1** Overarching improvement in water resource management, quality and availability through appropriate national Demonstration Project execution and concurrent reforms in policy, legislation and institutional arrangements [P]; and, **1.2** Actual change in institutional and societal behaviour [P]. Specific objective level target indicators are defined as: **1.1** 14 National IWRM and Water Use Efficiency Strategies in place, with institutional ownership secured with 20% increase in national budget allocations by month 42 [P]; **1.2** Best IWRM and WUE approaches mainstreamed into national and regional planning frameworks by end of project facilitated by national IWRM APEX bodies, Project Steering Committee, Pacific Partnership, and PCU by month 60 [P]; **1.3** Environmental stress reduction in 14 Pacific SIDS: 30% increase in forest area for ~8,000 ha of land, 35% reduction in sewage pollution over eq.~40,000 ha area leading to reduction in eutrophication for 4 coastal receiving waters sites, and 35% reduction in water leakage for systems supplying ~85,000 people by end of project, leading to average 30% increase in population with access to safe water supply and sanitation for 6 sites [SR] (based on targets under Component C1).

Outcome level

Based on the four components of the project:

Component 1: **Demonstration, Capture and Transfer of Best Practices in IWRM and WUE**

124. Component 1 Outcome: Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management. Indicators at the outcome level are: **1.1** Step change improvement in baseline situation (based on Diagnostic Analyses) from project start, including adoption of technical and allocative water use efficiency approaches by end of project [SR]. Specific outcome level target indicators are defined as: **(i) Watershed Management: (•)** 2 Basin Flood Risk Management Plans resulting in 10% reduction in infrastructure loss due to flooding (on approximately 18,000 ha of land) by end of project [SR]; **(•)** 30% increase in forest area at 2 Demonstration Sites covering ~8,000 ha of land [SR]; **(ii) Wastewater & Sanitation Management: (•)** 35% reduction in sewage pollution discharge at 8 Demonstration sites (covering eq. 40,000 ha of land) by month 48 [SR]; **(iii) Water Resources Assessment & Protection: (•)** 4 SIDS have revised legislation in place to protect surface water quality by end of project [P]; **(iv) Water Use Efficiency & Water Safety: (•)** 35% reduction in leakage in 3 national urban water supply systems (serving ~85,000 people) by month 42 and reduction over freshwater usage for sanitation by end of project [SR]; **(•)** Replication of technical and water use efficiency lessons from project applied in future national and project based activities by end of project [P]; **(•)** Technical, management, participatory and advocacy lessons from

30 Note that it is assumed the GEF-PAS monitoring framework will consider impact monitoring as part of the hierarchy of objectives approach, given the PAS design around a common goal and implementation framework.

31 Note that at the Objective Level, for the project to be realised favourable external responses are required. These are outside the control of the Implementing and Executing Agencies.

projects developed into national lessons learned presentation packages with best practices mainstreamed into national and regional approaches by end of project facilitated by national IWRM APEX bodies, Project Steering Committee, Pacific Partnership, and PCU [P]. For National Demonstration Projects indicators have been aggregated based on baseline and target indicators identified during the project design phase and presented in the summary project tables in Annex 5. Full Demonstration Project Proposals can be found in Volume II of this submission.

Component 2: **IWRM and WUE Regional Indicator Framework**

125. Component 2 Outcome: National and Regional adoption of IWRM and WUE Regional Indicator Framework (RIF) based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point. Indicators at the outcome level are: **1.1** Multi-sectoral approaches to national water and environmental management improved and increased through M&E feedback and action, leading to global environmental benefits by end of project [P]. Specific outcome level target indicators are defined as: **1.1** Indicator feedback facilitated through IWRM APEX Body provides information for multi-sectoral action and endorsement of national and indicators for IWRM, NAPA, NAP and sustainable development planning (NSDSs and NEAPs) by end of project [P].

Component 3: **Policy, Legislative and Institutional Reform for IWRM and WUE**

126. Component 3 Outcome: Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions. Indicators at the outcome level are: **1.1** Nationally endorsed IWRM plans and WUE strategies in place and driving sustainable water governance reform in PICS by end of project [P]. Specific outcome level target indicators are defined as: **1.1** 14 draft National IWRM and Water Use Efficiency Strategies in place, with institutional ownership secured through the national APEX body and institutional mandates adjusted/confirmed as IWRM implementing agencies with appropriate budget allocations by month 42 [P].

Component 4: **Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication**

127. Component 4 Outcome: Improved institutional and community capacity in IWRM at national and regional levels. Indicators at the outcome level are: **1.1** Measurable sustained increase in training and awareness campaigns, including appropriate national level financial allocations for capacity development by end of project [P]. Specific outcome level target indicators are defined as: **1.1** Increase in national staff (both men and women) across institutions with IWRM knowledge and experience by end of project [P]; **1.2** 30% increase in gender balanced community and wider stakeholder engagement in water related issues by month 60 [P]; **1.3** Improved cross-sectoral communication by end of project [P]. For further information and indicators at the output level refer to the logframe in Section 2.

Risks and Assumptions

128. The project Strategic Results Framework contains the Risks and Assumptions for the project, summarised in the table (Table 7) below. Key assumptions underlying the project design include:

- Strong and high-level government commitment is built upon and sustained;
- Stakeholders will be consulted through the project by national governments, and stakeholders are willing to engage;
- Baseline data can be collected within the first 6 months of the project to monitor progress;
- National staff with appropriate qualifications and capacity are available;
- National capacity to understand and act upon single sector and cross sectoral monitoring data is present;
- Communities and wider stakeholders are willing to participate in Demonstration projects;
- Governments are wiling to reform the way they manage water resources and provide water services;
- Civil society is concerned about water management and safety;

- Countries are willing to share information regionally and work together;
- The period for national demonstration project implementation is long enough for lessons to be transferred to other projects and into national approaches before the end of the project;
- Co-financing and support from other projects, national governments and donors is available throughout the project implementation period;
- Suitably qualified and experienced staff are available for the Regional Project Coordination Unit.

Table 7: Project Risks and Assumptions and Mitigation Measures

Component	Objective	Outcome	Risks and Assumptions	Mitigation Measures
[C1] Demonstration, Capture and Transfer of Best Practices in IWRM and	Practical demonstrations of IWRM and WUE focused on removing barriers to implementation at the community/local level and targeted towards national and regional level learning and application	Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management	• Strong and high-level government commitment is not sustained [ER] • Vulnerability to changing environmental conditions* [ER] • Inclusive stakeholder involvement in the IWRM consultation process [IR] • Limited influence of national and catchment stakeholders to promote and sustain IWRM [ER] • Lack of appropriate baseline data to monitoring project progress [IR] • Restricted capacity of stakeholders to implement IWRM best practice in countries [ER] • Appropriately qualified national staff available [IR]	• Advocate mainstreaming of IWRM and WUE into national planning and budgetary process • Monitoring of PIC economic, social and political conditions to rapidly determine possible project implementation risks (due to political upheaval/changes/financial crises etc) • IWRM political advocacy tools and materials to reflect economic benefit to current short term regional political priorities produced • Adopt 'no-regrets' approaches in all IWRM Demonstration projects and instigate a culture of risk reduction and risk analysis* • Clear guidelines where stakeholders are engaged • Improved understanding of climate change* • Participatory monitoring of stakeholder involvement • Use of SIDS examples and expertise to demonstrate benefit of best practice guidance and awareness raising materials • Active engagement with national and regional NGO's to promote IWRM and support project in promoting community empowerment and stewardship
[C2] IWRM and WUE Indicators Framework	IWRM and environmental stress indicators developed and monitored through national and regional M&E systems to improve IWRM and WUE planning and programming and provide national and global environmental benefits.	National and Regional adoption of IWRM and WUE indicator framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point	• Indicator data is available and/or the means to find/collect the data are available [IR] • Strong understanding and willingness to use and act upon the data is present [ER] • Strong willingness to participate by communities involved in Demonstration Projects and wider stakeholders [ER] • Willingness by national government to learn from and adopt PM&E approaches where applicable [ER] • Lack of appropriate baseline data to monitoring project progress [IR] • Appropriate staff are available to work with project staff and the national IWRM APEX bodies to mainstream monitoring into normal practice [IR]	• IWRM political advocacy tools and materials to reflect economic benefit to current short term regional political priorities produced • Provision of SIDS IWRM guidance for self-development coupled with general and specific IWRM training needs to augment existing capacity • Linking to other on-going or proposed IWRM projects • Clear guidelines where stakeholders are engaged • Participatory monitoring of stakeholder involvement • Active engagement with national and regional NGO's to promote IWRM and support project in promoting community empowerment and stewardship • Adequate legislative and institutional arrangements supporting water management programs • Advocate mainstreaming of IWRM and WUE into national planning and budgetary process • IWRM political advocacy tools and materials to reflect economic benefit to current short term regional political

				priorities produced
[C3] Legislative and Institutional Reform for IWRM and WUE	Supporting countries to develop national IWRM policies and water efficiency strategies, endorsed by both government and civil society stakeholders, and integrated into national sustainable development strategies	Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions	• Appropriately qualified national staff available [IR] • Stakeholders willing to participate [ER] • PIC governments willing to look at reform mechanisms and reduce dominant and unconsultative approaches [ER] • Country and catchment priority issues exist [ER] • Early partnerships continue to exist and function. Partnerships have capacity to use support tools or work with external advisors [ER] • Partnerships maintain capacity and external examples of good practice exist and can be adapted for SIDS [ER] • PIC Governments willing to consider integration of approaches using cross-sectoral mechanisms, including policies [ER]	• Adequate legislative and institutional arrangements supporting water management programs • Advocate mainstreaming of IWRM and WUE into national planning and budgetary process • Monitoring of PIC economic, social and political conditions to rapidly determine possible project implementation risks (due to political upheaval/changes/financial crises etc) • IWRM political advocacy tools and materials to reflect economic benefit to current short term regional political priorities produced • Capacity building in engagement of influential stakeholders • Develop and select priority country driven action programs for climate change adaptation and IWRM • Linking to on-going IWRM activities where possible
[C4] Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication	Sustainable IWRM and WUE capacity development, and global SIDS learning and knowledge exchange approaches in place	Improved institutional and community capacity in IWRM at national and regional levels	• Water champions are present in-countries and willing to take on the role [IR] • National participation in the twinning approach and lessons learned and fed-back [IR] • Public concerned about water and catchment management issues [ER] • Countries willing to share information with each other, regionally and inter-regionally [IR]	• Utilizing ongoing and planned GEF support programs • IWRM political advocacy tools and materials to reflect economic benefit to current short term regional political priorities produced • Clear guidelines where stakeholders are engaged • Use of SIDS examples and expertise to demonstrate benefit of best practice guidance and awareness raising materials • Linking to on-going IWRM activities where possible • Use of media and targeted political messages to encourage influential stakeholder engagement

Notes: [IR] – Internal Risk to project and therefore within the project's control; [ER] – External Risk to the project and therefore outside of the project's control.

* **Climate Change Risks**. Project interventions will take a 'no regrets' approach to climate change through ensuring that all interventions are considered in light of changing climate patterns and the current known possible effects of these. In line with the Pacific Islands Climate change Framework 2006-2015, this project will support the *(i)* implementation of adaptation measures through providing information on the most suitable interventions, and the consequences of inappropriate action; *(ii)* mainstreaming of climate change into national policies, planning processes, plans and decision-making across sectors through the use of National IWRM APEX Bodies and IWRM Plans where applicable; *(iii)* promotion of good governance in considering climate change through the participatory nature of the project, from village to national, and regional level; *(iv)* improvement of understanding by upgrading data collection systems (in partnership with the co-financing HYCOS project), technical data sets developed under the project will be considered adopting a no-regrets approach; *(v)* as part of project working practice, strengthen human capacity to monitor and assess environmental, social and economic risks and effects of climate change.

Theme 2 of the Pacific RAP focuses on Island Vulnerability. Two Key Messages in the RAP under Island Vulnerability include: (1) *There is a need for capacity development to enhance the application of climate information to cope with climate variability and change*; (2) *Change the paradigm for dealing with Island Vulnerability from disaster response to hazard assessment and risk management, particularly in Integrated Water Resource Management*. This project supports the implementation of the Pacific RAP as the framework for regional country driven action on water.

Further information on links between the IWRM and the Pacific Adaptation to Climate Change (PACC) Projects are under the *Linkages with Other GEF Financed Projects and Global Programmes* section.

129. Communication, participation, and country-driven processes have already been strong elements during the project design phase and will be continued throughout full implementation to reduce risk through safeguarding interventions. Demonstration Projects will be monitored to ensure that potential project implementation measures for both adaptation and mitigation of climate change effects are taken into account, and that no-regrets approaches are implemented. Ensuring the early capture of country driven priority concerns and developing momentum throughout the PDF design phase has placed the implementation of IWRM Demonstrations and National Planning in a unique cost effective position; reducing lead times for full project implementation. The Pacific IWRM Inception Meeting is planned for 18th-25th July in Alofi, Niue at the invitation of the Premier, the Honourable Mititaiagimene Young Vivian. This event will be sponsored by the EU Water Facility and will support the start-up of the Demonstration Projects and other IWRM policy support activities. Risks that could affect the success of the project include:

- Failure of the GEF-PAS Coordination Mechanism to deliver coherent advice and assistance to PICs through coordination of projects implemented under the GEF-PAS. This is important given the cross-sectoral and multi-level nature of IWRM;
- Individual demonstration projects are delayed as a consequence of GEF-PAS activities or other projects implemented under the GEF-PAS in Pacific Island Countries;
- Excessive project reporting and other administrative processes delay the implementation of this complex regional project, especially as it is not known at this stage if GEF-PAS will have additional reporting requirements to the Implementing Agencies, or if additional finance will be made available to cover further reporting to GEF[32];
- Inefficient processing and release of project funds by Implementing Agencies and the Executing Agency delays project implementation and therefore progress;
- At the national level project management staff with the appropriate managerial, technical and IT skills for effective project management are not available;
- At the national level, Demonstration Project staff become completely overburdened due to project implementation and administrative/reporting requirements;
- The political situation in Pacific Island Countries becomes unstable and therefore delays project implementation;
- Extreme climatic and other effects (cyclones, tsunamis) may occur and this could affect project delivery;
- Pacific Island Countries will not start the National Demonstration Projects at the same time, impacting on progress, lesson learning, twinning approaches, etc.

130. None of these risks are considered to be high, although the most serious risk, rated 'moderate' concerns the need for Pacific Island Countries to sustain strong and high-level government commitment to improving the status of their water resources and water services and the way they are managed to reduce environmental stress. The mitigation strategy to address this risk involves the early and consistent application of an awareness program for policy makers and engagement of senior levels of government. This approach is already a standard format for engagement with PICS by the Executing Agency.

[32] Taken from the GEF-PAS Program Framework document, February, 2008: *'A GEF-PAS Steering Committee will help add value to GEF operations in the Pacific without adding another administrative layer between the GEF and the countries; it will guide the strategic direction of the overall program, taking into consideration national priorities set by each country; it will also act as an advocate for the PICs, increasing the visibility of relevant national concerns and expectations and promoting the mobilization of resources'*.

Incremental reasoning and expected global, and national benefits

131. The current water management baseline scenario for the region is due to a number of reasons including poor working practices, and the fragility, size, vulnerability and limited human and financial resources available to SIDS. Pacific SIDS suffer from: (i) deterioration in freshwater resources; (ii) reduction in coastal and watershed ecosystem functions; (iii) increased land based source pollution; (iv) deterioration of human condition; and therefore (v) the possible deterioration in economic stability.

132. PICs have already identified the priority needs for the region through the Strategic Action Plan for International Waters and the Pacific RAP, allowing national governments and donors to focus investments on priority concerns and to highlight capacity development needs. Through the use of national inter-sectoral committees and the Hot-Spot Analyses countries have identified the need to make a step change from the current business-as-usual approach and the urgent need for them to integrate water resource planning and management across sectors. National water policy reform is already occurring in many countries as they face increasing pressure on their water resources and receiving coastal waters. EU Water Facility co-funding will help to strengthen existing policy and planning and assist countries to develop national IWRM plans, supported by the GEF project focusing on demonstrable sustainable water management to reduce environmental stress and improve water use efficiency.

133. IWRM is a valuable entry point for capacity development, helping to foster inter-disciplinary skills through utilizing local knowledge and integrating this into monitoring to ensure that cause and effect are understood by all stakeholders. GEF support has already alerted projects and programmes (through the ICA process) to everyday and more strategic links which can be made with other national and regional initiatives. There is an urgent need to move the Pacific forward in this respect – the difficult communications and large distances between nations reduces the impact of strategic approaches and the Pacific RAP and Pacific Partnership will be significantly strengthened and enhanced through the support offered by the GEF-PAS. Table 8 summarises the project approach to key sustainable development issues faced across the Pacific, as identified in the GEF PAS Framework. This project will assist countries to utilize a wide range of donor support mechanisms (including ADB, AusAID, NZAID, E.U., JICA, UN Agencies, NGO's and National Governments) to demonstrate workable and sustainable solutions for improved water resources management and environmental stress reduction, widening GEF funded impact in a cost-effective manner. For further information on incremental reasoning, cost-analysis, and the systems boundary see Section II.

Table 8: Key Sustainable Development Related Approaches and IWRM Project Approach to Generate and Support National and Global Environmental Benefits

Sustainable Development Strategy Approaches	Country Activities Leading to National and Global Environmental Benefits
Mainstreaming of thematic considerations (e.g. disaster risk management) into national planning and budgetary process	• Demonstration activities will provide evidence based learning to policy makers, providing a new benchmark in terms of national learning and project design, feeding those lessons regionally, and globally, adding to global knowledge on dealing with IWRM approaches and environmental stress reduction through the GEF and other co-financing donors • Demonstration activities will feed directly into policy development and IWRM planning, providing long term national sustainable development through improved natural resource and environment management • Lessons learned from Demonstration activities will reduce environmental stress, and add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and ridge to reef approaches in SIDS • The project will address national priority issues as identified through the GIWA Hot-Spot analysis and Diagnostic Analyses Reports, and will help national government deliver multiple benefits at both the national and global level through the transfer of experience, lessons learned and new knowledge. A key element of this and all the Components of the project will be the capture and replication of best practices • Lessons and best practice from Demonstration activities will be transferable to other sectors through national institutions and through cross-sectoral IWRM APEX Body membership to ensure lessons are applicable to sustainable land use practices and management, biodiversity, National Adaptation Programmes of Action, National Action Plans for Disaster Risk Reduction and National Sustainable Development Strategies
Mainstreaming of economic, environmental and social considerations in sectoral level decision-making, including the use of market based instruments to finance environment conservation	• Water Use Efficiency Strategies will provide a significant national benefit through providing a framework for countries to act on using more water efficient technologies for water supply and sanitation (including composting toilets, which also reduce sewage releases into fresh and marine water environments, bringing ecological and human health benefits), agricultural development, industry, etc, through using economic and policy instruments • All Demonstration projects will include socio-economic baseline and target indicators to ensure that both positive and negative socio-economic impacts are understood as a result of project interventions. Sustainability relies on both the livelihood and environmental gains as a result of project interventions
Promoting information based decision-making process, including traditional knowledge and robust statistical information	• Identify possible funding options for long term protection of near shore marine and forest resources are options which many PIC countries are considering within their IWRM Demonstration Projects and this project will contribute and learn from that endemic and new regional knowledge • Delivery of the Pacific RAP will be strengthened by online database development and monitoring matrix developed under Component C3. The IWRM Regional Indicator Framework will be linked to Pacific RAP progress for national reporting to countries through the Pacific Partnership
Developing appropriate national targets and indicators for the thematic area that reflecting the three pillars of sustainable development, and in line with MDG's	• The IWRM Regional Indicator Framework (RIF) will provide countries with guidance and a suite of harmonised indicators available for them to monitor national progress on NAPA, NAP, NSDS, MDG, Pacific RAP delivery, as well as other cross-sectoral interventions • IWRM indicator development through multicounty collaboration will address regionally coordinated solutions to address water and environmental degradation and improve the efficiency of water use
Improving governance and decision-making process to facilitate sustainable development, including administrative and institutional structures to implement and operationalize regional strategies, policies and plans as well as integrated decision making and consultative mechanisms	• At the global level GEF and partner co-financers will be investing in the sustainable development of SIDS which have global importance in terms of their unique environmental, hydrogeological, cultural, and biodiversity setting • Improvements to policies and legislation in support of IWRM have evident benefits within GEF's global objectives. Encapsulating IWRM approaches within national policy and legislation and the overall concepts of the Regional Action Plan and other multilateral agreements in support of water, environment and sustainable development will support both national level objectives and those of the GEF at the global level
Reviewing legislation that affects sustainable development at the national level and improve coordination	• Ensuring National Finance and Economic Planning Units are involved in IWRM development will reduce national transaction costs and focus attention on priorities, avoiding unnecessary duplication, and will promote long term shifts in investments to reduce environmental degradation

between legislative frameworks, and develop guidelines for those who must carry out legislative objectives	• The International Development Law Organisation (IDLO) will support the project in looking at absorbing traditional local water governance approaches into national legislation • Support policy reform with regulatory support where required to promote both local and national compliance, recognising behaviour change is more relevant and cost effective than policing compliance
Building institutional and human capacity at all levels to facilitate sustainable development	• At the Global level GEF and partner co-financers will be investing in the sustainable development of SIDS which have global importance in terms of their unique environmental, hydrogeological, cultural, and biodiversity setting • A strong element of general public awareness as well as policy level sensitization will be critical for the success of this component and will therefore be key activities • Embedded within project components will be community driven development approaches to ensure sustainable interventions are implemented and continued after project completion – embedding approaches in communities and State and National level institutions
Coordinating and harmonizing donor support	• IWRM is a cost effective mechanism due to the cross cutting and multi-sectoral nature of water, reducing transaction costs and improving communication and influence • Training of Trainers approaches will be integrated into the project to ensure that existing and new local and regional capacity builds and support the region, and will work inter-regionally with the Caribbean

Notes: Key Sustainable Development Strategy information taken from the GEF Pacific Alliance for Sustainability Program Framework.

Country Ownership: Country Eligibility and Country Drivenness

Country Eligibility

134. Fifteen countries[33] in the Pacific are eligible for GEF assistance under paragraph 9(b) of the GEF Instrument.

135. One of the key programme gaps identified by GEF IV is that of water scarcity (and associated efficiency of water resource use) along with the need for a more integrated approach to the management of ground and surface water supplies to achieve sustainable national and global environmental benefits. Pacific Island Countries eligible for GEF support have a combined population of more than five million, with a land area of over 500,000km^2 and an exclusive economic zone of over 5,000,000 km^2. Despite the excellent analytical and related work that has been undertaken in the Pacific Islands Region, access to GEF funds to support follow-up action recommended in the studies has been limited[34].

136. GEF has recognised that there is a need for reform and capacity building focusing on the development of a more cross-cutting approach to water resource management that captures the relationship to other key GEF focal areas such as land degradation, biodiversity and climate change, particularly adaptation. In this context, GEF has agreed that LDCs, SIDS and World Bank IDA nations should receive priority in relation to removing barriers to sustainable integrated water resource management and efficient water usage. No Pacific Island Country has a level of Gross National Income sufficiently high enough to make them ineligible for World Bank lending or country assistance from UNDP.

137. The Pacific Island Countries (PICs) involved in this project represent 14 countries that fall clearly into the above justification for priority eligibility under GEF guidance. The inclusion of the project into the GEF-PAS workplan will complement the already approved GEF Full Project addressing Integrated Watershed and Coastal Area Management in the Caribbean SIDS, and the Concept for Integrated Water Resource and Wastewater Management in the Atlantic and Indian Ocean SIDS, thereby giving full global coverage by GEF to water resource issues within all eligible SIDS.

[33] Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea (PNG), Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu.

[34] GEF Pacific Alliance for Sustainability Program Framework. February, 2008.

138. The project is consistent with the GEF IV strategic objective for International Waters: (a) '*to play a catalytic role in addressing transboundary water concerns by assisting countries to utilize the full range of technical assistance, economic, financial, regulatory and institutional reforms that are needed'*, through supporting and building on existing political commitments (such as the Pacific RAP and Strategic Action Plan) and through promoting sustainable water use and improved water management now, making it easier to address the challenges of the future as climatic variability affects water resources further.

139. More specifically the project will deliver outcomes under GEF IV Strategic Programme III (SP-3): Balancing overuse and conflicting uses of water resources in transboundary surface and groundwater basins (*with a specific focus on SIDS to protect community surface and groundwater supplies)* through working with communities to address their needs for safe drinking water and other socio-economic benefits of sustainable and safe water resources, including balancing environmental requirements with livelihood needs. The project will deliver across a range of MDG targets using IWRM approaches (MDG 7) as the wider development entry point. Letters of Endorsement for the project are provided in Volume II of the submission.

Country Drivenness and Regional Ownership

140. This proposed Full Project has evolved from and responds to the Strategic Action Programme (SAP) for the International Waters of the Pacific Islands carried out in August 1997. The goal of this SAP was to develop a strategy for the integrated sustainable development and management of International Waters in the region. The priority transboundary concerns for Pacific Island International Waters were defined as arising from the following imminent threats to the health of those waters:

1. Pollution of marine and freshwater (including groundwater) from land-based activities;
2. Physical, ecological and hydrological modification of critical habitats;
3. Unsustainable exploitation of living and nonliving resources;

141. and the ultimate Root Causes to lie within management deficiencies, particularly those of lack of effective governance, and lack of information and understanding (knowledge deficiency). The SAP proposes to address the root causes of degradation of International Waters through regionally consistent, country-driven targeted actions that integrate development and environment needs. These actions would be designed to encourage comprehensive, cross-sectoral, ecosystem-based approaches to mitigate and prevent imminent threats to International Waters.

142. The SAP provides the regional framework within which actions are identified, developed and implemented. Targeted actions would be carried out in two complementary, linked consultative contexts: Integrated Coastal and Watershed Management (ICWM) and Oceanic Fisheries Management (OFM). Through the ICWM and OFM approaches, the SAP sets out a path for the transition of the Pacific islands from sectoral to integrated management of International Waters as a whole.

143. The SAP identifies two solutions to these threats and root causes to be:

A. Integrated Coastal and Watershed Management, and
B. Oceanic Fisheries Management

144. This Full Size Project proposes to directly address solution A (a separate GEF Project is addressing solution B). The concept for this project evolved through a combination of regional dialogues and initiatives, and discussions between the participating countries, GEF Implementing Agencies, and SOPAC regarding their needs and priorities for water resource management in relation to the guidelines given initially by the GEF Strategic Business Plan (2003), and subsequently the GEF IV Strategy for International Waters and the principal objective of the GEF-PAS to increase the efficiency and effectiveness of GEF support to Pacific Island Countries (PICs), thereby enhancing achievement of *both* global environmental and national sustainable development goals.

145. In July-August 2002, the Asian Development Bank (ADB) and the South Pacific Applied Geoscience Commission (SOPAC) jointly organised a High-Level Regional Consultation meeting in Fiji. The meeting was attended by over 150 representatives of agencies concerned with water resources management, water authorities, service providers, rural development departments, health and environment agencies, regulators and NGOs involved in the water sector, the private sector, regional organisations and international development agencies. This regional consultation concluded with the adoption of a Regional Action Plan, a communiqué and a Ministerial Declaration, along with a commitment from a wide range of stakeholders to form a partnership under the Type 2 Initiative on Water, Sanitation and Hygiene as was submitted to the Commission for Sustainable Development in Johannesburg during the World Summit on Sustainable Development in August 2002 and announced at the Third World Water Forum in Kyoto, Japan in 2003.

146. In adopting the Action Plan, and its sister strategies, the Pacific Wastewater Policy Statement and the Pacific Wastewater Framework for Action, the ministers and heads of country delegations from 16 Pacific Island Countries and representatives of civil society groups stressed the participatory nature of their deliberations and reinforced their commitment to sharing knowledge to address common water problems and solutions. They noted the unique geographic and physical characteristics, as well as the fragile nature of water resources in small island countries, which impact the health and well-being of their peoples, environment and economic development. They also recognized the important linkages between water resources, water services, and wastewater management, including sanitation and hygiene. The outputs and recommendations of this meeting were endorsed by 18 countries, and the Pacific RAP was formally endorsed by the Heads of State of 16 countries at the Pacific Forum Leaders Summit in August 2003.

147. This Pacific IWRM project will focus on the implementation of actions identified in the Pacific RAP, notably: (i) improving assessment & monitoring of water resources to reduce water pollution, (ii) coping with island vulnerability, (iii) improving communication, awareness and participatory action, (iv) improving access to technologies, (v) strengthening institutional arrangements, and (vi) leveraging additional financial resources[35].

148. The concept of inter-regional collaboration and the possibilities for a Joint Programme for Action were also discussed at the High-Level Consultation meeting in Fiji. As a result of these discussions, Caribbean and Pacific organisations (CEHI and SOPAC) signed a Memorandum of Understanding at the Third World Water Forum in Japan in 2003 to implement a JPfA between their 37 member states providing for cooperation on matters including freshwater environment, climate change, capacity building, data and information management, applied research and sharing of expertise.

149. The Freshwater Chapter *of the Mauritius Strategy for the Further Implementation of the Barbados Programme of Action (*BPoA+10) gives due recognition to the prioritising of water and sanitation on the SIDS global agenda and SIDS national agendas during the "Water for Life" Decade. The Mauritius declaration re-emphasised the outcomes of the 3WWF "*Water in Small Island Countries*" session which specifically calls for the implementation of the Joint SIDS Programme for Action on Water and Climate (JPfA), the Pacific RAP, and the fostering of South-South partnerships between SIDS.

150. The need for a strategic approach to tackle regional water management problems was recently reiterated by PIC Leaders at the Asia-Pacific Water Summit[36] in Japan (December, 2007). PIC Leaders agreed that real solutions to PIC water problems are urgent, particularly with deteriorating conditions of freshwater resources due to the impacts of global warming on fragile island eco-systems. Building on the SAP, this Pacific IWRM Project evolved through a combination of discussions between the PICs, GEF Implementing Agencies, and SOPAC regarding the needs and priorities for water resources management following the development of the Pacific RAP.

[35] Annex 2 provides a summary of the key messages resulting from the RAP consultations on issues raised under each theme. The RAP can be downloaded from: http://www.sopac.org/tiki/tiki-sopac_download.php?path=/data/virlib/MR/MR0547.pdf&file=MR0547.pdf

[36] http://www.apwf.org/archive/documents/summit/Message_from_Beppu_080130.pdf

151. The similarity of the water and environmental problems faced amongst Pacific Countries, and their solidarity on these issues is a vital component to ensure existing political will, the Pacific RAP, and existing national policies are built upon in national institutions and wider civil society. EU Water Facility co-funding provides a unique opportunity to develop national IWRM plans, building on demonstration activities and lesson learning and sharing between countries. By 2013 the PICs will have raised the baseline in managing and coping with water resources management, pollution and environmental stress and climate vulnerability. This will lead to a more sustainable use of water resources, a reduction in water related health problems, supporting watershed protection, improving biodiversity, and reducing land degradation.

Linkages with Other GEF Financed Projects and Global Programmes

152. GEF Demonstration Projects will focus on the capture and presentation of on-the-ground environmental stress reduction interventions (UNDP element). UNEP Regional Components will focus on national policy reform, improved institutional capacity and change, and IWRM indicator development through multicounty collaboration to address regionally coordinated solutions. This will occur in conjunction with EU Water Facility co-financing which will provide policy improvement and institutional support to help PICs in the development and delivery of national IWRM plans in line with the 2005 MDG targets.

153. A number of activities for Sustainable Land Management (SLM) have been identified in the UNCCD National Action Programme (NAP) for PICs. The national SLM Medium Sized Projects will focus on capacity development and mainstreaming of land management[37]. The IWRM Project can help implement the NAP priorities of improving water delivery systems and increasing water use efficiency, rehabilitation of degraded lands through watershed and catchment protection, and empowering local communities and local institutions. Links have been made with the SLM-MSPs in the Pacific to ensure that where demonstration project sites overlap lessons learned are shared between projects. This will be vitally important in the scaling up of approaches and the need to dovetail IWRM and SLM approaches within existing national and regional policies and institutions. Strong links exist between the GEF Pacific Adaptation to Climate Change (PACC) and IWRM projects and these are further described below.

154. Adopting a Ridge to Reef approach ensures that links to marine waters are included in the IWRM concept for SIDS. Links will be established with the UNDP/GEF PEMSEA and the ADB/GEF Coastal and Marine Resources Management in the Coral Triangle of the Pacific Projects[38] to ensure that coastal management lessons are learned and shared between projects. Component 2 of the Coastal and Marine Resources Project focuses on integrated watershed and coastal resources management (through adopting Ridge to Reef approaches) and lessons will be shared between projects; discussion have already taken place between SOPAC, the ADB, and UNDP on project links, especially to enhance IW:LEARN Portfolio Learning outcomes. The Worldfish Centre office in New Caledonia has expressed interest in engaging with the IWRM project in Micronesia. Discussions and joint meetings have also taken place with IRD in Noumea, New Caledonia to share lessons between watershed management projects in Fiji[39]. Links have also been made with the Coral Reef Initiative for the South Pacific (CRISP). Furthermore, in Micronesia, The Nature Conservancy and the Conservation Society of Pohnpei are key project facilitators and implementers of the Demonstration activities for FSM. The project will take a holistic approach to improving water management, adopting a *Ridge to Reef* framework for project interventions, considering the International Waters focus on improving the quality of coastal receiving waters to benefit marine biodiversity. IWRM

[37] Links with the SLM National Coordinators have already been established and the SLM Project will be represented at the Pre-Inception Workshop as part of the Pacific IWRM Workshop in Niue in July, 2008. Specific water links with Tonga (focusing on drought management), Tuvalu (focussing on capacity development), and Kiribati (focusing of management of water catchments) will be made between projects, although all SLM projects focus on policy development, cross-sectoral linkages and capacity development as key activities and IWRM can provide assistance in these issues.

[38] The Coastal and Marine Resources Management Project will focus on Papua New Guinea, the Solomon Islands, Palau, the Federated States of Micronesia, Fiji, Timor Leste, and Vanuatu.

[39] Institut de Recherche pour le Developpement, www.ird.nc. IRD are currently involved in a watershed management project on northern Viti Levu, Fiji. The project is funded by Conservation International and Fiji Water.

Lessons will also be shared at the future World Water Forum (2009 and 2012) and at the GEF International Waters Conference 6 through links to IW:LEARN Portfolio Learning.

155. IWRM and the GEF Pacific Islands Oceanic Fisheries Management Project (OFM) will cooperate and share lessons associated with land based pollution and the impact on migratory fishstocks through the Project Executing Agency (Forum Fisheries Agency). A Letter of Support from FFA can be found in Volume II. The Gender and Water Alliance (GWA) has already expressed support during IWRM project implementation for gender and gender mainstreaming work, and a Letter of Support can be found in Volume II. SOPAC and CEHI (Executing Agency for the GEF IWCAM project) have signed an MoU[40] and are already sharing information regarding demonstration project design and implementation, including IWCAM work on IWCAM Indicator development, implementation approaches for Demonstration Projects, and communication activities. The global SIDS network will be instrumental in the development of SIDS IWRM guidelines and exchange of best practices and appropriate technologies.

156. The Project will capitalize on UNEPs commitment '*to accelerate implementation of the 2005 IWRM target ensuring environmental aspects are adequately incorporated into IWRM strategies and roadmaps*'. The Project is aligned with the UNSGAB Hashimoto Action Plan that promotes accelerated action for achieving the water, sanitation, and environmental sustainability MDGs. Table 9 contains further information on regional projects and programmes this IWRM project has linked with. Some of these projects described are co-financers of this IWRM project.

[40] The MoU can be found in Annex 7.

Table 9: Linkages with Regional Projects and Programmes

Project/Programme & Donor	Description
National IWRM Planning Programme* **Donor:** EU Water Facility	The Pacific SIDS IWRM National Planning programme will provide substantial co-financing for this IWRM Project in a unique partnership of mutual aid and assistance. The programme will focus on the development of applicable and effective National Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans as an important contribution to the Millennium Development Goals.
Pacific Hydrological Cycle Observing System (HYCOS)* **Donor:** EU Water Facility	SOPAC, the World Meteorological Organization (WMO), UNESCO and the Fiji Meteorological Office are implementing the Pacific HYCOS project. The project focuses on improving the condition of Pacific SIDS hydro-meteorological monitoring stations and the national capacity to collect, understand, and analyse hydro-meteorological data. The project is linked to other regional projects including the Pacific Global Climate Observing System (PI-GCOS), and the Pacific Global Ocean Observing System (PI-GOOS).
Water Quality Monitoring* **Donor:** NZAID	The World Health Organization (WHO), SOPAC, and the Institute of Applied Sciences of the University of the South Pacific are implementing the Water Quality Monitoring Capacity Building (WQM) Programme in four pilot countries (the Cook Islands, Niue, the Marshall Islands and Vanuatu). The objective of the WQM programme is to build sustainable national capacity for monitoring the quality of water (drinking, surface, ground and coastal) through addressing the priority problems related to water quality assessment.
Hydrology, Livelihoods, and Policy (HELP)* **Donor:** UNESCO	SOPAC support UNESCO's HELP programme to strengthen catchment area management practices in the Pacific. Fiji and Vanuatu were supported in establishing HELP basins in conjunction with the IWRM Demonstration project development.
Water Demand Management* **Donor:** NZAID	SOPAC and the Pacific Water Association (PWA) are implementing the Pacific Water Demand Management Programme in five pilot countries (Niue, the Cook Islands, the Solomon Islands, the Marshall Islands, and FSM). The purpose of the project is to improve the capacity for water demand management in Pacific urban water utilities. In partnership with Wide Bay Water Corporation (WBC) in-country support is provided to establish System Loss Management Plans in each of the pilot countries.
Water Safety Planning* **Donor:** AusAID Water Quality Initiative, NZAID	The Pacific Water Safety Plans (WSP) Programme is a joint initiative of the World Health Organization (WHO) and SOPAC focusing on promoting a risk management approach for the provision of safe water supply in Pacific Island countries through piloting Water Safety Plans in four pilot countries (Tonga, Vanuatu, the Cook Islands and Palau). The New Zealand Ministry of Health (through NZODA) provides in-kind support to the WSP programme to strengthen the technical aspects of the programme by providing Drinking Water Assessors
Programme for Water Governance* **Donor:** EU Water Facility	The Pacific Programme for Water Governance (PfWG) provided support to in-country consultations held in three pilot countries (Fiji, the Solomon Islands and Kiribati). The PfWG supported the establishment and strengthening of National Water Committees and the development of a strategy in each pilot country to address institutional arrangements for water resources management during the Project Design Phase of this project.
Water, Sanitation and Hygiene (WASH)* **Donor:** Government of Taiwan/ROC	The overall goal of the Pacific WASH programme is to improve the lives of Pacific Island people by helping to increase access to water resources and sanitation through improved management of water resources and the development of adequate and sustainable water supply, improved facilities and hygienic practices for all. Within the WASH programme linkages have been made with the UNEP Global Programme for Action as well as the Gender and Water Alliance (GWA).
Island Climate Update* **Donor:** NZAID	The Pacific Island Climate Update (ICU) is a programme implemented by SOPAC in collaboration with SPREP and New Zealand's National Institute of Water and Atmospheric Research (NIWA). The ICU continues has a primary goal of assisting Pacific Island Countries (PICs) in making informed planning and management decisions relating to climate-sensitive sectors through the provision of timely and accurate seasonal climate forecasts.
Niue Groundwater Monitoring and Policy Development* **Donor:** UNESCO	UNESCO and SOPAC provided support to Niue in a Groundwater Resource Monitoring and Management project aimed at progressing the approval and implementation of the Water Resources Regulation and enabling of the Water Resources Act 1996. The IWRM Demonstration Project and EU IWRM co-financing will continue to support this work.
University of the South Pacific – Virtual Water Learning Centre* **Donor:** SOPAC, UNU	Linkages will be made between the Pacific node of the Water Virtual Learning Centre at USP and the implementation of this project and the EU Water Facility IWRM Planning programme.
Pacific Islands Oceanic Fisheries Management Project **Donor:** GEF	The project combines the interests of the global community in the conservation of a marine ecosystem covering a huge area of the surface of the globe, with the interests of some of the world's smallest nations in the responsible and sustainable management of resources that are crucial for their sustainable development. The Project will support Pacific SIDS efforts as they participate in the setting up and initial period of operation of the new Commission that is at the centre of the WCPF Convention.

Sustainable Land Management Capacity Development and Mainstreaming **Donor:** GEF	The project will assist 48 LDC and SIDS countries that have not yet completed their National Action Plans to develop individual, institutional and systematic capacity for sustainable land management. IWRM concerns land and water mgmt and the interactions between the two, therefore management issues and solutions/mitigations are going to be directly relevant to the IWRM project. Capacity development to address land management cannot effectively proceed in isolation from watershed issues and water use management and efficiency.
Coral Reef Targeted Research and Capacity Building Programme **Donor:** GEF/World Bank	This project aims to conduct targeted research to fill information gaps in the understanding of coral reef ecosystems so that management and policy interventions can be strengthened globally. This includes investigations into issues related to coral reefs such as bleaching, connectivity, diseases, modelling, remediation and remote sensing. Many of the land mgmt problems associated with SIDS watersheds impact on coral reef ecosystems.
Capacity Building for Observing Systems for Climate Change **Donor:** WMO, UNEP, ICSU, EU Water Facility, IOC	The objective of the project is to improve observing systems for climate in developing countries. The project will launch processes that will develop national capacity in a significant number of non-Annex I Parties to participate in systematic observation networks for meeting the multiple needs of the UNFCCC. This process will involve training and assessment, and will help to develop regional Action Plans for improving observing systems. To ensure that the project feeds into National Communications, the workshops will involve national climate change coordinators of enabling activities.

Notes: * Co-funders of the IWRM Project.

Pacific Adaptation to Climate Change (PACC)

157. Strong links exist between the GEF Pacific Adaptation to Climate Change (PACC) and IWRM projects. The PACC ensures that ground, surface, and rainwater management aspects are being addressed in the region (in the Marshall Islands, Nauru, Niue, Tonga, and Tuvalu[41]) as responses to climate variability and change. The combined PACC and IWRM demonstration project outcomes will strengthen the IWRM programme, and support the opportunity for PACC demonstration projects to be incorporated into national strategic planning, implementation and replication.

158. There is global recognition that coping with current climate variability is the best approach to adapt to future climate change. Improving the way we use and manage our water today will make it easier to address the challenges of tomorrow. The challenge of "climate-proofing" the future requires that adequate funds are allocated today for water resource management. A policy brief by the Global Water Partnership on Climate Change Adaptation considers that the best approach to manage the impact of climate change on water is guided by the philosophy and methodology of Integrated Water Resources Management. Furthermore, it is recognised that there are no simple technical fixes and that in addressing water shortages, as much attention should be given to managing demand as to increasing supply, by introducing more efficient technologies as well as simply promoting a culture of conservation[42]. Furthermore, adaptation to climate variability requires flexibility – adaptation is a process. This requires funding to help build staff and institutional capacity to move beyond the day-to-day management of water to understand trends, areas vulnerable to climate variability, possible scenarios, and identify alternatives in terms of risks, costs and benefits.

159. A summary of IWRM and PACC National Demonstration Project approaches and the complementarities is described in Table 10. A review of these five countries and their ten demonstration projects shows good complementarity and confirms that there is no duplication of thematic objectives at the country level between the two programmes, but furthermore within each programme there is no duplication when considering the different sizes (*i.e.* village, town, capital, national) and types of target communities being engaged (*i.e.* rural, peri-urban, urban, outer island, main island).

160. **Added value to the IWRM Programme -** The 5 water related PACC pilot projects specifically address climate adaptation approaches to drought in groundwater and rainwater dependent countries which complements the IWRM programme which will address the complex problem of weak inter-sectoral linkages through better coordination and integration. The IWRM programme includes the development of best practice IWRM implementation approaches which will be achieved through linking Demonstration Projects to National IWRM Plan development and regional promotional activities. One of the primary reasons for ensuring and strengthening this linkage in the IWRM programme design was the recognition that achieving sustainable IWRM national planning at the national scale is a long term objective. To ensure support to this process over the long term requires tangible demonstration of benefits in the short term. The demonstration projects provide the means by which specific IWRM activities can be shown to create quantifiable economic, social and environmental benefits, and put values on these benefits. The PACC ensures that groundwater and rainwater drought management demonstration is being addressed in the five countries concerned and enables the IWRM programme to capture these approaches as a cost-effective approach to raise further awareness to '*climate proof*' water resources.

161. **Added value to the PACC Programme -** The IWRM programme differs from the PACC programme in that the IWRM programme has a large regional component focussing on national IWRM strategic planning. The programme is specifically designed to link this strategic planning to the demonstration projects and vice versa. This link enables the outcomes of the demonstration projects to be captured in the national IWRM plan and strategy development, and the demonstration project to be incorporated into the national plan implementation. In doing so this not only strengthens the likelihood of demonstration project replication, but also enables the demonstration project

[41] The Fiji PACC Demonstration Project also has a strong focus on land and water management issues. There is no surface water on the Marshall Islands, Nauru, Niue and Tuvalu and limited surface water on a few outer islands in Tonga. Four of the PACC demonstration projects focus on improving drought period water supply (Marshall Islands, Nauru, Tonga and Tuvalu). The demonstration project in Niue focuses on improving the resilience of water supplies in the aftermath of cyclone impacts.

[42] GWP Policy Brief No. 5, 2008.

outcomes to be further utilised and incorporated into other IWRM activities. PACC pilot projects are not linked to a strategic plan[43] but are aligned with the Pacific Climate Change Framework. The IWRM programme provides the opportunity and mechanism by which the PACC demonstration projects can be incorporated into national strategic planning, implementation and replication. Without this national IWRM planning mechanism the opportunity for PACC pilot project replication may be reduced. The IWRM programme therefore increases the strategic value of the PACC pilot projects and use can be made of the established National IWRM APEX bodies that can function as *National Water and Climate Committees* and Joint Steering Committees[44] for both PACC and IWRM projects.

162. This IWRM Project addresses water resources and adaptation to climate variability through (i) *exposure* – working with countries through demonstration activities to minimise water stress wherever possible; (ii) *vulnerability* – through reducing vulnerability to water stress and/or scarcity through water use efficiency and water demand management approaches; (iii) *adaptive capacity* – institutional strengthening of water sectors through this project and co-funding support including the development and support of inter-sectoral IWRM APEX Bodies and through raising awareness to response measures to long-term climate variability and change through information dissemination and improving risk awareness through IWRM Plan development. The logframe confirms this approach.

Table 10: IWRM and PACC National Interventions and Complementarities

Country	National IWRM Interventions	National PACC Interventions	Project Complementarities
Nauru	Reducing pollution risks to the groundwater resources of the island	Improved communal rainwater harvesting and conjunctive use of groundwater resources to reduce vulnerability to drought period water scarcity, including peak water demand management (this is depending on current groundwater investigations)	The PACC project considers improving dry period rainwater storage as well as strategic reserve storage whereas the IWRM project considers the non-climate related issue of groundwater quality vulnerability to land use
Niue	Improved land management in the borehole catchment zones of the Alofi (capital) well-field to protect public water supply drinking water quality	Improved household rainwater harvesting to reduce water supply shortages due to cyclone associated damage to public water supply systems	The PACC project considers cyclone impacts, whereas the IWRM project considers the non-climate related issue of groundwater quality vulnerability to land use
Tuvalu	Improved national wastewater management as a groundwater protection and water use efficiency strategy	Improved rainwater harvesting, including development of national strategic rainwater storage reserves, to reduce drought period water scarcity	PACC considers improving dry period rainwater drinking water supply, whereas the IWRM project considers non-climate related improved wastewater management with associated water demand management (dry toileting technologies) and groundwater quality benefits
Tonga	Groundwater quality protection strategies for the freshwater lens of Neiafu (provincial town) in the Vava'u Island Group	Reducing village supply vulnerability to drought period groundwater salinity on Tongatapu, using groundwater transfers and rainwater harvesting	PACC considers rural village-scale vulnerability to saline intrusion on the main island, whereas the IWRM programme addresses non-climate related land use water quality issues in and around the urban area of a town in an outer island group. These issues of salinization and land use pollution are unrelated and the two projects also differ in scale and location (requiring different approaches for implementation and sustainability)

[43] Although the design of PACC has been based on national communications during the formulation of National Action Plans for Adaptation (NAPAs). Samoa, the Solomon Islands, Tuvalu, and Vanuatu are currently preparing NAPAs.

[44] Within the IWRM Project some countries have identified additional IWRM Project Steering Committees in addition to the existing National IWRM APEX Bodies, although it is anticipated that membership of both will be similar.

Marshall Islands	Groundwater quality protection Laura groundwater lens feeding DUD's main supply system	Reducing water loss from storage facilities, water conservation, alternative water sources, and raising public awareness	The PACC project considers improving dry period rainwater storage as well as strategic reserve storage whereas the IWRM project considers the non-climate related issue of groundwater quality vulnerability to land use

Sustainability

163. Sustainability of the investments made by GEF and PICs throughout the design phase, and full project implementation are critical to help countries sustain national, leading to global environment benefits. Sustainability and replication approaches are closely aligned and will be key elements in the project from the outset of full project implementation, and are briefly described in Table 11.

Table 11: Sustainability Approaches for the Pacific IWRM Project

Development Pillars	Approach to Sustaining Project Benefits:		
	By Mid-Term Review	By End of Project	End of Project + 1 Year
Environmental	• Demonstration project approaches focus on promoting behaviour change and do not become stand alone activities • Demonstration projects have national appeal and do not focus on site specific issues • Links between cause and effect explicitly identified and recognised by stakeholders (especially fresh and coastal receiving waters) • Through maintaining national project management salaries at local Public Service Commission levels to ensure comparable costs for government to consider funding in the future^	• Core work fully integrated into national baseline work • Project findings used as leverage tools to influence at the programmatic (GEF-PAS) level • Promoting water stewardship to deliver global environment benefits throughout the project and identifying Water Champions to influence national government to provide sustainable financing for applicable Demonstration Project Staff to remain as national IWRM advisers	• National IWRM Advisers in permanent government roles • National IWRM Advisers training junior staff • Incorporation of IWRM approaches mainstreamed into national government practice
Social	• Engaging with private sector and other key stakeholders who can provide resources in the future for investment – the key to sustainability is participation, targeting both men and women equally throughout the project • Targeting youth and schools to promote social change behaviour and through influencing school curricula	• Ensuring the private sector are included in National Water discussions • Support policy reform with regulatory support where required to promote both local and national compliance, recognising behaviour change is more relevant and cost effective than policing compliance*	• Embedding water mgmt and awareness approaches/considerations, including simple cause and effect stories/exercises into school curricula to promote consistent and long-lasting change
Institutional	• Through links with other GEF funded (PACC, SLM) and other donor projects to ensure cross sectoral lessons are learned • Through constant support offered to the National IWRM APEX Bodies as cross-sectoral decision making and learning bodies at the senior national level, including focussing on involving Finance and Economic Planning Units • Promotion of IWRM approaches, using initial results from Demonstration Projects to highlight potential approaches for mainstreaming • Through supporting national decision-making for management of Demonstration Projects, encouraging national project staff	• Through supporting national ownership and scaling-up and replication of Demonstration Project results • Using Demonstration project impacts and lessons learned to raise awareness to water resource and environmental stress issues, and through national and regional promotion of what works and what does not work • In larger PICs, working with municipal government agencies as well as national government offices • Securing awareness within government to the benefits	• Through Improving National Water Governance – Policy and advocacy work will increase exposure to issues for key decision makers to alert them to the issues • Commitment to long term water resource planning, endorsed at highest level • Ensuring national budget allocated for IWRM approaches under the management of the National IWRM APEX Body • Securing national decision-making status

	and stakeholders to be responsible for, and take ownership of national projects	of cross-sectoral management of water resources to reduce environmental stress • Promoting and securing national budget for continuing Demonstration interventions as national approaches • Through streamlining any new approaches rather than adding to administrative burden	for the IWRM APEX Body, with appropriate resources
Financial	• Through inviting Donors at the national level to PIC IWRM APEX Body meeting to raise issues faced by countries in ensuring sustainable development within the water sector and the cross-cutting effects of not managing water resources appropriately • Through innovative approaches and use of co-financing	• Explicit consideration of costs and financing benefits • Demonstrate cost-effectiveness of IWRM approaches through targeted studies (i.e.: pollution reduction, reducing costs of mitigating negative environmental effects, etc) – link this to need for national budget to include new specific national IWRM position which focuses on water governance	• Project able to provide lessons on co-financing approaches for International Waters to GEF-PAS, and other co-financing donors
Cross-Cutting and Ongoing	• Through developing and maintaining supporting partnerships – the project is aligned with the Pacific Partnership on Sustainable Water Resource Management. The Partnership will assist in the implementation of national and regional project activities and will act as a Regional Technical Advisory Group to the Project • Through establishing links to the ADB Pacific Infrastructure Facility† • EU Water Facility co-financing will work on developing and supporting partnerships to improve the IWRM Planning Process • Promoting use of national consultants and staff to embed approaches and capacity in countries and avoid out-sourcing capacity wherever possible • Through developing appropriate outputs from the project in terms of guidelines, toolkits, and focus less on academic based lessons inappropriately composed	• Knowledge Exchange, Learning and Replication between PICS through website and PCU support mechanisms supported through ongoing and future regional water work • Through accepting that not everything will be successful and through learning the lessons	• Improved public awareness and media campaigns raising awareness on water issues, including public water services delivery as part of improved governance holding national services to account

Notes: ^ The purpose of maintaining national project staff salary levels on a comparable level to other government staff is to ensure that any transition of project staff into government is as easy as possible, and does not result in a potential IWRM Adviser position remaining vacant, or filled by a candidate of less experience and quality. * The International Development Law Organisation (IDLO) will support the project in looking at absorbing traditional local water governance approaches into national legislation. † See ADB TA-6257-REG: Improving the Delivery of Infrastructure Services in the Pacific. Working Paper: Regional Advisory Service – Proposed Concept, October 2007. http://www.pacific-infrastructure.org/

Replicability

164. The purpose of replication is not to identify model projects. It is to reflect on which approaches, activities, and processes from each project, and a range of projects show promise in addressing the root causes of poor water and environmental management (leading to environmental

stress), and to identify approaches to develop these further. Replication therefore includes mechanisms which share knowledge, apply lessons learned and approaches from one site to another site, country, or region, scales-up approaches to broaden scope of coverage, and increases capacity nationally and regionally through active engagement and dissemination.

165. When projects do not deliver impact as designed it is usually due to a break in the causal chain where demand side behavioural change is required. This is not surprising, as behavioural change is the most difficult element for a project to achieve. Most projects underestimate the time and resources taken to influence behaviour. However, when these types of interventions fail the project approach is questioned. In order to scale-up approaches measurable evidence concerning the applicability of the project approaches and demand side behavioural responses and change are required to signify success, and therefore justify the scaling-up or approaches and the wider replication if successful approaches.

166. Through reflection and review key best practices for replication can be identified. Reflective learning is a key element in the Participatory Monitoring and Evaluation approach adopted in this project for national Demonstration Projects. National Diagnostic Analysis reports provide a solid knowledge baseline for each country to act upon, combined with the Pacific RAP which submits PICs to respond as a region to a range of water management problems[45]. Baseline information provides a direct resource for future and concurrent initiatives focussing on water and environmental management. The nationally driven development of solid Demonstration Project proposals, and active country engagement through the project design phase will allow the project to immediately develop replication approaches.

167. All Demonstration Project designs will be reviewed within the first six months of the project. This is to ensure that all stakeholders are activity engaged and informed, that no misleading or incorrect information is given to communities and other stakeholders involved in the projects, and that the projects are correctly aligned with issues raised. Demonstration projects have been designed by the countries, however when working at local demonstration level there is a need to foster active community engagement and ownership of approaches, and respecting and supporting local governance approaches. Addressing water problems is often high on the agenda of civil society and national government, and matching national priorities to stakeholder needs and explaining the reasons for project interventions will be a critical first step. It is also important to address what the Demonstration Projects will not address right at the beginning to ensure that realistic focused targets are agreed and projects do not become over complicated and therefore potential impact becomes dissipated[46].

168. Integrating local (demonstration level) activities into national actions is a challenging prospect[47]. Project guidance and lessons will be shared through engagement with National IWRM APEX Bodies[48]. IWRM APEX Bodies have been involved with the development of the Demonstration proposals from their initial inception during the Hot Spot Analyses process. The National Project Manager (and where relevant other project staff) will be invited members of the APEX Bodies and will seek guidance, and share lessons cross-sectorally at the national level[49]. This

[45] Past national and regional work will also be used to help guide Demonstration Activities. This includes building on outputs from the earlier IWP Project, including: IWP National Priority Environmental Assessment Reports, National Environment Management Statements, national reports prepared for the Millennium Assessment process, and State of Environment Reports. EU Water Facility co-financing will support this lesson learning from previous interventions for the policy and national planning side.

[46] Further information on this approach and Participatory Monitoring and Evaluation can be found in Annex 6.

[47] Replication approaches were discussed at the 4th Biennial GEF International Waters Conference in Cape Town, August 2007. One key lesson from replication reporting is that whilst replication is a way of measuring progress and integration of project interventions into national baseline practice, within this progress of International Waters activities needs to be measured independently/separately to highlight changes that have taken place due to stand-alone project interventions.

[48] In all cases the IWRM Focal Point for this project is a member of the national IWRM APEX Body, and in some cases is the Chair of that Body. Using existing structures to avoid fragmentation and strategically oversee and support the project design and full implementation has been encouraged through the project design phase. EU Water Facility co-financing will support the recruitment of a National IWRM APEX Body Coordination post in each country to support APEX Bodies and lead agencies/ministries/departments in their development of IWRM policies and plans, including identifying and supporting senior National Water Champions.

[49] Where specific advice is required which is not present on the national IWRM APEX Body new temporary members will be encouraged by special invitation with agreement by the countries concerned.

will help integrate best working practices from Demonstration projects into national actions[50]. This process will be solidly supported by the EU Water Facility co-financing, and the Regional Project Coordination Unit in their role as Demonstration Project support. Local NGO actions will also be supported and built upon as a key civil society engagement approach wider than Demonstration Project communities alone.

169. During the Demonstration Project review period detailed stakeholder analyses will be conducted to identify relevant stakeholders and associate them with the proposed project interventions and to understand *cause* and *effect* on water resources and the environment, both of the project on the stakeholders, and vice-versa. This will also help to identify potential in-country training needs and participants. Participatory Monitoring and Evaluation is a fundamental approach of the project, to engage with multiple stakeholders at different levels in order to clarify project objectives and activities, ensure focussed and needed project delivery, to foster ownership of project approaches, and to review what is working and what is not throughout the project lifespan[51]. Based on earlier IWP experience, this may involve establishing gender and age balanced Community Working Groups (CWGs) to clarify the role and requirements of communities, and to clarify information/data/output ownership where necessary. All Demonstration Projects will engage with a wider variety of national level and village level stakeholders.

170. The PCU will produce a *Replication Framework* during the Demonstration Project review period. This Framework will help guide National Project Management staff and stakeholders in considering replication and sustainability issues from the start of the project. The Framework is intended to be a guideline only and will allow countries to tailor their own replication approaches which can be shared between project groups and regionally.

171. Table 5 (page 29) shows Demonstration Project by country. Projects have been grouped into four sub-groups: (i) Watershed Management; (ii) Wastewater & Sanitation Management; (iii) Water Resources Assessment & Protection; (iv) Water Use Efficiency & Safety. Within each of these groups countries will be supported to learn lessons from each other as part of the project '*twinning*' process[52]. This will include where possible project exchange visits within sub-groups to learn from each others projects and to monitor and provide advice to projects on their progress, backstopped by the Regional Project Coordination Unit. Demonstration projects have focussed on issues identified as part of the Hot Spot Analyses and Diagnostic Report development. The Hot Spot Analyses already provide a valuable starting point for identifying replication sites and focus areas by the national government. Furthermore, Demonstration projects focus on IWRM issues, making them non-site specific, with lessons and successful approaches automatically having national level appeal for replication based on monitoring and evaluation findings and suggestions[53]. Lessons from Demonstration projects will be shared regionally and globally through all Components of the project and lessons from other SIDS regions will be shared within the Pacific.

172. The overall regional project will make full use of communication technologies and platforms for information exchange to ensure that access to knowledge and information do not hamper IWRM progress (i.e.: GIS and RS resources, and for dissemination and knowledge sharing; IW:LEARN). Feasibility assessments and alternative water and environmental management measures will be considered during the demonstration projects. Socio-economic approaches and tools will be vital for developing capacity, data, and information for countries to make future IWRM decisions, and will provide a robust platform for government, private sector and donor investment in the future.

[50] Replication approaches need to consider and take into account changing government priorities over time so that future interventions can adapt and support government objectives to avoid projects becoming stand-alone activities with little national support.

[51] See communication and monitoring and evaluation sections of this document for further information.

[52] Note that project '*twinning*' does not necessarily mean only two projects but will link projects together within each sub-group based on project focus and hydrogeological settings.

[53] This was a key lesson from the earlier IWP project. IWRM Demonstration projects are also geographically larger than previous demonstration activities under IWP. Although this makes them more challenging, the potential to have greater impact and influence wider exists.

173. The make-up of the National IWRM APEX Bodies has been a country driven process with support from SOPAC through a variety of projects[54]. Each IWRM APEX Body is tailored in membership and format to adhere to national government requirements. Under Component C3 of this project APEX Bodies will be further supported, formalised, strengthened, and resourced where possible. A key ongoing co-financed activity is ensuring that national Finance and Economic Planning Units are members of the IWRM APEX Bodies. Only through active engagement with finance departments/agencies can awareness be raised to the costs of providing safe water, managing water resources, and avoiding pollution to reduce environmental stress. Through EU Water Facility and other SOPAC programme co-financing support identification of additional financing sources will be a key factor to ensure replication and sustainability of approaches.

174. The Executing Agency has already been instrumental in leveraging additional resources through co-financing support for the project[55]. Regional, national and local partnerships are essential to sustain project activities over the long term and to foster support and resources for project approaches. The Pacific Partnership on Sustainable Water Management played a pivotal role in the development and implementation of this project. The use of the Partnership is a unique approach for regional project implementation and many members have been identified as co-financers and capacity building support for this project.

175. The similarity of the water and environmental problems faced amongst Pacific Countries, and their solidarity on these issues is a vital component to ensure existing political will, the Pacific RAP, and existing national policies are built upon in national institutions and wider civil society. Replication approaches will be enhanced through strategic links, building on existing regional political will for change. Pacific Leaders re-affirmed their commitment to water and sanitation at the Asia Pacific Water Summit in Beppu Japan (early December 2007) through key messages from the Summit[56].

176. Following the Beppu Summit, plans are underway to hold a high-level side meeting on water and climate on the invitation of Niue's Prime Minister during the annual Pacific Islands Forum Leaders meeting in August, 2008[57]. This will provide a platform for the Inception of the Pacific IWRM Programme[58] with subsequent start of in-country IWRM activities under GEF-4 and will recognise 2008 as the **UN International Year of Sanitation**, raising awareness to the water-related health risks of poor water supplies and sanitation, and the need to improve the monitoring and treatment of sewage releases and the reduction in overall sewage entering the Pacific.

177. Key activities of the PCU will be in sourcing ways to secure additional resources for demonstration activities at the local level, working with National Project Staff. This is to ensure that communities involved are able to continue successful activities, and for other communities to visit, see the interventions, learn from them and apply them. The PCU will also be tasked with looking for ways to extend the overall project lifetime to a more realistic ten year period in order to demonstrate real change.

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[54] The aim of such bodies is to provide structures for coordination between different organizations involved in water resource management. In some cases water policy and management is centered in a specific body of government but in many situations responsibility for water is shared between a number of bodies (e.g. ministries for geology, environment and public works) that may not be able to operate easily together. Here an apex body may provide a useful co-coordinating function. The creation of apex bodies can free water allocation decisions from being driven solely by sectoral interests, enabling more strategic allocation. GWP Handbook, *Catalyzing Change*.

[55] SOPAC is already actively engaged in sourcing additional finances following the reduction in the overall project budget during the project design phase by $2 million by the GEF Secretariat.

[56] (i) Accord the highest priority to water and sanitation in our economic and development plans and;(ii) Improve governance, efficiency, transparency, and equity in all aspects related to the management of water, particularly as it impacts on poor communities;(iii) Take urgent and effective action to prevent and reduce the risks of flood, drought and other water-related disasters;(iv) Support the region's vulnerable small island states in their efforts to protect lives and livelihoods from the impacts of climate change.

[57] The side session on water and climate hosted by the Premier of Niue, H.E. Mititaiagimene Young Vivian, provides an opportunity to brief the 39th Forum Leaders on the outcomes of the Beppu Asia Pacific Water Summit. The Policy Brief, prepared by the Asia Pacific Water Forum Secretariat and adopted at the Summit, gives special recognition to the isolated nature of small island developing states (SIDS) and calls for increased regional cooperation to share knowledge and build capacity in order to address challenges common to many island nations, as embodied in the Pacific RAP. The Policy Brief is providing further guidance to the leaders attending the 2008 Toyako G8 Summit and the 5th World Water Forum to provide this support. The side session will also provide an opportunity to discuss the potential linkages between integrated water resources management and climate adaptation for which action is mobilised through the GEF-PAS.

[58] Consisting of the GEF Pacific IWRM Project, the EU Water Facility co-financing programme focusing on National IWRM Planning, and other SOPAC implemented initiatives including the Pacific HYCOS Programme.
See: http://www.sopac.org/tiki/tiki-index.php?page=Pacific+Resource+Centre+on+Water+and+Climate

178. One key element to replication is the need to capture the lessons and key approaches, and to raise awareness and disseminate these in the appropriate format. A key role of the PCU and National Project Staff will be to capture these lessons through collating regular narrative reporting, feedback learning groups, and other mechanisms. A crucial lesson from the earlier Pacific IWP project is that reporting must be in an appropriate format and language to ensure wide understanding of the points across the region. Academic based reporting driven by external consultants has limited impact and the PCU will advise the PICs on the use of consultants and contracting requirements to ensure that outputs are delivered of value to the project and the region. The replication approach is summarised in the table below.

Table 11: Replication Approach

Outcome	Replication Need & Opportunity	Project Approach
Component 1: Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management	• Demonstration of environmental benefits through using IWRM approach to manage water resources • Incorporation of IWRM approaches mainstreamed into national government practice • Demonstrate socio-economic value of IWRM approaches to achieve local to global environment benefits • To expand lessons learned and replicate IWRM approaches which reduce risk associated with climate variability (i.e.: watershed mgmt and integrated flood risk mgmt)	• Capture and dissemination of lessons learned through reflective learning incorporating Participatory Monitoring & Evaluation to ensure local and national level learning for replication, scaled-up to regional level for inter-SIDS sharing globally • High priority assessment of Hot Spot Analyses to re-identify replication sites & approaches during project inception phase with stakeholders (though use of *Replication Framework*), and through learning lessons from previous interventions (such as IWP) • Project *twinning* to promote learning and replication between countries and Demonstration sub-groups • Using the Pacific Partnership Network and Pacific Water Association to promote project interventions and share lessons, GEF IW:LEARN, USP VWLC, GWP, UNDP, UNEP* • Appropriate reporting and dissemination mechanisms – knowledge management systems and communication strategy • Replication Toolkit incorporating project implementation lessons and ways to streamline approaches to improve national government buy-in and transfer of lessons between countries within Demonstration Project Groups • Distribution of lessons for regional replication through the Pacific Partnership and other SIDS networks
Component 2: National and Regional adoption of IWRM and WUE indicator framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point	• Understanding improved on *cause* and *effect* of poor water management practices • Need for better understanding on the role of monitoring and action on monitoring information • Collective suite of indicators required applicable to different countries and regions as guidance • Better understanding of the role water plays in development of SIDS	• Monitoring meetings to share lessons and determine progress, both with project delivery, and in collecting information for monitoring purposes to define indicator framework, and replicate lessons through APEX Bodies • Indicator Framework will help structure future projects, and focus future project design • Links and information sharing with other CROP Agencies and projects to develop indicator framework
Component 3: Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions	• Demonstrate value of IWRM approaches to managing water, including cost effective and beneficial impact • Avoid fragmented management of water through collaborative cross-sectoral and multi-level working • Improvements in national planning and sectoral coordination, including financing • Opportunity to develop, support, and strengthen regulatory instruments	• Integration of best practice working and lessons learned from Demonstration activities presented at IWRM APEX Body meetings for cross-sectoral learning and support for replication sites and activities • IWRM used as non site specific mechanism for reducing environmental stress • IWRM APEX Body membership to include Finance and Economic Planning to support national IWRM mainstreaming process, as well as other GEF project staff and donors • High-level political support to drive reform and deliver regional (Pacific RAP) and global (MDGs,

		UNSGAB Hashimoto Action Plan, etc) targets through identification and inclusion of National Water Champions • Political awareness raising – published IWRM stories, interviews, briefing packs, video, radio, high level meeting attendance • IWRM APEX Body support through funding for national Water Coordinators through EU Water Facility co-funding
Component 4: Improved institutional and community capacity in IWRM at national and regional levels	• Expanding core institutional knowledge across sectors nationally and regionally • Supporting communities and local institution to maintain awareness and embed successful project approaches into everyday practice • Rolling-out appropriate training across the region	• Project *twinning* to promote learning and replication between countries and Demonstration sub-groups • Awareness raising approaches as community, national and regional levels, including linking with other sectors to promote water and cross sectoral linkages and improve understanding • Influencing the young through education – putting water into school curricula • Through sourcing additional funds where possible, including scaling-up interventions through close donor communication and collaboration, including through the GEF Small Grants Programme

Notes: * USP VWLC - University of the South Pacific Virtual Water Learning Centre; GWP – Global Water Partnership; UNDP Water Governance Facility at SIWI.

Lessons Learned

179. Executing Agency global experience, combined with support from Implementing Agencies UNDP and UNEP has created a strong lesson learning environment throughout the project design phase. Project Steering Committees have provided the opportunity to learn from national IWRM Focal Points, and in some cases PACC and GEF Operational Focal Points on issues and lessons from previous GEF and other donor projects. Care has been taken to include these lessons learned in the project design, especially regarding Demonstration Project implementation and management, and the role of the Project Coordination Unit. Review of GEF Scientific and Technical Advisory Panel (STAP) documents, other project documentation[59], and feedback on the Project Identification Form has been taken into account in designing the full size project for implementation. Table 12 summarises the lessons learned and the project design approach.

Table 12: Lessons Learned

Lessons	Regional &National Context	IWRM Project Design Feature
The need for nationally supportive institutions guided by national or regional frameworks to implement cross-sectoral approaches and promote lesson learning	• All PICs in the project have in place National Water Committees / Advisory Groups. The Pacific RAP on Sustainable Water Management has been signed by Heads of State	• Using a strategic combination of co-financing approaches, GEF funds will be used to target on-the-ground interventions designed to reduce environmental stress using IWRM approaches. These lessons will be fed into national institutions through mutual support from the EU Water Facility co-financing National IWRM Planning and institutional support and policy review, in line with the Pacific RAP objectives
Ensure each Focal	• The need to respect Focal	• Focal Ministries/Agencies will be reviewed during

59 Aitaro, J., Alik, L., Bakineti, R., Fakaosi, S., Leolahi, S., Lovai, N., Mesia, P., Nimoho, L., Paniani, M., Raea, T., Salao, K., Singh, S., and Tafileichig, A., 2007. Lessons for Pacific Islands Environmental Initiatives: Experience from IWP National Coordinators. IWP Technical Report no.44. Apia, Samoa, SPREP.
Fox, A., Tiraa, A., and Raaymakers, S. 2007. Terminal Evaluation: GEF/UNDP/SPREP Strategic Action Program for the International Waters of the Pacific Small Island Developing States (RAS/98/G32).
Guidelines for the Initial Phases of the International Water Programme: In-Country Arrangements, Selection of Pilot Projects and Strategic Planning and Design. Project Coordination Unit, International Waters Programme. Apia, Samoa, SPREP, 2003.
Heileman, S., and Walling, L. February, 2008. IWCAM Indicators Mechanism and Capacity Assessment. Integrating Watershed & Coastal Areas Management in the Caribbean Small Island Developing States (IWCAM). GEF-IWCAM PCU, CEHI, St. Lucia.
Lessons for Demonstration Project Site Selection and Design. GEF-IWCAM PCU, CEHI, St. Lucia.
Replication Strategy, Follow-Up and New Initiatives. Working Paper 6b. Fourth Multipartite Review, 11-12 August, 2003. Apia, Samoa, SPREP.
Views and Lessons: Effectiveness of the Global Environment Facility in the Pacific. Final Report, October, 2004. Delta Networks and Pacific Environment Consultants.
GEF Pacific Alliance for Sustainability Program Framework. February 2008.

Ministry/Agency is responsible and encouraged to lead national implementation of Demonstration Projects and will support regional activities where required	Ministry/Agency hierarchies and processes and work with national government objectives in a flexible manner • Support capacity building where needed	the first 6 months of the project to ensure that they are the relevant Lead National Agency. In most cases this has already been a key activity during the project design phase of the Demonstration Projects. Identifying the technical focus of the Demonstration Projects prior to project implementation will help in the national recruitment of national project staff, whilst maintain close links to national government needs and priorities to balance project activities – only by addressing nationally recognised problems will project lessons be learned and adopted by host governments • Support the National IWRM APEX Bodies in raising their 'status' and resources to improve their influencing roles
Need for demonstrable improvements based on project interventions, including socio-economic development to assist communities in sustaining interventions/methods	• Urgent need to improve community stewardship of water resources to reduce environmental stress – critically important in low lying atoll countries which are densely populated and vulnerable to climatic variability • Community understanding and engagement is vital to project success in all PICs – it is important to recognise that adequate time also needs to be considered for customary formalities and that the community 'pace' of understanding, action and delivery must be respected • IWRM Awareness needs to be raised across all sectors and with a multitude of stakeholders to bring benefits of thinking and working cross-sectorally	• Demonstration Projects focus based on Hot Spot Analyses identifying problem situations linked to root causes • Demonstration Project review during the initial six months to ensure stakeholder buy-in, community commitment and understanding^, priority issues and causes are properly understood and resources are allocated appropriately, including co-financing coordination • Demonstration projects will be realistic in their activities given the timeframes and procedures required to administer across the Pacific • Capture and dissemination of project interventions and impact (both positive and negative), recognising that behaviour change takes time
Adequate representation and consideration of communities and stakeholders in project design and management, especially at the national level	• Depending on the technical and geographical nature of the Demonstration Projects, stakeholders need to be engaged and encouraged to participate in interventions – the need to demonstrate socio-economic benefits of project interventions is therefore critical to develop ownership for communities to drive demonstration activities with support from project staff (especially where technical interventions are required)	• Local community/village level involvement in the National Project Steering Committee will be encouraged by the PCU and National Project staff, including site visits and meetings hosted at demonstration sites • Community voice may involve establishing gender and age balanced Community Working Groups (CWGs) to clarify the role and requirements of communities, and to clarify information/data/output ownership where necessary. National Project Staff, supported by the PCU will determine the national Demonstration Project needs within the first 6 months of full implementation
Learn from previous studies and projects. Past national and regional work will also be used to help guide Demonstration Activities, and will therefore influence the entire project	• This includes building on outputs from the earlier IWP Project, including: IWP National Priority Environmental Assessment Reports, National Environment Management Statements, national/ reports prepared for the Millennium Assessment process, and State of Environment Reports • Limit use of external consultants, especially in relation to community level work in Demonstration Projects. Rather than use external consultants to meet project deadlines it is far better to adjust the project to incorporate longer term community driven consultation for sustainable behaviour change	• At the Demonstration Level National project staff will be responsible for collating lessons learned, including engaging with PACC Water Country staff, and previous IWP Project staff, as well as other water focused government and donor interventions. EU Water Facility co-financing will support this lesson learning from previous interventions for the policy and national planning side • To monitor the use of external consultants, and wherever possible focus on using national and regional experts • The PCU will produce a guidance manual for Demonstration Project Implementation and will maintain a contacts database as part of the knowledge management system in the PCU • Replication and sustainability approaches considered in initial project design and from full implementation start

		• Feedback learning built into Participatory & Monitoring and Evaluation and the overall project M&E approach
Consider issues which are not site specific and have national appeal, including options to scale-up and replicate	• SIDS currently face serious water resource and environmental stress issues - challenges that continental countries are likely to face in coming decades. Combined with limited human and financial resources SIDS are faced with finding innovative and locally appropriate and adaptive solutions to address these challenges • Consider gender differences in management actions and impacts	• IWRM Demonstration projects are geographically larger than previous demonstration activities under IWP, and although this makes them more challenging, the potential to have greater impact and influence wider exists • IWRM is a flexible process approach to managing water resources – it is more focussed on process and mgmt rather than specific technical interventions and therefore has national appeal and can be integrated at the national level for national roll-out • Gender is mainstreamed throughout the project, and also through support from the Gender and Water Alliance
Influencing behaviour will reap more sustainable benefits rather than imposing punitive measures	• Compliance and regulation need to be introduced slowly and require tailoring to national situations	• Cost-effective approaches will be recommended to national government based on Demonstration lessons. These approaches will be based on socio-economic assessment and other tools determined at the national level, helping national government expand baseline information to provide options for future long term decision making and mainstreaming approaches
Clarify the role of any Project Management Unit and provide clear guidelines on roles and responsibility of Regional and National Project staff, including reporting needs, formats, and role of project support personnel and agencies	• Robust project coordination is required to maintain project focus and clarity across such a large and diverse region, incorporating diplomatic and flexible management approaches and strong project monitoring and evaluation	• PCU will have a technical capability to facilitate training and support to projects, and will itself form part of the IWRM Resource Centre established at SOPAC under the EU Water Facility co-funding – the PCU will also look at Exit Funding options for the end of the project to ensure continuation of project benefits through support from other donors and national governments • The PCU will also be required to provide project guidance, support and administrative assistance, and will be the interlocutor between Implementing Agencies and GEF, and the PICs • Reporting must be in an appropriate format and language to ensure wide understanding of the points across the region. Academic based reporting driven by external consultants has limited impact and the PCU will advise the PICs on the use of consultants and contracting requirements to ensure that outputs are delivered of value to the project and the region • National Project Staff performance will be appraised on a six monthly basis* linked to bi-annual requests from the host Ministry for funds to allow payment of project staff salaries. This will be an output based approach to national project management and delivery • Training will be provided to National Project staff based on their identified needs as part of a regional IWRM Continuing Professional Development approach (CPD)
Integrate national monitoring at the regional level to learn lessons across countries	• Links to other CROP agency work at the national and regional levels will be reviewed (SPREP and SPC) in determining a suite of indicators	• Sound baseline information across the project, notably at the Demonstration level will be used to determine project impact. Annual review periods and mid-term review will ensure the project remains on track, and where flexibility and re-design is required support is provided by the Regional PCU. Templates, guidance and training will be provided, including the use of the SOPAC IWRM Resource Centre advice[+] • A Regional Communications Strategy[◊] will be developed for the project by month 6, and this will be tailored to specific national requirements with PCU support

Notes: According to the IWP Project Coordination Unit: "*IWP Pilot projects influenced or catalysed national action to facilitate the integration and sustainability of IWP activities, and by the end of the project in 2006 eight countries confirmed that their pilot countries confirmed that their pilot initiatives were fully integrated into the work of relevant government agencies*…" (Integration and Lessons Learned from the PCU/SPREP Perspective, pp: 5-6).

^ If communities and project staff/Focal Ministries/Agencies prefer, Memorandums of Understanding can be drawn up so that community and project tasks and commitments are clearly defined and deliverables/tasks agreed.

* Based on key lessons from IWP National Project Staff must have adequate technical skills and experience to implement the projects. A key function of the National IWRM Focal Points, APEX IWRM Bodies, Focal Ministries/Agencies, and the Regional PCU will be to recruit appropriate and experienced national staff. National Project Staff salaries will be set in alignment with national Public Service Commission salaries based on job-sizing the Terms of Reference.

+ The IWRM Resource Centre will develop and maintain a database of documents, information and contact details on national supporting institutions (Government Agencies, Regional Agency offices, NGO's, etc), and consultants to help support project implementation and for long term regional capacity and information system development. National Project Staff, National Focal Ministries/Agencies, and IWRM APEX Bodies will assist through providing information.

◊ A Draft Communications Approach is provided in Annex 8 based on lessons learned from the IWP and IWCAM Projects, including consultation with the Communications expert from the IWP Project Coordination Unit.

Gender Mainstreaming

180. Incorporating an understanding of social relations and power dynamics and adjusting projects accordingly, rather than simply targeting women specifically is a key step during project implementation. Changing human behaviours needs an understanding of different existing priorities, knowledge and constraints. Conducting appropriate levels of gender analysis at the national Demonstration Project level will help countries to understand the role of women and men in the use and management of water resources, and the roles they play in protecting the environment and reducing stress in the particular areas of an intervention[60]. Table 13 contains some of the key issues to consider during project implementation concerning gender. Gender issues have been mainstreamed into the project design and approaches and training available will be further developed and discussed with the countries during the Pre-Inception and Inception periods of the project. The IWRM Community Mobilisation Guidelines developed by the project during the PDF-B Phase include gender mainstreaming components for use and development throughout the project. The logframe contains indicators with gender relevance.

Table 13: Gender Issues to Consider During Project Implementation

Type of Action	Issues to Consider	Reasons and Questions to Consider
Information Systems and Research	• Collating and commissioning targeted gender analytical research where required • Establishing sex disaggregated data and include in project information systems, including regional IWRM Indicator Framework (Component C2)	• Choice of action to promote gender equality should be made on the basis of clear gender analytical information and sex disaggregated data, and on the basis of women's own priorities and concerns • To monitor progress on gender issues across the Pacific in relation to IWRM, including mainstreaming approaches
Building the capacity of staff in management, policy development and in Focal Ministries/Agencies and project partners	• Developing staff gender-related skills, knowledge and commitment through training workshops, consultancy support, provision of guidelines, financing schemes • Supporting government and NGOs in developing standards through widespread dissemination of the IWRM Indicator Framework as a cost effective cross-sectoral mechanism to raise awareness about gender issues	• Policy dialogue, ensuring disadvantaged groups, women, the young and the old are represented – provision of information to women • Women and different age groups represented in Community Working Groups and other local water meetings • Representation of women at the National IWRM APEX Body level and to support women in technical and managerial positions
Promoting gender equality in management, policy development and in Focal Ministries/Agencies and project partners	• Development of procedures to promote equality in recruitment and career development • Identifying and addressing gender-related issues in organisational culture • Agreed actions to promote gender equality should be included in policy and planning • Legal and regulatory reviews may	• Monitor the no. of women in water and sanitation agencies • Monitor the no. of women in national IWRM APEX Bodies • Are women involved at all levels of the hierarchy? • Can IWRM Champions be advocates for gender and women (if they are men) • Are women provided with the same

60 Ensure Environmental Sustainability: Halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation. Sub-goal 3: to promote gender equality and empower women.

	be required to assess the impact and effect on women and other disadvantaged groups (i.e.: land access, ownership of water, access to water)	information as everyone else • Requires high level organisational capacity, understanding, and change
Solidarity and networking	• Activities to link together individuals and groups working for gender equality	• Training provided and skills on gender in water and sanitation agencies • Raising women's self confidence through participation, voice, awareness around gender issues and motivation
Addressing women's and men's practical needs	• Recognising and addressing practical needs/problems identified by and particular to either women or men	• What are the roles and responsibilities of men and women, i.e.: concerning domestic water use, especially in poorer countries • Care must be taken to represent the real picture during stakeholder analysis and PM&E activities
Promoting equality of access and benefit	• Promoting greater gender equality in relation to resources, services, opportunities and benefits, e.g. increasing women's access to previously male dominated employment opportunities	• What are current attitudes and practices in personal hygiene • Ensure women's obstacles to participation have been considered and strategies formulated to overcome them
Increasing equity in decision-making	• Promoting women's and men's equal participation in community level decision-making institutions and in community representation	• True participation means being involved in planning, decision-making and management throughout • Improve the quantity and quality of women's participation
Addressing the ideology of gender inequality	• Working with beneficiary groups to reflect on gender norms, traditions and values • Addressing inappropriate gender stereotypes	• Does gender stereotyping affect water and environmental management • Does gender stereotyping have a negative effect on the environment in the Demonstration project areas • Do gender power relations in the household affect women having a voice and sharing their knowledge and experience, providing them with social capital, leadership and networking opportunities

PART III : Management Arrangements

181. The Implementing Partner[61] (formally known as the Executing Agency) for the project will be SOPAC – the Pacific Islands Applied Geoscience Commission based in Suva, Fiji[62]. SOPAC is an inter-governmental, regional organisation dedicated to providing services to promote sustainable development and vulnerability reduction in the countries it serves through legal mandate. SOPAC's work programme focuses on providing assistance to its member countries in three key programme areas:

- **Community Lifelines** is a diversified programme that strengthens national capacities in water supply and sanitation, water resources, energy, information and communications technologies. This includes development and implementation of regional policies and plans to achieve sustainable water and wastewater management; advocacy & capacity building for Integrated Water Resources Management (IWRM);
- **Community Risk** is a comprehensive programme aimed at reduction of community vulnerability through improved hazard assessment and risk management;
- **Ocean and Islands** is an integrated programme focused on research, development and management of non-living resources in ocean and island systems addressing issues relating to seabed resources, energy, maritime boundary delimitation and monitoring of ocean processes.

182. The full size project will be implemented through a Regional Execution arrangement. The geographical distance, communication problems, cultural manner, and existing relationship with the Executing Agency through other water sector support programmes, many of which will co-finance this IWRM project, mean that the most efficient and cost-effective approach is to regionally manage the project.

183. Building on existing relationships between CROP Agencies responsible for implementing GEF projects, as well as other donor projects both regionally and nationally, and using the water sector support already provided through SOPAC a broader sectoral understanding within each of the countries involved. This makes the approach well-suited to the implementation of an IWRM project which will work to foster those links between sectors and improve inter-sectoral and multi-level coordination. With a range of different ongoing water projects, and the EU Water Facility project working with the same 14 countries national missions will be combined to ensure projects listen and learn from each other, essentially expanding the resources available to the project through effective use of donor programme resources to provide advice to national project implementers.

184. SOPAC has established a regional IWRM Resource Centre through ensuring collaborative working and lesson learning between projects, expanding skills and experience available to Pacific Island Countries within a framework of IWRM. The additional strengths that this project brings through resources, staff, and global knowledge strengthens the existing Resource Centre approach. The SOPAC IWRM Resource Centre will provide in-kind support through the provision of office facilities, ICT support, communications, library resources, equipment, regional partnerships, networking, integration with existing and future technical and training programmes, and post-project support of the PICs water resources agencies.

[61] The Implementing Partner is the entity responsible and accountable for managing a project, achieving project outputs, and for the effective use of UNDP resources. A single Implementing Partner is designated to lead the management of each UNDP-supported project. The Implementing Partner may enter into agreements with other organisations or entities to assist in successfully delivering project outputs. Possible Implementing Partners include government institutions, other eligible UN agencies, UNDP, and eligible NGOs. Eligible NGOs are those that are legally registered in the country where they will be operating. Proposed Implementing Partners should be identified based on an assessment of their technical, financial, managerial and administrative capacities that will be needed for the project. Source: The UNDP Programming for Results Management Guide.

[62] www.sopac.org

Regional Management Arrangements
Project governance arrangements include:

185. **Regional Project Steering Committee** – formed under the PDF Phase, the Regional Project Steering Committee (RSC) will be the primary policy-making body for the Project. Membership includes the designated national IWRM Focal Points who were involved in the design phase of the project, as well as selected members of the Pacific Partnership Initiative on Sustainable Water Management. Its role will be to provide managerial and governance advice to the project, and to guide the Regional Project Coordination Unit (PCU) in the implementation and monitoring of the overall regional project. The RSC will also provide a regional forum for reviewing and resolving national concerns, review and approve annual workplans and budgets, and provide a regional forum for stakeholder participation. One of the first activities during full project implementation will be to reconfirm and/or re-constitute the membership of the RSC and agree on meeting procedures, and finalise Terms of reference for the RSC. UNDP and UNEP are members of the RSC and will provide strategic guidance and approve the annual workplan and budget[63]. The RSC will meet annually[64] and will be minuted and reported by the PCU. To ensure the institutional ownership and sustainability of project impacts the RSC will be linked to the existing Pacific Partnership Initiative on Sustainable Water Management[65]. The EU will also be invited to sit on the RSC as major co-financers of the overall IWRM programme.

186. **Regional Technical Advisory Group** - will assist in the implementation of national and regional project activities. Building on existing mechanism, The Pacific Partnership on Sustainable Water Resource Management (the Partnership) will act as the RTAG. The Partnership has played a pivotal role in the development and implementation of this IWRM project. The use of the Partnership is a unique model for regional project implementation and many members have been identified as co-financers and capacity building support for this project. Specific technical meetings will be held biennially and will be linked to other regional consultations and regional initiatives to provide specific technical advice to the project. The Partnership consists of various stakeholders including CROP representatives and agency partners. Technical meetings will avoid duplication and to be cost-effective will be linked to annual Project Steering Committee Meetings and where possible the Executing Agency Annual Session[66], as well as other Council of Regional Organisations of the Pacific (CROP) Agency annual meetings to assist in sharing lessons at the regional level. In year four of the project the technical meeting will have a specific focus on donor attendance and will be structured around the issues of *Sustainability* and *Replicability* – learning lessons from the replication process so far in-country, but also highlighting the investment needs to maintain sustainable practices. This will include countries sharing their own approaches to mainstream best practices into national government approaches and budgets.

187. **Regional Project Coordination Unit** - will be established within SOPAC. The PCU will provide a technical support, coordination and management function for the implementation of the Pacific IWRM Project and function in accordance with the rules and procedures of Implementing Agencies UNDP/UNEP, Executing Agency SOPAC, and GEF[67]. It is, however, recognized that there may be situations where the nature of SOPAC's rules and procedures and those of UNDP and UNEP may conflict. In situations where conflicting/or mutually exclusive rules and procedures arise, solutions will be worked out on a case-by-case basis, to ensure project implementation continues. The

[63] UNDP and UNEP will also be eligible to sit as members of the Regional Technical Advisory Group.

[64] Note that the project will cover meeting costs and per diems but will not provide sitting fees for project meetings, in line with the rules and regulations of the Executing Agency.

[65] The project will use existing working governance structures wherever to ensure Pacific ownership and sustainability of interventions, and to keep arrangements lean and non-duplicative.
For further information on the Partnership see: http://www.sopac.org/tiki/tiki-index.php?page=CLP+Pacific+Partnership

[66] The SOPAC Annual Session includes the convening of the Science, Technology and Resource Network (STAR). Further information on the SOPAC Annual session and STAR can be found at: http://www.sopac.org/tiki/tiki-index.php?page=Annual+Session+2007-Kingdom+of+Tonga. It is envisaged that lessons can be shared from both the IWRM and PACC projects at the SPREP Annual Meeting.

[67] Draft ToR for all the regional and national positions, including the role of the Project Coordination Unit were provided to Pacific IWRM Focal Points, UNDP and UNEP on 30th November 2008 following discussion of the role of the Project Coordination Unit at the 3rd Steering Committee Meeting, Tradewinds Suva, Fiji (5-8 November, 2007). Based on lessons from previous regional projects (such as IWP) the PCU will be required to provide project guidance, support and administrative assistance. To do this it must have a technical capability to facilitate training and support to projects, and will itself form part of the IWRM Resource Centre established at SOPAC under the EU Water Facility co-funding.

PCU will be headed by a **Project Manager** who will be hired through a competitive selection process. Three other staff will form the PCU with the Project Manager. The Project Manager position will be partly co-financed by the EU Water Facility. The Project Manager, in accordance with UNDP/UNEP formats and guidelines, will prepare the Annual Work Plan reflecting project activities and outcomes. In addition to the Annual Work Plan, a detailed activity work plan per project component will indicate periods of activity and the parties responsible for delivery. The Project Manager will be the registered Executing Agency signatory for the project, will work under the regulations of the Executing Agency, and will be accountable to the Regional Project Steering Committee. They will also act as the Secretary to the Regional Project Steering Committee. The PCU will work alongside and be assisted where necessary with the EU Water Facility project staff and other staff within SOPAC who collectively form the IWRM Resource Centre. The PCU will receive specific training in UNDP/UNEP procedures upon its establishment based on SOPAC's experience of working with the UN Agencies during the PDF phase, and from the UNDP office in Suva. The PCU will co-ordinate, supervise, assist, control, monitor and report on project execution and budget[68]. PCU staff positions are summarised below (Terms of Reference for each position are provided in Annex 9):

- ***Environmental Engineer/Management Specialist*** [Professional Adviser position, co-financed by the EU Water Facility]

The Environmental Engineer/Environmental Management Specialist will assume direct responsibility for the technical delivery of the regional and national project components of the project, working with other members of the PCU as the principal technical project post.

- ***Communications/Community Assessment and Participation Adviser*** [Professional Adviser position, co-financed by the EU Water Facility]

The Communications/Community Assessment and Participation Specialist will assume direct responsibility for the substantial community assessment, participation, information, communication(s) and education activities of the project.

- ***Financial Adviser*** [Technical/Administrative Support position]

The Financial Adviser will assume direct responsibility for the financial management of the Pacific IWRM Project, under the supervision of the Project Manager whilst also working closely with other IWRM project team members as part of the Regional Project Coordination Unit. Close liaison will be required with the National project delivery teams (14 National Project Managers and National Assistants) and other regional partners.

- ***Project Officer*** [Technical/Administrative Support position, co-financed by IWRM Resource Centre]

The Project Officer will support the Project Coordination Unit with administrative and project management duties to support the implementation of the project.

- ***IT Support*** [co-financed by Executing Agency]

IT Support to the Project Coordination Unit will be provided from SOPAC's existing corporate services support.

188. In its responsibility as Implementing Partner, SOPAC will, through the PCU, be responsible for the technical and financial execution of the project following UN Agency processes. It will be responsible for (i) directing and managing the project; (ii) meeting the projects stated outcomes and projected outputs in a timely manner; and (iii) making effective and efficient use of the financial resources allocated in accordance with the Project Document. The PCU will be, where required, guided by the decisions of the Regional Project Steering Committee, National Demonstration Project Steering Committees and other Advisory Committees (such as the Pacific Partnership) to support the implementation of the project.

[68] This includes liaison and co-working with the GEF IWCAM project in the Caribbean and IW:LEARN. IWRM Focal Points have already attended GEF IW:LEARN Payment for Ecosystems Services and Public Participation workshops in Hanoi (3-5 April 2007) supported with funds from IUCN, IW:LEARN, and the EU Water Facility IWRM National Planning Programme.
See: http://cms.iucn.org/about/work/programmes/marine/index.cfm?uNewsID=829

189. The Executing Agency will request from the UNDP Principal Project Representative (PIR) (i.e. UNDP Fiji/UNEP) all financial funds in accordance with UNDP proceedings. As part of the activities and budget monitoring, UNDP Principal Project Representative (PPR) will present annual financial statements relating to the status of the UNDP/GEF funds as registered in the ATLAS system. These statements will be verified by the Implementing Partner. In addition, UNDP PPR/UNEP will be in charge of selecting a recognised independent auditor that will conduct an annual audit of the project execution, according to the procedures set out in relevant documents. The cost of these audits will be charged to the project budget.

190. SOPAC will be accountable to the UNDP Principal Project Representative (PPR), i.e. UNDP Fiji, for the achievement of the project objectives and for all reporting, including the submission of work plans, progress reports, audit and financial reports. SOPAC will be responsible for financial control of the UNDP/GEF project implementation using the National Execution[69] (NEX) modality of UNDP. SOPAC will assist the Regional Project Coordination Unit (PCU) to engage services consistent with delegations provided by the Director under SOPAC's Financial Regulations. SOPAC will provide the PCU with full support in order to maintain a close record of all expenditures planned or made under the project in full accordance with relevant UNDP procedures and guidelines, as detailed in the UNDP Results Management User Guide. In addition to SOPAC and UNDP PPR, the PCU will also report to the RSC on the disbursement of funds under the project in order to ensure full transparency.

National Management Arrangements

191. Capacity at the national level to coordinate and administer activities to implement the project will be critical. Under the PDF-B Phase of the project existing national Water Advisory Committees (or similar bodies) have been further developed, and in some cases formed for the first time[70]. Throughout the PDF-B Phase these committees have become more formalised advisory structures in countries with support from SOPAC. The EU Water Facility will work to support and strengthen these Committees in becoming formal National IWRM APEX Bodies[71]. National level governance arrangements include:

192. **National Project Steering Committees** - in some cases, burgeoning IWRM APEX Bodies will become the default National Project Steering Committee (NSC). In other cases, some countries have identified a separate National Project Steering Committee, depending on the technical focus of the Demonstration Project. Membership of the National Project Steering Committees will be re-confirmed or re-constituted if required with new membership nominated by the office of the IWRM Focal Point during the initial six month phase of full project implementation (months 0 to 6)[72]. It is envisaged that in countries where the Sustainable Land Management MSP projects have close linkages to the IWRM Demonstration activities, and lessons can be learned and shared between projects the SLM Focal Point/Project staff will be a member of the National Project Steering Committee and/or the National IWRM APEX Body. Similar engagement with the Pacific Adaptation to Climate Change Regional Project (PACC) will also be actively encouraged in the five countries where water is the focus of PACC Adaptation interventions (Nauru, Niue, Tuvalu, Tonga, and the Marshall Islands). Due to their position in national government, the GEF Operational Focal Point will in most cases be a member of the National IWRM APEX Bodies, and/or the National Project Steering Committee. Cross sectoral lesson learning is a fundamental basic to implement IWRM. In-country donor offices and High Commissions/Embassy staff will be invited to Project meetings and IWRM APEX Body meetings (as co-financers) to support national project staff. National Project Steering Committees will be responsible for securing the necessary level of cooperation from their respective

[69] The overall management of UNDP programme activities in a specific programme country carried out by an eligible national entity of that country.

[70] In Fiji, Kiribati, and the Solomon Islands this was facilitated with support from the EU funded Programme for Water Governance. Further information can be found at: http://www.sopac.org/tiki/tiki-index.php?page=Water+Governance

[71] The make-up of the National IWRM APEX Bodies is a country driven process with support from SOPAC through a variety of projects. Each APEX Body is tailored in membership and format to adhere to national government requirements. Under Component C3 of this project APEX Bodies will be further supported, formalised, strengthened, and resourced where possible. A key ongoing co-financed activity is ensuring that national Finance and Economic Planning Units are members of the IWRM APEX Bodies.

[72] Depending on the technical and geographical nature of the Demonstration Projects, local community/village level involvement in the National Project Steering Committee will be encouraged by the PCU and National Project staff, including site visits and meetings hosted at demonstration sites.

country, including the securing of country-specific information and resources necessary for successful project activities.

193. **National Project Managers** – will implement and manage the Demonstration Projects. National Project Managers will be contracted by SOPAC for the delivery of Demonstration Project activities and also relevant activities for the regional components of the project. They will coordinate the activities of the project at the national level and promote the implementation of the Pacific RAP. Each National Project Manager (NPM) will be recruited by the relevant focal Ministry identified during the PDF-B phase with National APEX Body (IWRM Water Committee) input[73]. Project Manager progress will be reviewed bi-annually against an agreed workplan by the national focal ministry, the National APEX Body (and National Steering Committee where applicable) and the Executing Agency. The National Project Manager will be accountable to the relevant focal Ministry and to the Director of SOPAC through the Regional Project Coordination Unit Project Manager.

194. **National Project Assistants** – will support the Project Manager in Demonstration Project delivery. National Project Assistants will be contracted by SOPAC through the national focal ministry to support the National Project Manager in the delivery of the demonstration project activities and relevant activities for the regional component of the project[74].

195. Selection of national project staff will be through a transparent recruitment process conducted within each country. The following agencies will be responsible in the selection process: national Focal Ministry, National APEX Body (IWRM Water Committee), National Project Steering Committee (where present and separate to the IWRM APEX Body), and the PCU (representing the Executing Agency responsible for contracting staff – where PCU staff are not available due to delays in recruitment SOPAC will be represented as the project Executing Agency).

196. **Pacific IWRM Focal Points** - identified during the Project Design Facility (PDF) B phase have been closely involved in the design activities of the project including both national Demonstration Projects and regional components. The project has been country driven in design. Ensuring the early capture of country driven priority concerns and developing momentum throughout the PDF phase has placed the implementation of IWRM Demonstrations and National Planning in a unique cost effective position; reducing lead times for full project implementation. Given their central role in the design of the Pacific IWRM Project, Pacific IWRM Focal Points will maintain certain responsibilities and duties described in Annex 9 – to be clarified at the Pre-Inception Meeting. The contact details of IWRM Focal Points who served during the PDF B Phase of the project are included in Annex 10. The figure below shows the governance structure for the project.

197. **Project Financial Arrangements** - Following discussion with UNDP, SOPAC will receive funds into a separate project bank account advanced from UNDP and UNEP. SOPAC will disburse these funds based on predicted cash flow needs by countries, using their annual workplans and on-the-ground situation to plan funds required. To overcome initial concerns with funds handled through respective Ministries of Finance, it is proposed that each country establishes a separate project bank account for Demonstration activities. The responsibility for this will fall to the host Agency (Ministry/Department), assisted by the IWRM Focal Points and GEF Operational Focal Points. The practicalities of this approach will be discussed with the Regional Steering Committee during the project Pre-Inception workshop in July. An assessment will be made of the most cost-effective, transparent, efficient form of financial disbursement between countries and SOPAC on a country-by-country basis together with both Implementing Agencies. SOPAC will require a Memorandum of Agreement (MoA) to be signed with each country during the Inception Phase agreeing to the disbursement process and reporting requirements.

[73] Focal Ministries will be reviewed during the first 6 months of the project to ensure that they are the relevant Lead National Agency. In most cases this has already been a key activity during the PDF-B design phase of the Demonstration Projects. Identifying the technical focus of the Demonstration Projects prior to project implementation will help in the national recruitment of Project Managers and Project Assistants.

[74] National Project Staff performance will be appraised on a six monthly basis linked to bi-annual (2nd quarter) requests from the host Ministry for funds to allow payment of project staff salaries. This will be an output based approach to national project management and delivery. National Project Staff salaries will be set in alignment with national Public Service Commission salaries based on job-sizing the Terms of Reference.

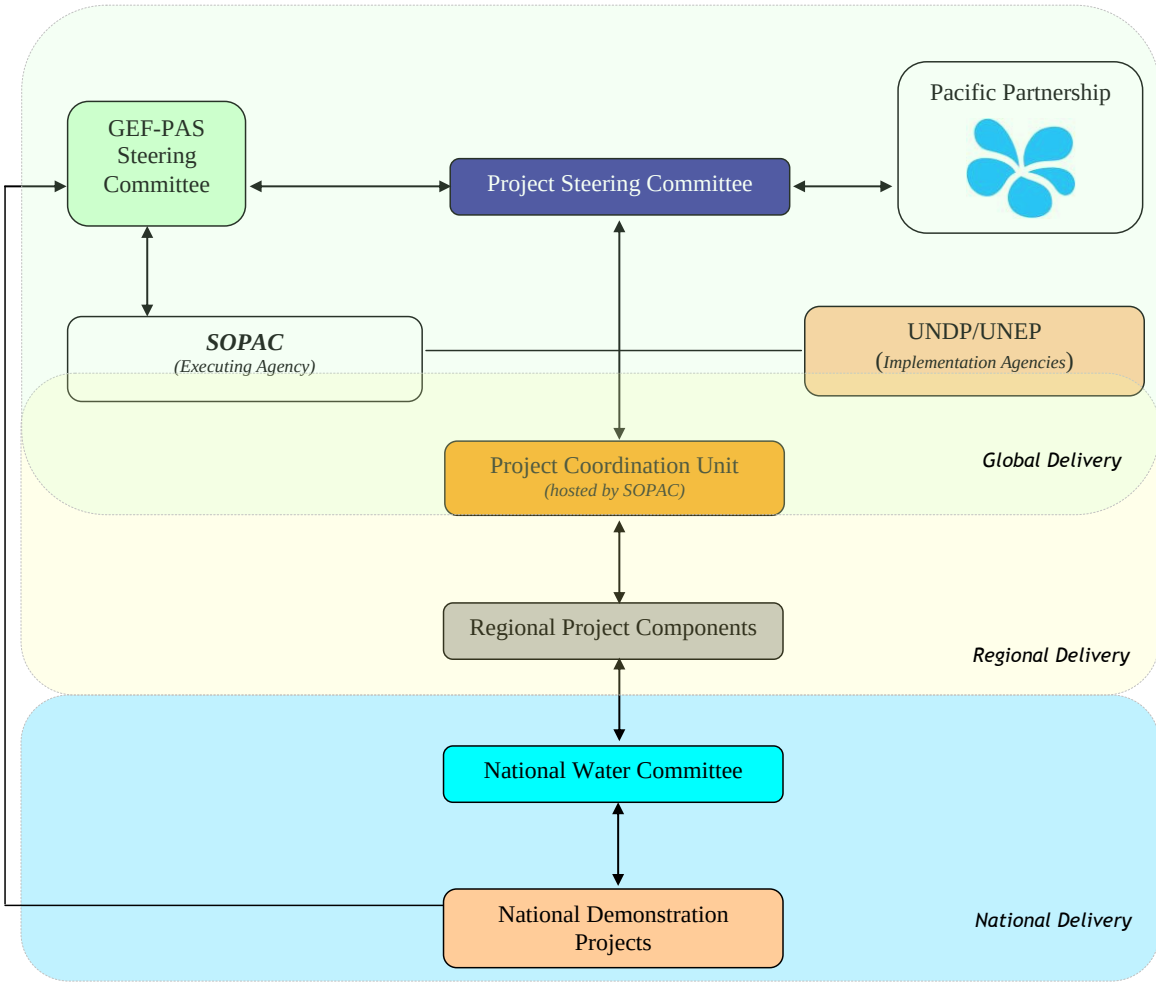

Figure 2: Project Governance Structure
(Note that in some cases the National Water Committee will be the Steering Committee for the Project. In others, a specific National Project Steering Committee will be established).

UNDP and UNEP as Implementing Agencies for the Project

198. The project will be jointly implemented by UNDP and UNEP. Both agencies have comparative advantages which will benefit the project objectives. UNDP has a strong country and regional presence and linkages between the project activities and the UNDP country assistance strategies including the United Nations Development Assistance Framework (2008-2012). UNDP is involved in a number of other regional initiatives which this project has already linked with (PACC and SLM projects). The project will specifically contribute to achievement of the MDG targets for water supply and sanitation as spelled out in the national sustainable development strategies and specifically the MDG target of setting processes in motion towards National IWRM Plans.

199. UNDP via the UNDP PPR, i.e. UNDP Fiji Multi-country Office (MCO), will provide the overall guidance and approval of key project activities, including administering GEF funds for Component C1 of the project, quarterly advances and co-financing arrangements vis-à-vis the Implementing Partner. Justification for expenditure at each quarter will be to the satisfaction of UNDP, before each quarterly advancement.

200. The UNDP PPR, i.e, UNDP Fiji MCO, together with UNDP Samoa, UNDP PNG and the UNDP-GEF Regional Technical Advisor for International Waters Programme in the Asia-Pacific region will carry out the UNDP/GEF oversight. Working in conjunction with the various project partners, the UNDP PPR, in close collaboration with UNDP Samoa and UNDP PNG, will be responsible for monitoring and evaluation (M&E), including organizing project reviews, approving annual implementation work plans and budget revisions, monitoring progress, identifying problems, suggesting actions to improve project performance, facilitating timely delivery of project inputs, and

provide linkages to its other sub-regional, Asia-Pacific regional and global initiatives. All M&E functions will be carried out in line with standard UNDP and GEF procedures. UNDP, as the Implementing Agency, shall be responsible for monitoring Project performance to ensure conformity with Project objectives and advising the Implementing Partner on implementation issues.

201. UNEP offers a strong relationship with its Regional Seas Programme and International Environmental Conventions, including its commitment to address the linkages between the upstream (freshwater) and downstream (coasts and oceans) links. UNEP will be instrumental in providing technical support to the respective demonstration projects building on existing guidelines related to IWRM which were jointly developed with SOPAC on rainwater harvesting, appropriate wastewater technologies and freshwater augmentation. The three components of assessment, management and cooperation within UNEP's freshwater work focus on mainstreaming environmental considerations into IWRM approaches to support policy reform at the national and regional scales. The framework developed by the Pacific region under UNEP's Global Program for Action (GPA) will be used to guide the implementation of wastewater interventions implemented through the demonstration project. UNDP will serve as the lead Implementing Agency for the component related to the National Demonstrations whereas UNEP will serve as the lead Implementing Agency for the Regional Components of the programme

202. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant IWRM project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. Logos of the Implementing Agencies and the Executing Agency will also appear on all publications. Where other agencies and project partners have provided support (through co-financing) their logos may also appear on project publications.

Box 2: Pacific Island Driven Project Design for Global Delivery

1st Steering Committee Meeting, Honiara, Solomon Islands (25-27 September, 2006)
The 1st Steering Committee included IWRM Focal Points, executing and implementing agencies and other interested stakeholders and provided an initial briefing on the requirements for the project design process whilst also gaining agreement from the Steering Committee on a schedule of deliverables for the process. This agreed process included key areas of action such as the development of templates to support countries with their requirements such as the development of diagnostic reports providing an overview of the situation, undertaking a hot spot analysis to identify issues and hotspot areas where issues will be addressed, and development of full demonstration proposals.

2nd Steering Committee Meeting, Sonaisali, Fiji (23-27 April, 2007)
The 2nd steering committee meeting was held 7 months into the project design process and three quarters of the project countries had already developed their diagnostic reports, carried out their hotspot analyses and defined their demonstrations of IWRM approaches through concept papers. The meeting was used to provide information to Focal Points and other stakeholders on the next steps including incremental cost assessments and the development of the full demonstration proposals. The Steering Committee also agreed to criteria for the demonstration proposals and a schedule for delivery, including accommodating those countries who had yet to complete their diagnostic reports and hot spot analyses. The meeting also provided an opportunity to inform the Steering Committee of support available through SOPAC to move forward with these next steps.

3rd Steering Committee Meeting, Tradewinds Suva, Fiji (5-8 November, 2007)
The 3rd and final meeting was held 14 months into the project design process and by this stage 13 countries had developed all the required deliverables aside from Kiribati who were having difficulties with developing their demonstration proposal. The meeting provided an opportunity for country group work to finalise the demonstration proposals, including the development of indicators, project purposes and objectives, national project management structures and budgets. There was also an opportunity for the executing agency SOPAC to present for consideration to the committee draft regional project management arrangements and regional support components including indicator framework and capacity building activities. The Steering Committee provided their national input into the rafts arrangements, and this was followed up by email at the end of November for clarification. Finally, there was also an agreement to a schedule of final deliverables which would see the project design process through to final submission of the Project Implementation Form (PIF) to the GEF Council in April 2008 as well as the submission and approval of project documents by the implementing agencies and the GEF.

PART IV : Monitoring and Evaluation Plan and Budget

203. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the Regional PCU and UNDP Suva with support from UNDP/GEF. The Logical Framework Matrix in Section II already provides comprehensive *baseline* and *target* indicators and *sources of verification* for both outcome and output levels during project implementation. These will form the basis on which the project's Monitoring and Evaluation (M&E) system will be built. Annex 6 contains more detailed information on the Monitoring and Evaluation approach. An M&E Plan will be finalised within the first 6 months of the project based on review of the Demonstration Proposals and, where required, refinement of the logframes and indicators at the national project level. This refinement process will be supported by the Regional Project Coordination Unit.

204. The following sections outline the principle components of the Monitoring and Evaluation Plan that will be implemented throughout the project. Particular emphasis will be given to the GEF policy on the monitoring and evaluation of IW projects. Standard GEF indicators focus on Process, Stress Reduction, and Environmental Status. Further information is provided on these types of indicators in the project Monitoring and Evaluation Annex. Component 2 of the project is dedicated to the development of an IWRM and Water Use Efficiency Regional Indicator Framework. The purpose of this framework is to develop a series of indicators tailored to Pacific SIDS situations at the technical and socio-economic level, and to develop IWRM cross-cutting indicators. This will be based on a Participatory Monitoring and Evaluation (PM&E) approach at the Demonstration level, and scaled up appropriately to the national and regional levels. This cost effective approach therefore allows the Demonstration Projects to be monitored, and to feed those lessons and indicators directly into the Indicator Framework for scaling-up to the national and regional SIDS level.

205. Participatory Monitoring and Evaluation focuses on five principles: (i) *Participation* – stakeholders participate in all aspects of choosing indicators and in collecting and analysing data; (ii) *Negotiation* – stakeholders negotiate over what will and will not be monitored and evaluated, how and when data will be collected, and how findings will be presented; (iii) *Learning* – participation, negotiation, and collective working leads to learning, ownership and investment in those findings; (iv) *Flexibility* – is essential, as the purpose of PM&E is improved learning for improved results, leading to ongoing change and adaptation in approaches; (v) *Stakeholder Involvement* – when multiple stakeholders work together (a key principle of IWRM) to develop indicators, they also clarify expectations and priorities, negotiate common approaches, and build ownership of outcomes[75].

206. Project Pre-Inception[76]

Stakeholders of the Pacific IWRM Programme[77] will attend a meeting in Alofi, Niue between 18-25 July 2008. The meeting has five purposes:

(1) as a Pre-Inception meeting to kick-start the IWRM project through discussion with the IWRM Focal Points on: (i) the resources available through the project; (ii) initial training identification and programming to establish the Continuing Professional Development approach; (iii) clarification on project governance structure, including the continuing role of the Pacific IWRM Focal Points; (iv) financial disbursement process (for discussion on a country-by-country basis), including the need for Memorandums of Agreement between countries and SOPAC for financial disbursement and setting up of national project bank accounts; (v) initial activities required including the sourcing and recruitment of National Project Staff; (vi) nomination by the Regional Steering Committee of a member to sit on the selection panel for the Project Coordination Unit; (vii) agreement on Terms of Reference for the Regional Steering Committee during full project implementation; and (vi) starting off the Inception Phase of the full size project including scheduling the next regional project specific meeting;

[75] Further information on stakeholder involvement can be found in Annex 4.

[76] The Project Pre-Inception Period represents the period between the end of the project design phase (PDF-B) and the release of funds from Implementing Agencies to officially start full implementation of the project. During the Pre-Inception period project activities will be co-funded by the EU Water Facility and other programmes executed through SOPAC. Any PCU Staff already hired by this time will be introduced to the IWRM Focal Points.

[77] Consisting of the GEF Pacific IWRM Project, the EU Water Facility co-financing programme focusing on National IWRM Planning, and other SOPAC implemented initiatives including the Pacific HYCOS Programme.
See: http://www.sopac.org/tiki/tiki-index.php?page=Pacific+Resource+Centre+on+Water+and+Climate

(2) as an Inception Meeting for the EU Water Facility co-funding IWRM National Planning Programme which is supporting the implementation of this project through co-financing country demonstration activities, Component C3 of the project in its entirety, and part co-financing the PCU;
(3) as a mid-term project review meeting for the Pacific Hydrological Cycle Observing System (HYCOS) project, a key co-financer and partner project which national IWRM Focal Points are involved with;
(4) to provide key messages for Pacific Leaders (including Australia and New Zealand) on water and climate interactions at the forthcoming Pacific Forum Leaders Meeting due to take place in Alofi in August; and,
(5) to recognise 2008 as the **UN International Year of Sanitation**, raising awareness to the water-related health risks of poor water supplies and sanitation, and the need to improve the monitoring and treatment of sewage releases and the reduction in overall sewage entering the Pacific.

207. During the Pre-Inception Phase the SOPAC IWRM Resource Centre will prepare a Project Implementation Arrangements (PIA) Report. The report will provide a framework to help guide newly recruited Project Coordination Unit staff and will include project reporting templates. With guidance provided by the IWRM Resource Centre, the PIA Report will help streamline new staff into the PCU, and mobilise action swiftly to reduce project implementation lead times. Once in position, the PCU will prepare a Guidance Manual to guide National Project Staff in implementing their projects, including administrative and financial requirements and templates, contact details, etc.

208. Project Inception Phase

The objective of the PM&E approach is to initially use the first six months of the project implementation period to refine Demonstration Projects to ensure sustainable ownership at the national level. Demonstration Projects are well designed so the purpose of any refinement activities is to support National Project Management staff in:

(i) clarifying project boundaries (both technical and geographical);

(ii) to complete the initial stakeholder analysis for each project;

(iii) to review and check through the logic of the logframe. Feedback from the earlier IWP project highlighted the fact that for many national project staff, demonstration projects may be the first time logframes have been introduced to them, and the sectors they work in, therefore time is required to explain the process of logframe development with them, including streamlining project objectives and indicators[78];-

(iv) to develop storylines (if required) to help put the project in context at the country and sectoral level, and to clarify the process environment to ensure this is understood by stakeholders, including clarifying the question '*What will this project achieve amongst end users*?'[79], and to explain the reporting process *internal* to the project (sharing information between project staff, stakeholders, governments, national IWRM APEX Bodies), and *external* to the project (Executing Agencies and Implementing Agencies – accountability and progress reporting), which is linked to monitoring and evaluation;

(v) to review baseline and target indicators already identified with stakeholders, including reviewing outcome level indicators. These baseline indicators have been identified during the Project Design Phase and are included in existing draft project logframes provided for each Demonstration Project[80];

(vi) to review baseline indicator needs and sources of information, including an assessment of costs to monitor new baseline data[81];

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[78] See: Holland, P., Mahanty, S., Stacey, N., Nimoho, L., Wright, D., and Menzies, S. 2005. *Designing monitoring plans in the Pacific Islands International Waters Project*. Meetings of the Pacific National Biodiversity Strategic Action Plan Coordinators (NBSAP) and Pacific Islands Roundtable for Nature Conservation Management Group – Papaua New Guinea, july 20-29, 2005.

[79] This should also include, with all project stakeholders, a review of the project logframe to ensure it is outcome focused using the following framework questions to critically appraise the intervention logic: *(i)* is this the right project (i.e. is this addressing the right problem – has it been correctly identified?; *(ii)* is this the right process to address the problem (i.e. is the strategy appropriate and likely to be achieved?); *(iii)* is this the right change (i.e. will the project vision of success actually achieve the desired change, verified by successful achievement of the target indicators above baseline indicators?).

[80] Demonstration Project proposals are provided in full in Volume II of this submission, and are summarised in Annex 5.

[81] New baseline data refers to information not collected by communities, government, or any stakeholders, but which is important for National Demonstration Project monitoring purposes. A critical assumption is that this information is collected already, in some form, as baseline information. Where this assumption does not hold true, an assessment will need to be made by National Project Staff, stakeholders, and in some cases the National IWRM APEX Body/National Steering Committee, with advice from the Regional PCU, as to whether alternative indicators and proxy indicators can be used to fill the roll of the identified baseline indicator, or whether the project activities

(vii) to decide on monitoring protocols for indicators (do they need to be specifically collected by the project, or can stakeholders provide this information through other activities). This will include national project management staff (with PCU support) identifying and clarifying the geographical and technical areas each Demonstration Project will focus on through engagement with all relevant project stakeholders nationally, assisted by the national IWRM APEX Bodies.

209. Activities will include working with villages and communities actually in the project geographical boundaries, and also surrounding communities, municipal and national level institutions. Engaging with local communities is intended to build sustainable support for the project through including them in re-defining project activities, and helping management staff identify indicators and ways to collect and therefore annually monitor change (both negative and positive) to ensure benefits are delivered and negative effects can be mitigated against as they occur.

210. National Project Management staff will review the Demonstration Project logframes and include concrete baseline and target indicators as required based on identified refinement needs in this first 6 month period. Presentation of the complete national projects with refined activities and baseline indicators will take place between months 6-8 of the project at the Inception Workshop, including presentation of replication approaches and initial sustainability concepts. The key objectives of the Inception Workshop will be:

- To review the overall project logframe, including indicators and start the aggregation of indicators for the development of the Regional Indicator Framework under Component C2;
- To agree upon and finalise the Annual Work Plan (AWP) with measurable performance indicators, including links to National Demonstration Project staff performance plans as part of the national staff contracting process between Focal Ministries/Agencies and SOPAC;
- To introduce support processes and mechanisms available via the Regional PCU and the IWRM Resource Centre;
- To provide information on communication infrastructure for project implementation, including website development, databases, contact information via phone, fax, email, Skype, and other methods;
- To provide a detailed overview of the reporting process between countries and SOPAC, and SOPAC and the UN Agencies, including the M&E requirements, with particular emphasis on the annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), as well as mid-term and final evaluations;
- To inform the regional project staff on UNDP and UNEP project related budgetary planning, budget reviews, and mandatory budget re-phasing;
- To review and discuss the Strategic IWRM Communication Plan and the Replication Framework approach and Communities of Practice for cross-sectoral regional learning;
- To clarify the governance structure for the project follow the Project Pre-Inception Meeting in Niue, the role of the PCU, Regional Project Steering Committee, Regional Technical Advisory Group (the Pacific Partnership);
- To explain and agree on the PM&E process, provide training in the process, and agree on the annual workplan for PM&E including the developing of National PM&E Plans and learning approaches including Community Working Groups;
- To introduce all National IWRM Project Staff, including EU Water Facility staff employed as National IWRM APEX Body Support Coordinators.

211. National Baseline indicators and monitoring systems will be used and supported wherever possible to ensure new approaches are mainstreamed into current methods. Existing Hot spot Analyses conducted during the Project Design Phase and Country Diagnostic Reports provide solid baseline understanding of the national water situation within each country, barriers to implementing IWRM in each country, and the solutions to overcome those barriers. These Diagnostic Analyses will

need to be re-focussed/defined to counteract the lack of baseline data. Where collection of this baseline data has value for national monitoring purposes and priorities, and is of relevance within Demonstration Project sub-groups and therefore the region as a whole then it will need to be monitored and National Project Staff will need to prepare a costing for the collection of new information in line with SMART indicator requirements. This proposal will then be submitted to the Regional PCU for comments and possible support under Component C2 of the project.

be used to monitor progress nationally and to assist in promoting monitoring within the National IWRM APEX Body and other national government architecture. Updated National Diagnostic Reports can then be produced at the end of the demonstration projects to illustrate the new baseline situation, and highlight the ongoing replication and scaling-up activities prompted by this IWRM project.

212. Demonstration Project baseline and target indicators developed during the project design phase have been aggregated under the Demonstration Sub-Groups and summarised in the project logframe. Indicators are presented in the summary project tables in Annex 5. Full Demonstration Project Proposals, including logframes and full sets of baseline and target indicators can be found in Volume II of this submission.

Monitoring Responsibilities and Events

213. A detailed schedule of project review meetings will be developed by the PCU, in consultation with project Implementation Agencies, and the Project Steering Committee and other stakeholder representatives. This schedule will be incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Regional Project Steering Committee Meetings; (ii) tentative time frames for the Regional Technical Advisory Group meetings (the Pacific Partnership)[82]; and (iii) other project related Monitoring and Evaluation activities.

214. ***Day-to-day monitoring*** of implementation progress will be the responsibility of the Project Manager based on the project's Annual Workplan and its indicators. The Project Coordination Unit will inform the Implementing Agencies of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

215. ***Periodic monitoring*** of implementation progress will be undertaken by the Implementing Agencies through quarterly meetings with the Project Coordination Unit, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

216. Project Monitoring Reporting

The Project Manager, in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process:

217. ***Inception Report (IR)*** will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan will include the dates of specific field visits where possible, support missions from the UNDP/UNEP or the Project Coordination Unit (or consultants), as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 month time-frame. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on Demonstration Project establishment and start-up activities and an update of any changed external conditions that may effect project implementation. When finalized the report will be circulated to project counterparts, including the lead agency responsible for GEF-PAS activities, Pacific Partnership Members and Project Steering Committee who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the Inception Report, UNDP/UNEP and UNDP-GEF's Regional Coordinating Unit will review the document.

218. ***Annual Project Report (APR)*** and ***Project Implementation Review (PIR)*** are UN Agency requirements. The APR is a self-assessment report by the Project Coordination Unit, working with

[82] The Pacific Partnership on Sustainable Water Management is required to meet at least once every two years under its mandate and this will be combined as a Pacific IWRM Regional Technical Advisory Group meeting. The second Technical Meeting scheduled to take place in Year 4 of the project will have a specific focus on Donor attendance and will be structured around the issues of *Sustainability* and *Replication* of project interventions.

the Regional Project Steering Committee. Annual Regional Project Steering Committee Meetings will guide the implementation and monitoring of project implementation, progress, and impact. An Annual Report will be prepared on an annual basis at the end of the fourth quarter each year. The report will be used to reflect progress against the Annual Work Plan and will assess the performance of the project in contributing to intended project outcomes. The Annual Project Report (APR) will include: (1) an analysis of project performance over the annual reporting period, including outputs produced and, where possible, information of the status of outcomes; (2) the constraints experienced in the progress towards results, the reasons, and mitigation measures; (3) provide a revised project logframe where necessary for consideration by the Implementing Agencies, including updating indicators and project risks and assumptions if required, including providing justification for the changes; (4) expenditure reports; (5) summarise lessons learned, and (6) clear recommendations for future projects in addressing key problems in project implementation and lack of progress.

219. ***Quarterly Progress Reports (QPR)*** will be short reports outlining main updates in project progress. These will be provided quarterly to UNDP Suva and the UNDP-GEF regional office by the PCU. The format will be provided.

220. ***Technical Reports (TR)*** are detailed documents covering specific areas of analysis or scientific/governance/socio-economic specializations within the overall project. Annual Progress Reports will provide a list of Technical Report produced each year, and forthcoming planned reporting for the year ahead. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels. Technical reports should also take into account previous work conducted in the region by other GEF projects and those of other donors to ensure cost-effectiveness and avoid duplication wherever possible. Reports will be focussed and summary in nature, with technical information provided in annexes. Terms of Reference for consultants will be prepared on an individual basis for consultants and will be provided as part of Quarterly Progress Reporting to Implementation Agencies.

221. ***Thematic Reports (THR)*** will be provided where required (on a periodic basic) and will focus on specific areas or activities. Any request from Implementing Agencies for a Thematic Report must be provided in writing and will clearly states the activities that need to be reported on, including a preferred timeline. The need, resources available, and timeline for the work will be discussed with the PCU and Implementing Agencies before the reporting focus and schedule is agreed. It is expected that Thematic Reports will be used as mechanism to share lessons with other projects. As part of Annual Project Reporting the PCU, in consultation with the Project Steering Committee, and the Implementing Agencies will decide on reporting for the year ahead.

222. ***Project Publications*** will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical and Thematic Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical and Thematic Reports merit formal publication, and will also (in consultation with Implementation Agencies, PICs Governments and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format.. Note that the most appropriate form of publication for project findings will be promoted by the Project Coordination Unit. As the project will focus on delivering for the countries, and for information distribution to wider SIDS in general formal academic publications will not be the focus for the dissemination of project findings.

223. ***Project Terminal Report (PTR)*** will be prepared during the last three months of the project by the PCU. This comprehensive report will summarise all activities, achievements and outputs of the project, lessons learned, objectives met, etc, and will provide lessons to the GEF-PAS. The Report will also provide recommendations for further steps that may need to be taken to ensure sustainability and replication of project activities. A Synopsis of the Project Terminal Report will be produced as a

dissemination tool with other donors to assist the PCU in sourcing additional support to maintain successful project activities.

224. ***Workshop and Training Reports*** will be provided following each workshop or training event. In some cases they will form part of PCU Mission Reports (as an annex). Where consultants are used, Workshop and Training Reports will be stand-alone documents.

225. ***PCU Mission Reports*** will be made available to all PCU staff and Executing Agency staff, including the IWRM Resource Centre to share information and lessons learned. These reports will also be made available to the Implementing Agencies where requested, and will be available for the Mid-Term and Final Evaluation Teams. Mission Reports are always shared with countries following the visit.

226. Independent Evaluation

The project will require two external independent evaluations.

1. *Mid-Term Evaluation (MTE)* – will be undertaken at the end of the second year of implementation. The purpose of the Mid-Term Evaluation is to determine progress made towards achieving the outcomes of the project and will identify any courses of action required to keep the project on track. It will focus on standard evaluation criteria: results-driven effectiveness, efficiency, and timeliness of project implementation, and will highlight issues requiring decisions and actions. The MTE will also present initial lessons learned about project design, implementation, and management. Findings of this review will be incorporated as recommendations for improving implementation during the remainder of the project. The organisation, terms of reference and timing of the MTE will be decided between the Implementing and Executing Agencies. Terms of Reference for the MTE will be prepared by the Implementing Agencies with guidance from the Regional Project Coordination Unit and UNDP-GEF. Final Draft Terms of Reference will be shared with the Regional Project Steering Committee for their input.

2. *Final Evaluation (FE)* – will take three months prior to the end date of the project. The Final Evaluation will focus on similar issues to the Mid-Term Evaluation, but the evaluation criteria will be expanded to include: results-driven effectiveness, efficiency, timeliness of project implementation, impact, and sustainability. The Final Evaluation will also assess the project's contribution to capacity development and the achievement of global environment benefits[83]. The FE should also provide recommendation for follow-up activities and inform new projects. The organisation, terms of reference and timing of the MTE will be decided between the Implementing and Executing Agencies. Terms of Reference for the Final Evaluation will be prepared by the Implementing Agencies with guidance from the Regional Project Coordination Unit and UNDP-GEF. Final Draft Terms of Reference will be shared with the Regional Project Steering Committee for their input.

Project Audit

SOPAC will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP/UNEP (including GEF)

83 Measuring the impact of the project interventions across the region may be difficult given the short project lifespan and the nature of many interventions planned under the National Demonstration Projects, as well as assigning attribution without a rigorous control of exogenous variables. However, the Final Evaluation should find a way of giving some indication of project impact on water and environmental benefits in relation to the project goal to link Project level to GEF-PAS Programme level learning. However, direct outputs such as services, improved water resource quality and quantity, co-financing resource mobilisation, etc, are clearly measurable and should form an integral part of the final evaluation. Given resource and data constraints, it is unlikely to be possible to analyse all causal links which means that a decision rule to justify specific choices will be needed and agreed with all Project Agencies. Due to likely data/information constraints, the time provided, and formative nature of the evaluation, the rigour of counterfactuals (i.e. what would have happened in the absence of this support?) will be limited. This in turn limits the ability to rigorously measure project impact**.** Counterfactuals on the effects of the Demonstration Projects may be possible and would be very useful but may be systematically difficult to realise. Nevertheless, an attempt should be made in the Final Evaluation. The extent to which GEF-PAS can be held accountable for the performance of the project in terms of project *results* and *impact* is limited since there are many other project partners involved and others who share management and oversight responsibility (the Executing and Implementing Agencies, as well as national Focal Ministries/Agencies). This issue should be briefly but explicitly assessed and addressed by the evaluation and any assumptions made in order to assess the performance of the overall GEF-PAS programme in relation to this project.

funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor, or by a commercial auditor engaged by SOPAC.

Indicative Monitoring and Evaluation Workplan and Budget

The table below includes an indicative M&E workplan and corresponding budget for the project.

Table 14: Indicative Monitoring and Evaluation Workplan and Budget

M&E Activity	Responsible Parties	Budget US$ *Excluding Staff time*	Time frame
Pre-Inception Workshop	• SOPAC IWRM Resource Centre	• 70,000 - fully co-financed	• July 2008
Inception Workshop & Report[+]	• PCU • Implementing Agencies	• 60,000 (partly co-financed)	• Within 6 months from official project start
Demonstration Project Review and Indicator Assessment, including Baseline Indicator collection and development[+]	• PCU • PICs (National Project Management)	• 65,000 (partly co-financed	• Within 6 months from official project start
Measurement of Means of Verification at the Objective Level	• PCU • External Consultants where required	• 15,000 (indicative – to be clarified during Inception Phase - partly co-financed)	• Start, mid-term and end of project
Measurements of Means of Verification for Project Progress and Performance (measured on an annual basis)	• PCU • External Consultants where required • Implementing Agencies	• 40,000 (partly co-financed	• Annually prior to APR and AWP drafting
Annual Project Report	• PCU • Project Steering Committee Review • Implementing Agencies	• None	• Annually
Project Implementation Review	• PCU • Project Steering Committee Review • Implementing Agencies	• None	• Annually
Quarterly Progress Report	• PCU	• None	• Quarterly
Steering Committee Meetings	• PCU • Pacific Partnership • Implementing Agencies	• None	• Annually
Regional Technical Meetings	• PCU • Pacific Partnership • Implementing Agencies	• 20,000	• Bi-Annually
CROP Agency Meetings	• PCU	• None	• Annually
Technical Reports	• PCU • Consultants as required	• 20,000 (partly co-financed)	• As required
Thematic Reports/Lessons Learned	• PCU • Consultants as required	• 20,000 (partly co-financed)	• As required
Mid-Term External Evaluation	• PCU • UNEP[Ø] • External consultants	• 45,000	• At the end of year two from official project start
Final External Evaluation*	• PCU • UNEP[Ø] • External consultants	• 145,000	• At end of project implementation
Project Terminal Report	• PCU • Implementing Agencies	• None	• At least one month before official end of project
Project Terminal Report – Synopsis	• PCU	• None	• Within one month of official end of project
Workshop & Training Reports	• PCU • External Consultants (where used)	• None	• As required
Audit	• External hired Auditor • UNDP • UNEP • PCU	• 15,000 (3,000 p.a.)	• Annually
Visits to Field Sites (*Implementing Agency costs covered by fees*)	• PCU • UNDP • UNEP	• 75,000 (15,000 p.a. - partly co-financed)	• Annually

Budget Reviews and Revision	• PCU • UNDP • UNEP • GEF	• None	• Annually (as part of APR)
Country Mission Reports^	• PCU	• None	• Following each country visit
Total Indicative cost (US$): (*excluding PCU staff time and Implementing Agencies staff and travel expenses*)		**$520,000**[†]	

Notes: [+] A comprehensive review of demonstration project draft logframes and indicators will be conducted during the first six months of the project, including an assessment of baseline indicators. Support will be provided by the PCU. The Inception workshop will provide an opportunity to clarify, as far as possible, the project baseline indicators, including assessing the time and resources required to collect baseline information, where this has already not occurred.

* This includes the cost of consultant fees, regional travel and per diems, including travel to a selected number of countries to look at Demonstration activities based on a country/project selection criteria to be developed by the consultants.

^ The IWRM Resource Centre at SOPAC manages and implements a number of different programmes. Mission Reports for all the programmes will be made available to the PCU for monitoring and information purposes due to the cross-cutting and multi-sectoral nature of IWRM.

[†] Note that the M&E budget will be included in the budget for Component 2 (IWRM and WUE Regional Indicator Framework) of the project, and will be significantly supported by the EU Water Facility co-funding. M&E is a core activity of the project, and therefore serves two purposes: *(i)* monitoring of the project on a quarterly and annual basis, including evaluations, to ensure the project impact is realised and is accountable to management, donors and stakeholders; and, *(ii)* through participatory monitoring and learning by doing, the objective is for countries and stakeholders to see the benefit of monitoring project delivery in order to deliver results and impact, but also the benefit of monitoring in day-to-day projects and activities conducted as existing baseline activities nationally.

[Ø] Mid-term External Evaluation and Final External Evaluation will be activities lead by UNEP-GEF, supported by UNDP where required.

PART V: Legal Context

227. This Project Document shall be the instrument referred to as the ***Standard Basic Assistance Agreement/ Standard Agreement on Operational Assistance and Supplemental Provisions*** between the Governments of The Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Island, Tonga, Tuvalu and Vanuatu (herein represented by the Pacific Islands Applied Geoscience Commission) and the United Nations Development Programme (UNDP). The host implementing agency in-country shall, for the purpose of the Standard Basic Assistance Agreement/ Standard Agreement on Operational Assistance and Supplemental Provisions stated in the Project Document, refer to the government co-operating agency described in that Agreement.

228. The UNDP Resident Representative in Suva, Fiji is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF RCU and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;
b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and,
d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II : STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

PART I: Incremental Cost Analysis

Project Background

229. Whilst many countries have made great progress to realising sustainable development and achieving the Millennium Development Goals (MDGs) and targets, such endeavors have been generally made through sectoral approaches. In doing so the competitive demands of different sectors have become difficult to manage, with increasing stress placed upon water resources as pollution increases and populations continue to grow increasing demand on already fragile water resources.

230. Where Small Island Developing States (SIDS) differ with other countries is the immediacy of these problems, and the limit of their capacity to respond. With limited land mass and even more limited natural water resources, the pressures of economic development coupled with climate change associated climate variability make water shortages, flooding, soil erosion, chemical pollution and salinisation a present day reality for all water users. For some SIDS these pressures and demands are now close to exceeding the natural carrying capacity of the islands and watersheds, especially those hosting the country capitals with higher population densities. Pacific SIDS have to address these challenges whilst recognising they have limited human and financial resources, and do not have the benefits of the economies of scale that larger countries can utilize.

231. SIDS need to act now to address these issues, but are hampered by small populations, limiting the amount of technical capacity in-country, as well as the economic base from which it finance improved water and environmental management, and mitigation of climate variability effects.

Incremental Cost Assessment

Baseline

232. At present many Pacific Island Countries face similar problems regarding water management and conservation, land-based sources of pollution, and issues of environmental flow relating to habitat and ecosystem protection. It is further recognised that SIDS have specific concerns related to climate change and sea level rise. SIDS also have specific needs and requirements when developing their economies. These are related to small population sizes and human resources, small GDPs, limited land area and limited natural resources.

233. The Strategic Action Programme (SAP) for the International Waters (IW) of the Pacific Islands (1997) developed a strategy for the integrated sustainable development and management of IW to address the priority concerns for PICs. The SAP proposed the need to address the root causes of degradation of IW through regionally consistent, country-driven targeted actions that integrate development and environment needs and promote good governance and improved knowledge approaches. The Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) was endorsed by Pacific Heads of State in 2003. The Pacific RAP provides a coordinated and agreed strategic framework for sustainable water management, placing water firmly on Pacific national and regional agendas, recently reiterated by PIC Leaders at the Asia-Pacific Water Summit in Japan (December, 2007). Building on the SAP, this Pacific IWRM Project evolved through a combination of discussions between the PICs, GEF Implementing Agencies, and SOPAC regarding the needs and priorities for water resources management following the development of the Pacific RAP.

234. Country Diagnostic Analysis studies have revealed the barriers that Pacific SIDS have to overcome to in order to implement IWRM. These include:

- Limited and fragile water resources susceptible to over-exploitation and pollution, but with little technical management capacity to exploit and protect them; vulnerability to climate variability

resulting in rapid onset of flooding and droughts and follow on effects (threats to public health, damage to infrastructure, reduction in quality of existing fragile water resources);

- Insufficient political and public awareness of the critical role of water in supporting economic development, public health and environmental protection;

- Excessive urban water demand due to high water losses and poor water conservation and inadequate drinking water treatment due to limited technical resources;

- Inadequate wastewater management resulting in widespread freshwater and coastal water pollution due to reliance upon on-site septic tanks and poorly maintained sewerage systems;

- Fragmented national water governance due to little formal communication and coordination between government departments;

- Conflicts between national versus traditional rights, especially balancing the needs of land and water resources planning with customary land ownership;

- Inadequate financing of water and sanitation provision due to poor cost-recovery but also a lack of 'economies of scale' for funding resources, health and environmental protection; and

- Weak linkages to other stakeholders both within the water sector but particularly to other economic sectors, public health and the environment.

Global Environmental Objective

235. **GEF-PAS Goal:** *To contribute to sustainable development in the Pacific Islands Region through improvements in natural resource and environmental management. In this respect the program will facilitate international financing for sustainable development, biodiversity and environmental protection,* ***integrated water resources management*** *and climate change responses in the Pacific.*

236. **Project Goal:** *To contribute to sustainable development in the Pacific Islands Region through improvements in water resource and environmental management.*

237. Integrated Water Resources Management (IWRM) is promoted as a planning and management approach which improves not only water and land management but results in economic, social and environmental benefits. IWRM is a move away from 'business as usual' approaches and requires a long term commitment and effort by all stakeholders to achieve sustainable development. To sustain long term commitment requires demonstration of the return, or benefit resulting from implementing often complex and difficult IWRM approaches to the stakeholders concerned.

238. The importance of tangible benefits resulting from IWRM approaches can not be overestimated. In order to monitor progress the development, use of, and action on the findings from IWRM indicators is critically important. Tangible benefits from IWRM approaches might include a reduction in flood damage, reductions in public health expenditure, increases in coastal tourist revenue, and reductions in water supply treatment costs. Understanding these benefits and demonstrating them is fundamental to the credibility of IWRM globally.

239. In order for these benefits to be realised, IWRM has to have a significant impact within the watersheds, river basins, and aquifers where practical on-the-ground measures take place. This means that the percentage of the catchment area or water balance being affected has to be sufficiently large, and that the impacts of these management changes can be observed in a reasonable timescale. For continental countries and international river basins these are long term objectives, and on such a large scale these catchments will respond slowly over time. These timescales do not coincide with the needs and realities of modern day government priorities and political office residency. In order to demonstrate the credibility of IWRM to the global audience it is important to provide examples of

IWRM success now to mobilize future resources and to provide sufficient time to learn and adapt approaches to specific situations globally.

240. Achieving IWRM success quickly is most likely to be accomplished where the hydrological systems (catchments and aquifers) are small and as a result limited water and land management changes can have a catchment wide impact, and the catchments will respond to these changes rapidly. Small Island Developing States face the problem of expanding populations and impending climate variability, threatening their already fragile water resources. Their size provides the ideal hydrological environment for demonstrating IWRM approaches and achieving tangible and quantifiable benefits. SIDS IWRM success can be a powerful catalyst to IWRM implementation worldwide, with Small Islands leading the way in reversing their current water and environment related problems and in demonstrating advanced water management reform.

241. The project will deliver local to global environmental benefits through the following approaches:

- At the Global level GEF and partner co-financers will be investing in the sustainable development of SIDS which have global importance in terms of their unique environmental, hydrogeological, cultural, and biodiversity settings;

- Lessons learned from Demonstration activities will add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and ridge to reef approaches in SIDS using endemic and new regional knowledge;

- Demonstration activities by the stakeholders (especially the communities) involved is critical to support sustainable livelihoods and provide incentives for local, to national and global environmental gains;

- Demonstration activities will provide evidence based learning to policy makers, providing a new benchmark in terms of national and regional learning and project design;

- IWRM is a cost effective mechanism because of the cross cutting and multi-sectoral issues, reducing transaction costs and improving communication and influence. This IWRM project is not just dealing with water, and will help understand the water and climate linkages as SIDS have specific concerns related to climate change and sea level rise;

- By feeding information and lessons learned into appropriate networks, especially by sharing lessons between PICs involved in this project and wider (Caribbean and African SIDS) there is a real cost effective opportunity to widen the scope of the initial investment and support countries in increasing their capacities and resources to continue approaches initiated under this project;

- Monitoring and acting on monitoring information, with appropriately trained and resourced staff will allow for improved mainstreaming of information, development planning and portfolio learning, improving the resilience of the Pacific to water and environmental stress and change through climate variability. Regions that are currently facing environmental degradation as a result of climate variability are learning lessons of vital global importance;

- Building capacity in IWRM approaches and the necessary planning and management skills so critical in the delivery of IWRM will not only improve the collaboration between sectors (and therefore GEF Focal Areas: Biodiversity, Climate Change, IW) leading to significant global environmental benefits in terms of conservation of biological diversity, prevention of land degradation, protection of international waters, sound management of chemicals and preventing and adapting to climate change but will also increase the efficiency and effectiveness of GEF support to PICs, thereby enhancing achievement of *both* global environmental and national sustainable development goals.

Alternative

242. The project Alternative scenario will put Integrated Water Resources Management as the primary approach for sustainable water and wastewater management at the national level across the Pacific, leading to strengthened regional knowledge exchange and learning, enabling the Pacific to become the foremost region to adopt IWRM and respond as a region to common problems.

243. Local stakeholders will be aware of water management issues and the intrinsic links to environmental problems and ways to mitigate those problems, learning lessons from demonstration activities and incorporating project based learning into local decision making to reduce environmental stress. This will be supported through co-financing from the EU Water Facility which will support the learning of project based lessons into national policy, legislation, and IWRM and Water Use Efficiency Plan development to achieve failing MDG targets.

244. The project will provide the opportunity for countries to collaborate closely together through twinning approaches to ensure that stress reduction lessons are shared and national capacity can be shared regionally. Practical demonstration of approaches will be shared with global SIDS and vice-versa to develop strong South-South links with Caribbean and African SIDS. At the national level improved cross-sectoral monitoring capacities will be strengthened to improve future project planning. Awareness will be raised within civil society and decision makers to the impact of pollution and the benefit of improved water management and environmental stress reduction using IWRM approaches, including links between water, environment, and other sectors.

245. The Alternative scenario will deliver both national and regional lessons learned and guidance on dealing with a range of issues prioritized by the PICs themselves. By ensuring that the selection of Demonstration project areas and subject focus has been transparent using existing committees and mechanisms, and focuses on nationally identified priorities the alternative scenario builds on existing ownership in delivering evidence based recommendation from demonstration activities and will improve understanding of drivers for environmental change in fragile situations.

246. Building on national ownership, demonstration activities will focus on both technical and socio-economic issues, recognising that although Pacific SIDS face similar technical problems regarding water resource management (based on their hydrogeology) the human and cultural diversity across the region needs to be taken into account when dealing with water and humans as integral components of the ecosystem. This is important not only for achieving project success at the demonstration level, but is important in terms of delivering support to communities across a range of socio-economic needs using IWRM as the mechanism. This will not only help countries achieve Demonstration project success at the national level, but as a region helps to deliver wider benefits linked to the MDGs and the UNSGAB Hashimoto Action Plan.

247. Lessons learned from Demonstration activities will add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and ridge to reef approaches to reduce environmental stress in SIDS. Ownership of the interventions and the outcomes from Demonstration activities by the stakeholders (especially the communities) involved is critical to support sustainable livelihoods and provide incentives for local, to national and global environmental gains.

248. The Alternative scenario will accelerate ongoing processes which requires an adaptable approach taking into account the differences between PICS. IWRM is in itself a process and PICs are all at different stages of this process. Furthermore, this process does not have an end in itself, as IWRM is a mechanism which calls for constant adaptation as lessons are learned and changes in approach are required. Mainstreaming this flexible approach into normal working practices will be the key challenge in delivering the Alternative Scenario.

249. EU Water Facility co-funding provides a unique opportunity to develop national IWRM plans, building on GEF funded Demonstration activities and lesson learning and sharing between countries. By 2013 the PICs will have raised the baseline in managing and coping with water resources management, pollution and environmental stress and climate vulnerability. This will lead to a more sustainable use of water resources, a reduction in water related health problems, supporting watershed

protection, improving biodiversity, and reducing land degradation and land based sources of pollution. PIC experience in this area will support activities in other SIDS globally.

250. The lessons will be shared between Demonstration Project groups, PICS in general, national IWRM APEX Bodies and other mechanisms. Engagement of Water Champions will demonstrate leadership potential at the national level and move the management of water resources and pollution sources beyond the current status quo. Despite existing national donor involvement and government approaches strengthening IWRM approaches at the national level will have significant cross-sectoral benefits and will accelerate the implementation of the Pacific Regional Action Plan on Sustainable Water Management.

Systems Boundary

Represented at a number of different levels, the systems boundary can be divided into the following:

Geographical

251. *Local* – Demonstration activities will focus within pre-defined geographical locations such as groundwater reserve areas, river basins, etc. All relevant stakeholders will be involved in revisiting the individual project designs and throughout the implementation of the project (including councils and provincial departments) within the context of the IWRM principal of subsidiarity and equity.

252. *National* – at the national level, successful demonstration activities and approaches will be incorporated into national approaches and decision making processes. This includes learning the lessons from negative impacts as a result of demonstration activities, and looking for ways to mitigate any negative effects. Replication and scaling-up at the national level will be a key element of the project, including incorporating successful approaches into other cross-sectoral interventions in government.

253. *Regional* – countries with similar Demonstration activities will be twinned to ensure the transboundary delivery of lessons learned and shared problem solving approaches. At the policy level, countries going through sectoral reform at the moment will be encouraged to support and work with countries about to start this process, and the key function of the project will be widening reform out to include IWRM approaches and national IWRM plan development, including the development of water use efficiency strategies. The project is therefore a key catalyst and provider for the regional fulfilment of the Pacific RAP.

Technical and Policy

254. Focussing on water issues, but widening this out to other environmental issues such as pollution, land management, adaptation approaches, etc. IWRM is a process of understanding cause and effect upon water resources; therefore it is cross-sectoral and multi-level in nature. The project will be resourced by a Regional Project Coordination Unit (PCU), and further supported by the EU Water Facility co-financing project, with other support from the Executing Agency (SOPAC) through its IWRM Regional Resource Centre[84].

255. At the national level specific ministries/department and other government agencies will be the national implementers of the demonstration projects, facilitated through national IWRM Focal Points. National project staff will be recruited through these government agencies. National IWRM APEX Bodies will play a key role in helping to guide the project during implementation, and these APEX Bodies will be strengthen through EU Water Facility co-financed activities, including liaison with national policy planning department, and finance and economic planning.

[84] This includes economists and disaster risk reduction specialists with PIC experience. Where specific experience is required this will be provided through targeted consultancies and through everyday liaison with other CROP Agencies as part of SOPAC normal working practice through the IWRM Resource Centre.

Summary of Costs

256. The project is consistent with the GEF IV strategic objective for International Waters: (a) '*to play a catalytic role in addressing transboundary water concerns by assisting countries to utilize the full range of technical assistance, economic, financial, regulatory and institutional reforms that are needed'*, through supporting and building on existing political commitments (such as the Pacific RAP) and through promoting sustainable water use and improved water management now, making it easier to address the challenges of the future as climatic variability affects water resources further.

257. More specifically the project will deliver outcomes under GEF IV Strategic Programme III (SP-3): Balancing overuse and conflicting uses of water resources in transboundary surface and groundwater basins (*with a specific focus on SIDS to protect community surface and groundwater supplies)* through working with communities to address their needs for safe drinking water and other socio-economic benefits of sustainable and safe water resources, including balancing environmental requirements with livelihood needs.

258. Under GEF IV Strategic Objective 2 the co-financing ratio goal is 3:1. Table 15 below summarises the co-financing available to the project. The co-financing goal has been achieved and surpassed with a total co-financing ratio of approximately 9:1 secured.

Table 15: Demonstration Project Co-financing Summary (Component C1 only)

			Co-finance ($)						
Countries	GEF Request ($)	Baseline ($)	Governments	Inter-governmental/Multilateral	Bilateral Donors	NGOs	Private Sector	Total Co-finance	GEF Alternative
Cook Islands	501,163	288,037	386,417	568,014	*700,000	-	-	1,654,431	2,443,631
Fiji	500,000	2,022,700	3,006,757	1,165,177	-	125,000	-	4,296,934	6,819,634
Federated States of Micronesia	500,000	2,000,000	8,577,369	176,440	-	100,000	-	8,853,809	11,353,809
Nauru	500,000	555,235	2,189,190	-	-	-	-	2,189,190	3,244,425
Niue	500,000	3,831,072	1,784,000	-	355,000	-	-	2,139,000	6,470,072
Palau	586,900	10,820,000	1,138,500	358,000	280,000	135,000	-	1,911,500	13,318,400
Papua New Guinea	500,000	388,000	583,706	434,500	32,549,185[+]	-	-	33,567,391	34,455,391
Marshall Islands	500,000	541,040	1,522,140	1,398,458	390,000	-	-	3,310,598	4,351,638
Samoa	525,500	6,662,563	220,000	100,000	1,735,000	-	-	2,055,000	9,243,063
Solomon Islands	515,000	2,553,500	1,488,410	281,076	174,311	-	-	1,943,797	5,012,297
Tonga	519,000	9,100,000	1,500,000	8,127,000	-	-	-	9,627,000	19,246,000
Tuvalu	564,000	114,000	967,200	950,000	959,693	200,000	-	3,076,893	3,754,893
Vanuatu	516,328	949,655	160,208	138,943	7,374,219	104,990	-	7,778,360	9,244,343
Total ($)	**6,727,891**	**39,825,802**	**23,523,897**	**13,697,608**	**44,517,408**	**664,990**	**-**	**82,403,903[Ω]**	**128,957,596**

Notes: * ADB co-financing, pending further approval by the Government of The Cook Islands. [+] Funds from the EU are being provided to the Government of Papua New Guinea via the private sector Edu Ranu Water Utility. [Ω] This figure does not include the additional $15,000 provided as In-Kind co-financing from UNEP which is not country specific. Further engagement with the private sector will be supported by the PCU to build on existing links and secure additional co-financing. Tonga is already moving forward with this in seeking support from tourist operators operating in the Demonstration Project area.
Co-financing ratio goal: 3:1 (for SO-2)
Co-financing ratio achieved for Component C1: 12:1
In-kind: $12,365,123 (15%)
Cash: $70,038,780 (85%)

Incremental Cost Matrix

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
Component 1 Outcome: Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management			
Domestic Benefits	Pacific SIDS suffer from: (i) deterioration in the availability and quality freshwater resources; (ii) reduction in volume available and quality of water resources through decline in surface and groundwater storage and recharge areas; (iii) reduction in coastal and watershed ecosystem functions along with the loss of associated natural habitats and biodiversity (watershed ecosystems, invasion of non-native species, pollution entering inter-tidal and coastal receiving waters); (iv) increased land based source pollution into surface, ground and coastal receiving waters; (v) deterioration of human condition (increasing poverty, reduced health and well-being); (vi) possible deterioration in economic stability. The current Baseline scenario for the region is not only due to poor working practices, but is also a result of the fragility, size, vulnerability and limited human and financial resources available to SIDS. Threats to water supplies have been identified as a key country driven priority in the Strategic Action Plan for the region. PICs have already identified the priority needs for the region through the Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP), allowing national governments and donors to focus investments on priority concerns and to highlight capacity development needs. Through the use of national inter-sectoral IWRM committees and the GIWA Hot-Spot Analyses under the PDF-B countries have identified the	The Alternative scenario will deliver both national and regional lessons learned and guidance on dealing with a range of issues prioritized by the PICs themselves to reduce environmental stress. By ensuring that the selection of Demonstration project areas and subject focus has been transparent using existing committees and mechanisms, and focuses on nationally identified priorities the alternative scenario builds on existing ownership in delivering evidence based recommendation from demonstration activities and will improve understanding of drivers for environmental change in fragile situations. Building on national ownership, demonstration activities will focus on both technical and socio-economic issues, recognising that although Pacific SIDS face similar technical problems regarding water resource management (based on their hydrogeology) the human and cultural diversity across the region needs to be taken into account when dealing with water and humans as integral components of the ecosystem. This is important not only for achieving project success at the demonstration level, but is important in terms of delivering support to communities across a range of socio-economic needs using IWRM as the mechanism. This will not only help countries achieve Demonstration project success at the national level, but as a region helps to deliver wider benefits linked to the MDGs and the UNSGAB Hashimoto Action Plan.	GEF will provide incremental benefits through supporting on-the-ground National Demonstration projects which will establish actual working approaches and examples of using IWRM to improve the quality of fresh and marine waters, and in some cases the quantity of freshwater (for drought purposes through improved storage). The project will address national priority issues as identified through the GIWA Hot-Spot analysis and Diagnostic Analyses Reports, and will help national government deliver multiple benefits at both the national and global level through the transfer of experience, lessons learned and new knowledge. A key element of this and all the Components of the project will be the capture and replication of best practices. Demonstration projects will provide indicators for Component 2 of the project, and policy development will form a cornerstone of all Demonstration projects, dovetailed into activities conducted under the co-financing EU Water Facility project. All Demonstration project will include stakeholder analysis to ensure marginal groups are included in the project. Lessons and best practice from Demonstration activities will be transferable to other sectors through national institutions and through cross-sectoral IWRM APEX Body membership to ensure lessons are applicable to sustainable land use practices and management, biodiversity, National Adaptation Programmes of Action, National Action Plans for Disaster Risk Reduction and National Sustainable Development Strategies. Ensuring the early capture of country driven priority

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	need to make a step change from the current business-as-usual approach and the urgent need for them to integrate water resource planning and management across sectors. This national learning process is documented and recorded in the Diagnostic Analyses Reports. These reports provide a national baseline assessment of the status of water resources in each country, and a situation analysis in terms of financing, institutional and capacity building change and needs in order to fully implement IWRM at the national level. National water policy reform is already occurring in many countries as they face increasing pressure on their water resources and receiving coastal waters (see Component C3).		concerns and developing momentum throughout the PDF phase puts the implementation of IWRM Demonstrations and National Planning in a unique cost effective position; reducing lead times for full implementation.
Global Benefits	Many PICs are globally significant with regard to biodiversity. Small islands may have relatively limited biodiversity from the point-of-view of species number but, by virtue of their isolation, they are frequently high in rare and endemic species and are therefore of global importance. Pollution levels are generally higher in poorly-developed small islands as a result of lack of infrastructure and options for storage, as well as the frequently porous nature of soils and rocks. Many of the Pacific SIDS therefore share similar problems with regard to water management and conservation, land-based sources of pollution, and issues of environmental flow relating to habitat and ecosystem protection. It is further recognized that SIDS have specific concerns related to climate change and sea level rise. SIDS also have specific needs and requirements when developing their economies. These are	Lessons learned from Demonstration activities will reduce environmental stress, and add value to national, regional, inter-regional learning and will help inform the GEF International Water portfolio on freshwater and ridge to reef approaches in SIDS. Ownership of the interventions and the outcomes from Demonstration activities by the stakeholders (especially the communities) involved is critical to support sustainable livelihoods and provide incentives for local, to national and global environmental gains. This project will assist countries to utilize a wide range of donor support mechanisms (including ADB, AusAID, NZAID, E.U., JICA, UN Agencies, NGO's and National Governments) to demonstrate workable and sustainable solutions for improved water resources management and environmental stress reduction. The similarity of the water and environmental problems faced	At the Global level GEF and partner co-financers will be investing in the sustainable development of SIDS which have global importance in terms of their unique environmental, hydrogeological, cultural, and biodiversity setting. Possible funding options for long term protection of near shore marine and forest resources are options which many PIC countries are considering within their IWRM Demonstration Projects and this project will contribute and learn from that endemic and new regional knowledge. Demonstration activities will provide evidence based learning to policy makers, providing a new benchmark in terms of national learning and project design, feeding those lessons regionally, and globally, adding to global knowledge on dealing with IWRM approaches and environmental stress reduction through the GEF and other co-financing donors. Similar Demonstration projects will be

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	related to small population sizes and human resources, small GDPs, limited land area and limited natural resources. Waste from coastal cities and harbours causes pollution in the coastal water environment and also the wider marine ecosystems in which they are eventually discharged. Ocean currents along the coasts on which human development occurs carry pollution through deeper waters, affecting neighbouring islands (often neighbouring countries in the Pacific) and further to the continental shelves. The impact of this pollution can cause public health hazards, destroy breeding grounds of coastal and marine fishes and have serious negative effects on biodiversity. The full impacts of these pollutants are not well known. What is clear is that the use of agricultural fertilisers, increasing livestock numbers, increasing coastal dwellings and human sewage all impact the nitrogen cycle, increasing the loading of pollutants into coastal waters and creating marine 'dead zones' where oxygen is depleted and water quality may be severely restricted.	amongst Pacific Countries, and their solidarity on these issues[85] existing political will, the Pacific RAP, and existing national policies are built upon in national institutions and wider civil society.	'*twinned*'. IWRM is a cost effective mechanism because of the cross cutting and multi-sectoral issues, reducing transaction costs and improving communication and influence.
Costs	**Total: $39,825,802**	Baseline: $39,825,802 Incremental: $89,146,794 **Total: $128,972,596**	**GEF: $6,727,891** **Co-finance: $82,418,903** Governments: $23,523,897 Inter-governmental/Multilaterals: $13,712,608 Bilateral Donors: $44,517,408 NGOs: $664,990 Private Sector: $-

85 Pacific Leaders re-affirmed their commitment to water and sanitation at the Asia Pacific Water Summit in Beppu Japan (early December 2007) through key messages from the Summit: (i) *Accord the highest priority to water and sanitation in our economic and development plans and;(ii) Improve governance, efficiency, transparency, and equity in all aspects related to the management of water, particularly as it impacts on poor communities;(iii) Take urgent and effective action to prevent and reduce the risks of flood, drought and other water-related disasters;(iv) Support the region's vulnerable small island states in their efforts to protect lives and livelihoods from the impacts of climate change.* **2008 Pacific Leaders Forum** - Following the Beppu Summit, plans are underway to hold a high-level side meeting on water and climate on the invitation of Niue's Prime Minister during this year's Pacific Islands Forum Leaders meeting in July / August. This will provide a platform for the Inception of the Pacific IWRM Programme with subsequent start of in-country activities under GEF-4 and will recognise 2008 as the **UN International Year of Sanitation**, raising awareness to the water-related health risks of poor water supplies and sanitation, and the need to improve the monitoring and treatment of sewage releases and the reduction in overall sewage entering the Pacific.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
			Total: $89,146,794
Component 2 Outcome: National and Regional adoption of IWRM and WUE Regional Indicator Framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point			
Domestic Benefits	Pacific islanders are heavily reliant on fragile land and in-shore marine environments and, in most cases, a limited natural resource base. Increasing environmental challenges threaten to undermine sustainable development in the Pacific. Population growth, urbanization, and an increased demand for cash income contribute to the emergence of localized environmental and natural resource management concerns. Limited cross-sectoral engagement, information sharing and coordinated approaches at the national level are common in SIDS. Reliance on government as the main employer focuses on maintaining the status quo, rather than looking to management efficiency gains, cross-sectoral working and the financial and water resource and environmental gains this could bring. Furthermore, focus on technical capacity limits the development of broader based skills, including management, institutional, and financial skills within all sectors, not just water and environment. Monitoring and evaluation approaches are rarely incorporated into national planning and delivery in the water and environment sectors. Where indicators are used they focus on technical delivery for water services only. Furthermore, environmental monitoring is often viewed as an academic exercise dominated by researchers and	Integrating the management of water resources is a key step in national development. Using water as an entry point to wider development concerning the environment and public health is a cost-effective approach. This approach is expected to deliver significant national benefits through improving cross-sectoral communication and institutional approaches – partly supported by the EU Water Facility co-financing project. Inter-disciplinary perspectives have been taken into account during project design and the IWRM RIF is expected to provide an approach for countries to establish evidence based learning mechanisms to sustainable water and environmental management.	Countries will be supported in the development of workable indicators (process, stress reduction, environmental and socio-economic status, water use efficiency, catalytic, governance, proxy and x-cutting[86]) and integration of these indicators into existing national approaches, facilitated through the National IWRM APEX Bodies and National Water Champions. Draft indicators have already been developed at the national level for each Demonstration Project. These will be refined in the first 6 months of each project with full community and wider stakeholder involvement to ensure correct and realistic baseline and target indicators have been developed for demonstration activities delivery. Communities will be actively involved in assisting project management staff in determining and sourcing baseline indicator data, and for participatory monitoring and evaluation throughout the project as part of the M&E plan. All Demonstration projects will include socio-economic baseline and target indicators to ensure that both positive and negative socio-economic impacts are understood as a result of project interventions[87]. Sustainability relies on both the livelihood and environmental gains as a result of project interventions. Aggregation of Demonstration Indicators, combined with indicators for other components of the project, and wider indicators concerning coastal receiving

[86] Within the GEF IW portfolio 3 types of indicators are recommended for use: *Process*, *Stress Reduction* and *Environmental* (& *Socio-Economic*) Status. Further information on these and the other indicators developed within this project can be found in Section I and the M&E approach outlined in Annex 6.

[87] Note that balanced indicator development will be a key role for project staff during the first 6 month project design review period. This is to ensure that indicators provide an overall balanced viewpoint for project monitoring, including the impact of project interventions on women, poorer groups in the communities, and the elite, and provide ways to mitigate the negative impacts throughout the project.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	is not incorporated into normal everyday working practices at a practical level. This is partly due to a breakdown in the ability to formulate appropriate and SMART indicators, and the absence of consistent baseline information to monitor progress. Where indicators are developed, they are often used within the context of National Sustainable Development Strategies (NSDS) and therefore do not necessarily make cross-sectoral linkages due to poor understanding and sporadic data collection.		waters, land management, etc will provide core components for the IWRM Regional Indicator Framework (IWRM-RIF). The RIF will provide countries with guidance and a suite of harmonised indicators available for them to monitor national progress to achieving IWRM and environmental stress reduction, cross-cutting with information required to monitor progress on NAPA, NAP, and NSDS delivery (as well as National Biodiversity Strategies and National Environment Action Plans where they exist). Delivery of the Pacific RAP will be strengthen by online database development and monitoring matrix developed under Component C3. The IWRM RIF will be linked to Pacific RAP progress for national reporting to countries through the Pacific Partnership.
Global Benefits	Poor national and regional coordination and integration of information for monitoring and therefore managing water and environmental resources and mitigating negative impacts (such as sewage releases, land based pollution etc). On a regional scale, little national scale-up to regional level monitoring of water and environmental issues. This does not provide baseline information for the Pacific Region to with other SIDS and globally, and therefore learn from.	The overall demonstration and adoption of improved management techniques for water resource and environmental management will assist at the national level. Through replication and scaling-up approaches this will benefit at the regional and south-south inter-regional level through engagement with Caribbean and other global SIDS. Monitoring and acting on monitoring information, with appropriately trained and resourced staff will allow for improved mainstreaming of information, development planning and portfolio learning, improving the resilience of the Pacific to water and environmental stress and change through climate variability. Regions that are currently facing environmental degradation as a result of climate variability are learning lessons of vital global	IWRM indicator development through multicounty collaboration will address regionally coordinated solutions to address water and environmental degradation and improve the efficiency of water use. Development of the IWRM RIF will not only use Demonstration Projects to scale up national and regionally applicable indicators, but it will also learn from the Caribbean (through links to IWCAM) and other GEF portfolio learning mechanisms to ensure appropriate, focussed, and applicable indicators are developed within the RIF. This will include using the Environmental Vulnerability Index to strengthen the Pacific RIF. Use of the EVI approach to inform and strengthen the development of the Pacific RIF brings efficiency gains in terms of cost effectiveness, and also inter-sectoral multi-level benefits[88].

[88] The EVI is a dimensionless numerical indicator that reflects the status of a country's environmental vulnerability, and is designed to be used with economic and social vulnerability indices to provide insights into the processes that can negatively influence the sustainable development of countries. The first conceptual EVI appropriate for SIDS was presented by SOPAC in 1999.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
		importance.	
Costs	**Total: -**	Baseline:- Incremental: $3,021,537 **Total: $3,021,537**	**GEF: $800,463** **Co-finance: $2,221,074** Governments: $ Inter-governmental/Multilaterals: $ Bilateral Donors: $2,221,074 NGOs: $ Private Sector: $ **Total: $3,021,537**
Component 3 Outcome: Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions			
Domestic Benefits	The water priorities of the Pacific have been specifically articulated in the Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP). This was endorsed by the Heads of State of 16 Pacific Island Countries in 2003. The Pacific RAP is a regional strategic action plan that takes a holistic (IWRM) approach to achieving sustainable water management. National water policy reform is already occurring in many countries as they face increasing pressure on their water resources and receiving coastal waters. The EU Water Facility co-financing project will help to strengthen existing policy and planning and assist countries to develop national IWRM plans, supported by this GEF project focusing on demonstrable sustainable water management to reduce environmental stress and improve water use efficiency.	The EU Water Facility project will help to strengthen existing policy and planning and assist countries to develop national IWRM plans, supported by the GEF project focusing on demonstrable sustainable water management to reduce environmental stress and improve water use efficiency. The Alternative scenario will accelerate ongoing processes which requires an adaptable approach taking into account the differences between PICS. IWRM is in itself a process and PICs are all at different stages of this process. Furthermore, this process does not have an end in itself, as IWRM is a mechanism which calls for constant adaptation as lessons are learned and changes in approach are required. Mainstreaming this flexible approach into normal working practices will be the key challenge in delivering the Alternative Scenario.	The Incremental contribution of GEF will support existing co-financing activities and future activities mobilized through the GEF 5 year intervention (using GEF investment under this Component as seed funding to mobilize further resources to accelerate National IWRM plan progress, specifically to ensure that environmental aspects are adequately incorporated into national plans/strategies and roadmaps). Dovetailed into Component C1, GEF support will specifically assist Demonstration scaling-up and replication at the national level through leveraging national and donor finance to continue appropriate Demonstration activities nationally, and in supporting sharing of national Demonstration lessons with other countries and regionally. GEF funded Demonstration activities will feed directly into policy development and IWRM planning, providing long term national sustainable development through improved natural resource and environment management. Water Use Efficiency Strategies will provide a significant national benefit through providing a framework for countries to act on using more water efficient technologies for water supply and sanitation (including composting toilets, which also reduce

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
			sewage releases into fresh and marine water environments, bringing ecological and human health benefits), agricultural development, industry, etc, through using economic and policy instruments.
Global Benefits	The SOPAC/GWP submission to CSD12 on IWRM Implementation in the Pacific identified a common trend that emerged from the analysis of the status of IWRM in each of the PICs. The trend indicated that while IWRM as an overarching national concept has not been widely used, most PICs have made some advances in the water sector generally. These include institutional arrangements for water resources management and supply and the application of IWRM and catchment principles at the local and regional levels (including the development of partnerships). This report also identified that it is important to take into account the differences between the PICs in regard to the nature of the water management issues that they face, and the often different situations that can exist even within the same country. IWRM and WUE in the PICs therefore need to address sectoral and organizational issues at the national, regional and local (community) levels. Table 3 demonstrates the status of the proposed participating countries in relation to Integrated Water Resources Management. The international target (under the MDGs) of developing IWRM national plans by 2005 has not been achieved in any of the PICS and assistance and in some cases substantial support is required to assist countries achieve this MDG target. Current national institutional and management structures are fragmented and capacity to perform based on individual institutional mandates is highly constrained. Proven management and policy approaches and techniques and options for improvement water resource management, cost recovery and pollution reduction are a regional and global	EU Water Facility co-funding provides a unique opportunity to develop national IWRM plans, building on GEF funded Demonstration activities and lesson learning and sharing between countries. By 2013 the PICs will have raised the baseline in managing and coping with water resources management, pollution and environmental stress and climate vulnerability. This will lead to a more sustainable use of water resources, a reduction in water related health problems, supporting watershed protection, improving biodiversity, and reducing land degradation and land based sources of pollution. PIC experience in this area will support activities in other SIDS globally.	A strong element of general public awareness as well as policy level sensitization will be critical for the success of this component and will therefore be key activities. The GEF project will assist countries to utilize a wide range of donor support mechanisms (including ADB, AusAID, NZAID, E.U., JICA, UN Agencies, NGO's and National Governments) to demonstrate workable and sustainable solutions for improved water resources management and environmental stress reduction. The similarity of the water and environmental problems faced amongst Pacific Countries, and their solidarity on these issues is a vital component to ensure existing political will, the Pacific RAP, and existing national policies are built upon in national institutions and wider civil society. Improvements to policies and legislation in support of IWRM have evident benefits within GEFs global objectives. Encapsulating IWRM approaches within national policy and legislation and the overall concepts of the Regional Action Plan and other multilateral agreements in support of water, environment and sustainable development will support both national level objectives and those of the GEF at the global level. Ensuring National Finance and Economic Planning Units are involved in IWRM development will reduce national transaction costs and focus attention on priorities, avoiding unnecessary duplication, and will promote long term shifts in investments to reduce environmental degradation.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	requirement and are therefore not just vital to individual PICs but the region and SIDS globally.		
Costs	**Total: $3,450,000**	Baseline: $3,450,000 Incremental: $2,626,141 **Total: $6,076,141**	**GEF: $-** **Co-finance: $2,626,141** Governments: $ Inter-governmental/Multilaterals: $ Bilateral Donors: $2,626,141 NGOs: $ Private Sector: $ **Total: $2,626,141**
Component 4 Outcome: Improved institutional and community capacity in IWRM at national and regional levels			
Domestic Benefits	At the national level, most PICs receive assistance for training and capacity building from donors. However, these activities are often focused on purely technical aspects, and where non-technical (governance, financial management and economic planning, institutional reform, human resource development, management and leadership) capacity building is available, it is often fragmented, single sector focused and participants are not the appropriate attendees. Furthermore, communities are often not included in the project design or implementation consultation process, and where they are they are viewed as final beneficiaries only, and not as key stakeholders and therefore critical components to project success and sustainability. IWRM is a valuable entry point for capacity development, helping to foster inter-disciplinary skills through utilizing local knowledge and integrating this into monitoring to ensure that cause and effect are understood by all stakeholders. GEF support has already alerted projects and programmes (through the Incremental Cost Analysis process) to everyday	The Alternative scenario will be improved institutional and community capacity in IWRM at the national level leading to improved national cross-sectoral learning and wider and closer involvement of final beneficiaries of donor and national government interventions in the future to improve the programming, monitoring and ultimately sustainability of cross-sectoral multi-level interventions. The lessons will be shared between Demonstration Project groups, PICS in general, national IWRM APEX Bodies (under C3) and other mechanisms. Engagement of Water Champions will demonstrate leadership potential at the national level and move the management of water resources and pollution sources beyond the current status quo. Despite existing national donor involvement and government approaches strengthening IWRM approaches at the national level will have significant cross-sectoral benefits and will accelerate the implementation of the Pacific Regional Action Plan on Sustainable Water Management. Pacific RAP consultations established the Pacific Partnership Initiative on Sustainable Water	Incremental interventions will address the baseline situation through upgrading national and regional skills in project management and monitoring, as well as other technical areas including gender awareness, economic and financial planning, etc. Final capacity building focus will be decided based on consultation with stakeholders to ensure tailored approaches based on identified needs are part of the GEF investment. Improved national staff and community capacities under this component will support national development in terms of strengthening institutional capacities and forging stronger links between government agencies and communities under this project, but will also strengthen community links and stakeholder engagement and project planning abilities long term. Embedded within project components will be community driven development approaches to ensure sustainable interventions are implemented and continued after project completion – embedding approaches in communities and State and National level institutions. National Water Champions and support to the

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	and more strategic links which can be made with other national and regional initiatives. There is an urgent need to move the Pacific forward in this respect – the difficult communications and large distances between nations reduces the impact of strategic approaches and the Pacific RAP and Pacific Partnership will be significantly strengthened and enhanced through the support offered by GEF under the Pacific Alliance for Sustainability (GEF-PAS).	Management. The objectives of the Partnership are to coordinate the implementation of the Pacific RAP and the Frameworks for Action on Wastewater and Drinking Water Quality & Health. The Partnership played a pivotal role in the development and implementation of this GEF IWRM project. The use of the Partnership is a unique model for regional project implementation and many members have been identified as co-financers and capacity building support for this project. The Partnership has been supported by the ADB and will feed lessons regionally out to the GEF and other global donors.	National IWRM APEX Bodies will be provided through the Regional Project Coordination Unit and targeted NGO support. Live & Learn Environmental Education have already produced the Community Mobilisation Guidelines for the project and will be involved in further support activities across the region, including school curricula development and media engagement and communication strategies to build capacity of national media. Water Champions will be supported in their role as facilitators and advocates of IWRM approaches and in raising awareness through most appropriate media mechanisms. This component recognises the need for capacity building, through training and education, to support institutions in the long-term implementation of Demonstration projects and wider IWRM policy initiatives and IWRM National Planning.
Global Benefits	At the global level there is an urgent need to move forward with improvement in planning and management. In fragile and small geographic areas such as SIDS there is a need to development better integration between sectors and levels within those sectors in the absence of fully functioning real-time information exchange. Systems are not well established in SIDS, and when they are they are often single sectoral and technically focussed. Building capacity in IWRM approaches and the necessary planning and management skills so critical in the delivery of IWRM will not only improve the collaboration between sectors (and therefore GEF Focal Areas: Biodiversity, Climate Change, IW) leading to significant global environmental benefits in terms of conservation of biological diversity, prevention of land degradation, protection of international waters, sound management of chemicals and preventing and adapting to climate change but will also increase the efficiency and	The proposed Program provides the opportunity to address the main barriers preventing effective action by the PICs to safeguard their rich natural resource base. GEF involvement will help to leverage co-financing from other donors, such as the bilateral agencies and other partners. This is necessary as the GEF contribution falls short of optimum investment levels. The Program will catalyze action to more effectively implement existing regional strategies, strengthen long term cross-focal area and cross-sectoral linkages, provide a framework for more effective stakeholder participation, and maximize the impact of the investment by GEF, while also delivering significant global environmental benefits in terms of conservation of biological diversity, prevention of land degradation, protection of international waters, sound management of chemicals and preventing and adapting to climate change.	Upgrading cross-sectoral skills in monitoring and evaluation and planning will bring benefits wider than IW alone as upgraded skills will be used to address multiple environmental stresses in the future, assisting countries to sustain livelihoods, food security and fresh and marine coastal habitats (including groundwater). This has long term global benefits through the reduction in discharge of nutrients derived from sewage, soil erosion, and agricultural fertilizers, improper solid waste disposal, over-exploitation of fisheries, and accelerated sediment discharge, as a result of land clearance and construction, for example. Through a simultaneous top-down / bottom-up approach the project will improve community engagement, understanding, and action, and will strengthen national and municipal institutions through EU Water Facility co-financing support and GEF interventions under this component to ensure that sustainability and appropriate replication are at the core of the project. By feeding information and lessons learned into appropriate networks, especially

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	effectiveness of GEF support to PICs, thereby enhancing achievement of *both* global environmental and national sustainable development goals. The impact of land based pollution is most often visually seen and therefore understood in coastal and shallow water areas, but the impact of this pollution is not known on commercially important pelagic species, including migratory species important for tourism revenue in the Pacific Region.	Lessons will be shared beyond the countries and will bring regional knowledge benefits. Sharing this information with others SIDS regions (Caribbean IWCAM and African SIDS) as well as dissemination to countries facing similar problems, through the PACC and OFM projects (SE Asia through links to other projects such as the CTI, PEMSEA, and SCS) will transfer lessons outside of the system boundary. The lessons will be shared between Demonstration Project groups, PICS in general, national IWRM APEX Bodies (under C3) and other mechanisms.	by sharing lessons between PICs involved in this project and wider (Caribbean and African SIDS) there is a real cost effective opportunity to widen the scope of the initial investment and support countries in increasing their capacities and resources to continue approaches initiated under this project. Training of Trainers approaches will be integrated into the project to ensure that existing and new local and regional capacity builds and support the region, and will work inter-regionally with the Caribbean.
Costs	**Total: $**	Baseline: Incremental: $4,811,015 **Total: $4,811,015**	**GEF: $1,497,334** **Co-finance: $3,313,681** Governments: $ Inter-governmental/Multilaterals: $ Bilateral Donors: $3,313,681 NGOs: $ Private Sector: $ **Total: $4,811,015**
Total Costs	**Total: $43,275,802**	Baseline: $43,275,802 Incremental: $99,605,487 **Total: $142,881,289**	**GEF: $9,025,688** **Co-finance: $90,579,799** Governments: $23,523,897 Inter-governmental/Multilaterals: $13,712,608 Bilateral Donors: $52,678,304 NGOs: $664,990 Private Sector: $- **Total: $99,605,487**

PART II: Logical Framework and Objectively Verifiable Impact Indicators

Overall Project Logframe

Project Strategy	Objectively verifiable indicators				
Goal	**To contribute to sustainable development in the Pacific Islands Region through improvements in water resource and environmental management.**				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Objective: Improved water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans	1.1 Overarching improvement in water resource management, quality and availability through appropriate national Demonstration Project execution and concurrent reforms in policy, legislation and institutional arrangements leading to global environmental benefits [P] 1.2 Actual change in institutional and societal behaviour [P]	1.1 Fragmented institutional responsibilities, weak policies, communication & coordination resulting in fragile or non-existent IWRM approaches in place 1.2 Poor and inconsistent data collection for monitoring and inadequate action and investment and change based on monitoring information	1.1 14 National IWRM and Water Use Efficiency Strategies in place, with institutional ownership secured with 20% increase in national budget allocations by month 42 [P] 1.2 Best IWRM and WUE approaches mainstreamed into national and regional planning frameworks by end of project facilitated by national IWRM APEX bodies, Project Steering Committee, Pacific Partnership, and PCU by month 60 [P] 1.3 Environmental stress reduction in 14 Pacific SIDS: 30% increase in forest area for ~8,000 ha of land, 35% reduction in sewage pollution over eq.~40,000 ha area leading to reduction in eutrophication for 4 coastal receiving waters sites, and 35% reduction in water leakage for systems supplying ~85,000 people by end of project, leading to av. 30% increase in population with access to safe water supply and sanitation for 6 sites (based on targets under Component 1) [SR]	Demonstration Project Annual Reporting National IWRM Plans and Water Use Efficiency Strategies with appropriate budget allocations in place Indicator Framework mechanism National Government feedback on institutional changes Pacific Partnership, RAP, NAPA, NAP, NSDSs, and MDG reporting	Strong and high-level government commitment is sustained and willing to make change – adequate understanding and political will Able to monitor and update baseline information and action taken ion findings and results Inclusive stakeholder involvement in the IWRM consultation process

Component 1: **Demonstration, Capture and Transfer of Best Practices in IWRM and WUE** **Component 1 Outcome:** Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management	1.1 Step change improvement in baseline situation (based on Diagnostic Analyses) from project start, including adoption of technical and allocative water use efficiency approaches by end of project [SR]	1.1 Fragmented institutional responsibilities, weak policies, communication & coordination resulting in fragile or non-existent IWRM approaches in place 1.2 Lessons learned from water management and IWRM type interventions are not shared or acted upon 1.3 Water Use Efficiency is poorly understood and often not considered in water management decisions 1.4 Pollutants from sanitation systems, industrial and urban discharges and poor land management practices enter fresh surface and groundwater and coastal receiving waters	**<u>i) Watershed Management</u>** 2 Basin Flood Risk Management Plans resulting in 10% reduction in infrastructure loss due to flooding (on approximately 18,000 ha of land) by end of project [SR] 30% increase in forest area at 2 Demonstration Sites covering ~8,000 ha of land [SR] **<u>(ii) Wastewater & Sanitation Management</u>** 35% reduction in sewage pollution discharge at 8 Demonstration sites (covering eq. 40,000 ha of land) by month 48 [SR] **<u>(iii) Water Resources Assessment & Protection</u>** 4 SIDS have revised legislation in place to protect surface water quality by end of project [P] **<u>(iv) Water Use Efficiency & Water Safety</u>** 35% reduction in leakage in 3 national urban water supply systems (serving ~85,000 people) by month 42 and reduction over freshwater usage for sanitation by end of project [SR] Replication of technical and water use efficiency lessons from project applied in future national and project based activities by end of project [P] Technical, management, participatory and advocacy lessons from projects developed into national lessons learned presentation packages with best practices mainstreamed into national and regional approaches by end of project facilitated by national IWRM APEX bodies, Project Steering Committee, Pacific Partnership, and PCU [P]	Demonstration Project Annual Reporting National IWRM Plans and Water Use Efficiency Strategies with appropriate budget allocations in place Pacific Partnership and RAP reporting	Available local capacity to manage and implement national Demonstration projects Inclusive stakeholder involvement in the IWRM consultation process Mechanisms and approaches to capture lessons are appropriate and promote action and replication

Component 2: **IWRM and WUE Regional Indicator Framework** **Component 2 Outcome:** National and Regional adoption of IWRM and WUE indicator framework based on improved data collection and indicator feedback and action for improved national and regional sustainable development using water as the entry point	1.1 Multi-sectoral approaches to national water and environmental management improved and increased through M&E feedback and action, leading to global environmental benefits by end of project [P]	1.1 Poor and inconsistent data collection for monitoring and inadequate action and investment and change based on monitoring information	1.1 Indicator feedback facilitated through IWRM APEX Body provides information for multi-sectoral action and endorsement of national and indicators for IWRM, NAPA, NAP and sustainable development planning (NSDSs and NEAPs) by end of project [P]	Indicator Framework mechanism in place and active Increase national budget for hot-spot areas identified by Indicator Framework	Strong understanding and willingness to use and act upon the data is present
Component 3: **Policy, Legislative and Institutional Reform for IWRM and WUE** **Component 3 Outcome:** Institutional change and realignment to enact National IWRM plans and WUE strategies, including appropriate financing mechanisms identified and necessary political and legal commitments made to endorse IWRM policies and plans to accelerate Pacific Regional Action Plan actions	1.1 Nationally endorsed IWRM plans and WUE strategies in place and driving sustainable water governance reform in PICS by end of project [P]	1.1 No nationally endorsed IWRM plans or water use efficiency approaches in place 1.2 Fragmented national and regional water sector	1.1 14 draft National IWRM and Water Use Efficiency Strategies in place, with institutional ownership secured through the national APEX body and institutional mandates adjusted/confirmed as IWRM implementing agencies with appropriate budget allocations by month 42 [P]	National IWRM Plans and Water Use Efficiency Strategies with appropriate budget allocations in place National budget plans	Strong and high-level government commitment is sustained and willing to make change – adequate understanding and political will
Component 4: **Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication** **Component 4 Outcome:** Improved institutional and community capacity in IWRM at national and regional levels	1.1 Measurable sustained increase in training and awareness campaigns, including appropriate national level financial allocations for capacity development by end of project [P]	1.1 Poor collection and exchange of information within and between countries, often sectorally focused with poor consideration of investment planning required to ensure sustainability and human capacity development needs	1.1 Increase in national staff (both men and women) across institutions with IWRM knowledge and experience by end of project [P] 1.2 30% increase in gender balanced community and wider stakeholder engagement in water related issues by month 60, [P] 1.3 Improved cross-sectoral communication by end of project [P]	National water management reporting National and regional press National Government feedback on institutional changes Pacific Partnership and RAP reporting	Strong and high-level government commitment is sustained and willing to make change – adequate understanding and political will Stakeholders able to understand, cope and promote IWRM

Component 1: Demonstration, Capture and Transfer of Best Practices in IWRM and WUE [GEF $6,727,891 : $82,418,903 co-financed]

Project Strategy	**Objectively verifiable indicators**				
Component 1 Objective:	**Practical demonstrations of IWRM and WUE focused on removing barriers to implementation at the community/local level and targeted towards national and regional level learning and application**				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Component 1 Outputs: 1.1 Improved access to safe drinking water supplies 1.2 Reduction in sewage release into coastal receiving waters 1.3 Reduction in catchment deforestation and sustainable forest and land management practices established 1.4 Water Safety Plans developed and adopted 1.5 Integrated Flood Risk Management approaches designed and developed 1.6 Expansion in eco-sanitation use and reduction in freshwater use for sanitation purposes 1.7 Improved community level engagement with national institutions responsible for water management 1.8 Increase in water storage facilities 1.9 Technical and Allocative Water Use Efficiency approaches designed and adopted 1.10 Identification and adoption of appropriate financing approaches for sustainable water management	1.1 Capture of Lessons from Demonstration Projects & other Water Initiatives (CTI/PACC/PAS) shared regionally & with global SIDS [P] 1.2 Replication of Demonstration Projects within & between PICS (where support and finances available) [SR] 1.3 Successful demonstrations of IWRM approaches mainstreamed into existing local, national, & regional approaches [SR] 1.4 PIC understanding & adoption of technical, allocative, and equitable water use efficiency measures [P] 1.5 Support for social and economic welfare of island communities through improved water management [P] 1.6 Environmental quality and productivity sustained [SR] 1.7 Improved public-health across SIDS with improved monitoring [SR] 1.8 Increase in groundwater monitoring and regular sampling routines established for SIDS (leading to improvements in groundwater quality) [SR] 1.9 Functioning water & environment cost recovery schemes adopted using PIC driven mechanisms to sustain environmental productivity balanced with equitable use of water resources [P]	1.1 Limited water resources susceptible to over-exploitation and pollution 1.2 Vulnerability to climate variability 1.3 Insufficient political and public awareness of the role water plays in economic development, public health and environmental protection 1.4 High urban water losses, poor water conservation & inadequate drinking water treatment 1.5 Poor wastewater management resulting in increased land based source pollution into the watershed and coastal environment 1.6 Fragmented institutional responsibilities, weak policies, communication & coordination 1.7 Conflicts between national versus traditional rights 1.8 Inadequate financing due to poor cost-recovery and limited 'economies of scale' 1.9 Weak stakeholder linkages both within and outside the water sector 1.10 Reduction in ecosystem productivity and biodiversity 1.11 Reduction in human health and socio-economic condition due to poor and inadequate access to sanitation and safe water supplies	**i) Watershed Management** ***(i)*** 40% increase in population with access to safe drinking water at 1 demo site [SR] ***(ii)*** 30% reduction in animal manure and sewage entering marine waters at 1 demo site [SR] ***(iii)*** 30% increase in forest area at 2 demo sites [SR] ***(iv)*** Water Safety Plans in place and enacted in 3 peri-urban areas [SR] ***(v)*** Legislation in place to protect surface water quality in 4 SIDS [P] ***(vi)*** 1 basin flood risk management plan in place [P] ***(vii)*** Sustainable forest & land mgmt practices established and trialed with landowners in 2 demo sites [SR] **(ii) Wastewater & Sanitation Management** ***(i)*** 40% reduction in GW and marine pollution discharge at 2 demo sites from sewage and manure [SR] ***(ii)*** 30% reduction in drinking water resources pollution discharge for 1 SIDS [SR] ***(iii)*** 30% reduction in use of freshwater for sanitation purposes due to eco-sanitation expansion in 1 demo site [SR] ***(iv)*** 50% increase in community engagement with National Government in 3 SIDS [P] **(iii) Water Resources Assessment & Protection** ***(i)*** National effluent standards reached for wastewater treatment at 3 sites [P] ***(ii)*** 20% increase in water storage facilities at 1 demo site [SR] ***(iii)*** Water leakage reduced by 40% from existing baseline levels in 1 water supply system [SR] ***(iv)*** 10% reduction in damage to infrastructure due to flooding in 1 significant catchment [SR] ***(v)*** 1 basin flood risk management plan in place and a Catchment Council established in 2 SIDS [SR] **(iv) Water Use Efficiency & Water Safety** ***(i)*** WUE improved by 30% over baseline in 2 urban water supply systems [SR] ***(ii)*** Water Safety Plans in place and enacted in 2 urban areas [P] ***(iii)*** 20% reduction in sewage and manure pollution into fresh and marine waters for 2 urban/peri-urban areas [SR] ***(iv)*** 30% reduction in groundwater pollution discharge for 2 water supply systems [SR]	Quarterly, bi-annual, and annual National Demonstration Progress Reporting Project Coordination Unit (PCU) Annual Monitoring Reports and missions National and regional statistical reports (SPC MDG and census reporting) Mid-Term Review Reporting and mission PCU general reporting to Project Steering Committee and UNDP/UNEP IWRM Planning and WUE Strategies (available online and via PCU) National IWRM APEX body meeting minutes	Strong and high-level government commitment is not sustained Vulnerability to changing environmental conditions Inclusive stakeholder involvement in the IWRM consultation process Limited influence of national and catchment stakeholders to promote and sustain IWRM Restricted capacity of stakeholders to implement IWRM best practice in countries

Component 2: IWRM and WUE Regional Indicator Framework [GEF $800,463 : $2,221,074 co-financed]

Project Strategy	Objectively verifiable indicators				
Component 2 Objective:	**IWRM and environmental stress indicators developed and monitored through national and regional M&E systems to improve IWRM and WUE planning and programming and provide national and global environmental benefits.**				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Component 2 Outputs: 2.1 Process, Stress Reduction, Environmental and Socio-Economic Status, WUE, Catalytic, Governance, Proxy, and X-Cutting Regional Indicator Framework (RIF) established and in use 2.2 Participatory M&E adopted within Demonstration Projects [C1] and mainstreamed into national best practice 2.3 Improved institutional capacity for monitoring and support for action on findings across the region, including Pacific RAP progress for water investment planning (and International Waters SAP)	1.1 Regional Indicator Framework (RIF) integrated into national sustainable development approaches (NSDSs and NEAPs) and national adaptation programmes for action (NAPAs) and national adaptation plans (NAPs) for disaster risk reduction [P] 1.2 Indicator data provides evidence base for action by SIDS National Governments [P] 1.3 Communities actively involved in designing, implementing and monitoring water and environment projects [P] 1.4 National expert monitoring staff available as a resource to National IWRM APEX bodies and across government using systems thinking approaches [P] 1.5 Established national data collection for monitoring and access by all database facilities with appropriate institutional mandates and powers in place for use of and action with the data for national programming, advocacy, learning and accountability [P]	1.1 National approaches do not use appropriate indicators and where they do these are single sectoral in nature 1.2 Communities are rarely involved in water and environmental management approaches 1.3 Monitoring is not a mainstreamed practice in national institutions responsible for water and environmental management 1.4 Inconsistent monitoring data collection and insufficient use of information for intervention improvements and planning	1.1 Aggregation of all final national demonstration project indicators by month 8 of the project [P] 1.2 Draft regional Indictor Framework developed for consultation by month 18 of the project [P] 1.3 Countries fully utilizing Indicator Framework by month 36 [P] 1.4 Stakeholder consultation and approval of project design and PM&E plan for each national demonstration project by month 8 of the project, including separate consultations with women [P] 1.5 National promotion and adoption of PM&E approaches by national water APEX body by month 36 of project using Most Significant Change (MSC) and reflection and learning techniques [P] 1.6 Relevant national country staff trained in monitoring and PM&E approaches by month 24 of the project based on needs assessment [P] 1.7 APEX body leading institutional training in consistent data collection and development of national monitoring rationale by month 36 of project [P] 1.8 Regional matrix in place for Pacific RAP monitoring and national investment planning by month 42 of the project [P]	Revised and finally endorsed Demonstration Project Proposals (available month 8) C2 Indicator Framework annual reports Regional Indicator Framework progress reports National Demonstration Project reporting Annual national IWRM reporting by national APEX bodies Training Needs Assessment report and Training of Trainers workshops National Monitoring Plans and relevant data collection records and action recommendations Regional matrix available online and annual investment planning reporting per country	Indicator data is available and/or the means to find/collect the data are available Strong understanding and willingness to use and act upon the data is present Strong willingness to participate by communities involved in Demonstration Projects and wider stakeholders Willingness by national government to learn from and adopt PM&E approaches where applicable Appropriate staff are available to work with project staff and the national IWRM APEX bodies to mainstream monitoring into normal practice

Component 3: Policy, Legislative and Institutional Reform for IWRM and WUE [$2,626,141 – entirely co-financed]

Project Strategy	Objectively verifiable indicators				
Component 3 Objective:	**Supporting countries to develop national IWRM policies and water efficiency strategies, endorsed by both government and civil society stakeholders, and integrated into national sustainable development strategies**				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Component 3 Outputs: 3.1 National IWRM plans and WUE strategies developed and endorsed 3.2 Implementation of IWRM approaches agreed across national, community and regional organisations 3.3 Strengthened and sustainable APEX water bodies to catalyze implementation of national IWRM and WUE plans, including balanced gender membership 3.4 Awareness raised across civil society, governments, education systems and the private sector 3.5 Sustainability strategies developed focusing on institutional and technical interventions required for Demonstration scaling-up as part of National IWRM Plan development and implementation	1.1 National IWRM Plans in place and adopted by SIDS National Governments with appropriate resources to implement and monitor & strategic links made to NAPAs and NAPs, NSDSs, and coastal resources management plans [P] 1.2 National Water Use Efficiencies in place and adopted by SIDS National Governments with appropriate resources to implement and monitor [P] 1.3 Regularly meeting capable IWRM APEX bodies responsible for the coordination of national IWRM activities including sharing experience regionally with other SIDS IWRM APEX bodies [P] 1.4 IWRM communicated and mainstreamed into national working practices, including national school curricula [P] 1.5 National budgeting and financial planning for x-sectoral IWRM approaches included within Treasuries/Financial Ministries [P]	1.1 No nationally endorsed IWRM plans in place 1.2 Water use efficiency measures not considered (or only focusing on technical efficiency) 1.3 APEX bodies in place but with weak or no mandates/ToR, budget, or authority 1.4 Adhoc awareness campaigns for water management, with little engagement with the private sector, civil society or the education sector 1.5 Few operation and maintenance plans for infrastructure in place 1.6 Few asset management plans or approaches developed 1.7 Unwillingness to change institutional situation to improve water governance	1.1 14 draft National IWRM plans produced by month 18 of the project, with final versions published by month 24 [P] 1.2 14 draft Water Use Efficiency Strategy documents produced by month 18 of the project, with final versions published by month 24 [P] 1.3 National recruitment of support adviser to national APEX bodies by month 6 of the project [P] 1.4 Strategic IWRM communication plan framework for individual national development in place by month 12 of the project (based on Regional Communication Strategy in place by month 6), with national development and implementation by month 24 [P] 1.5 Multi-sectoral participation in national APEX bodies by month 12 of the project with 33% female membership (including private and education sector membership and national finance and economic planning units) [P] 1.6 Replication Framework in place by month 6, Replication Toolkit in place by month 24, National scaling-up and replication strategies in place based on Demonstration project success and failures for each country by month 54 of the project [P]	National IWRM Plans and Water Use Efficiency Strategies National IWRM Roadmaps Other National Plans (Sanitation action Plans, etc) Contract and annual performance reviews of Advisers to national APEX bodies National IWRM communication plans and materials produced (videos, webshots, websites, articles, press releases, speeches, posters, workshop reports, meetings, community theatre productions, radio stories/interviews, work stories, community meeting notes, APEX body Terms of Reference, membership log, minutes, other national APEX body meeting minutes) National Scaling-Up and Replication recommendation reports Regional Indicator Framework progress reports and National Monitoring Plans National Demonstration Project reporting Regional matrix available online and annual investment planning reporting	Appropriately qualified national staff available Stakeholders willing to participate. Country and catchment priority issues exist Early partnerships continue to exist and function. Partnerships have capacity to use support tools or work with external advisors Partnerships maintain capacity and external examples of good practice exist and can be adapted for SIDS

Component 4: Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication [GEF $1,497,334 : $3,313,681 co-financed]

Project Strategy	Objectively verifiable indicators				
Component 4 Objective:	**Sustainable IWRM and WUE capacity development, and global SIDS learning and knowledge exchange approaches in place**				
	Indicator	*Baseline*	*Target*	**Sources of verification**	**Risks and Assumptions**
Component 4 Outputs: 4.1 National and regional skills upgraded in project management and monitoring including water champions and APEX bodies for both men and women 4.2 Active twinning programmes in place between countries facing similar water and environmental degradation problems 4.3 Effective knowledge management networking and information sharing inter and intra-regional	1.1 Water champions identified and active in awareness raising by month 9 of the project [P] 1.2 Twinning exchange programmes in place between countries and regions (Caribbean and African SIDS) [P] 1.3 Dynamic regional CPD* training workshops and networking through existing CROP agencies and IW:LEARN approaches including strategic links to other GEF initiatives throughout project, reviewed and appraised annually [P] 1.4 Comprehensive IWRM and WUE data warehouse facility using appropriate media for PICs (linked to Indicator Framework, Pacific RAP and Caribbean and African SIDS approaches) [P]	1.1 Few twinning opportunities and little information exchange and lesson learning between countries and regions 1.2 Training workshops in place but often sectoral and technical in focus 1.3 Few opportunities for training on IWRM, sustainability issues, investment planning, and monitoring, within the context of IWRM 1.4 No comprehensive IWRM and WUE data store of information available to PICs or other global SIDS	1.1 IWRM awareness programs integrated into normal institutional practices with appropriate budget approved by month 48 of project [P] 1.2 Five twinning exchange programs in place between countries by month 42 of the project and at least 1 program with the Caribbean on IWRM planning underway for a similar program with African SIDS [P] 1.3 Cross-sectoral regional learning mechanisms (communities of practice) in place including x-project workshop attendance for the GEF funded projects: PACC, SLM, and the ADB CTI project reviewed annually [P] 1.4 GEF IW experience with IWRM upgraded for SIDS and highlighted at GEF IWC6, WWF5 Istanbul 2009, and WWF6 TBD 2012, including SIDS experience to support GEF in future IW Focal Area Strategy development and Strategic Programming [P] 1.5 Women form at least 2 of the 5 twinning exchange programme members by month 42 of the project [P]	Recruitment feedback via National APEX bodies and IWRM Focal Points through meeting reports and minutes, including Awareness Program Scoping and Implementation Reports Twinning and secondment reports Workshop reports and publications, IW:LEARN outputs Database in place and linked to other resources – available via WWW and other media Pacific Partnership meeting outputs and reports, including Partnership Newsletter	Water champions are present in-countries and willing to take on the role National participation in the twinning approach and lessons learned and fed-back Public concerned about water and catchment management issues Countries willing to share information with each other, regionally and inter-regionally

Notes: CPD – Continuing Professional Development. [P] represents a Process Indicator, [SR] represents a Stress Reduction indicator

SECTION III : Total Budget and Workplan

Total Budget and Work Plan

Award/Project IDs:	00051446 / 00064064
Award Title:	PIMS 3311 FSP IW: Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries
Business Unit:	FJI10
Project Title:	Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries
PIMS no.3311	3311
Implementing Partner (Executing Agency)	United Nations Development Programme Pacific Islands Applied Geoscience Commission (SOPAC)

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Notes
OUTCOME 1: Lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management	**Party 1**	**62000**	**GEF**	71200	International Consultants	150,000	250,000	250,000	150,000	136,000	936,000	1
				71300	Local Consultants	100,000	280,800	350,000	350,000	323,200	1,404,000	2
				71400	Contractual services – Individuals	74,000	134,000	126,442	85,000	78,0000	497,442	3
				71600	Travel	109,850	109,850	109,850	109,850	109,850	549,250	4
				72100	Contractual services - Companies	185,625	242,599	400,000	248,000	241,000	1,317,224	5
				72200	Equipment and Furniture	248,613	300,000	350,000	150,203	203,009	1,251,825	6
				72400	Communications	16,000	16,000	16,000	16,000	16,000	80,000	7
				74500	Miscellaneous	4,030	4,030	4,030	4,030	4,030	20,150	8
					sub-total GEF	**888,118**	**1,337,279**	**1,606,322**	**1,113,083**	**1,111,089**	**6,055,891**	
					Total Outcome 1	**888,118**	**1,337,279**	**1,606,322**	**1,113,083**	**1,111,089**	**6,055,891**	

PROJECT COORDINATION	**Party 1**	**62000**	**GEF**	71200	Contractual Services - Individuals	134,400	134,400	134,400	134,400	134,400	672,000	9
				71300								
				74500								
					sub-total GEF	**134,400**	**134,400**	**134,400**	**134,400**	**134,400**	**672,000**	
					Total Coordination	**134,400**	**134,400**	**134,400**	**134,400**	**134,400**	**672,000**	
					PROJECT TOTAL	**1,022,518**	**1,471,679**	**1,740,722**	**1,247,483**	**1,245,489**	**6,727,891**	

Summary of Funds:

GEF:	**US$**
Project Implementation*:	9,025,688
PDF-B:	697,950
Co-finance:	
Governments (in cash and kind):	23,523,897
Intergovernmental/Multilateral:	13,712,608
Bilateral:	52,678,304
NGOs:	664,990
UNEP (in-kind):	60,000
Sub-Total Co-financing:	**90,579,799**
Total Project Cost:	**100,303,437**

* Total Project cost: C1 cost is $6,727,891 (UNDP), and C2, C3, and C4 cost is $2,297,797 (UNEP).

***Budget Notes*:**

Table Ref.	Budget Notes	Consultant Time (wks)	Amount ($)	Narrative
1	International Consultants	39	936,000	**International technical expertise includes but is not limited to the following:** 1. Resource assessment, information capture and management including analysis and modelling of data (water resources, soil regolith, coastal marine environment etc). 2. GIS/GPS support to assimilate information and knowledge into decision making packages. 3. Policy, legislation, planning and institutional change support e.g. sustainable financing, legislation, strategy and policy development. 4. Support to demonstration project monitoring and evaluation 5. Support to wastewater treatment and effluent management including assessment, design and implementation of systems including eco-sanitation zero discharge systems. 6. Agricultural, land-use and coastal area management support. 7. Support to Ecosystem protection including undertaking EIA's, establishing MPA's, etc.
2	Local Consultants	156	1,404,000	**Local technical expertise includes but is not limited to the following:** 1. Community level awareness raising and stakeholder engagement for establishing and supporting demo catchment governing bodies. 2. Support for local level catchment community mobilisation and participation - in local language 3. Local communication specialist support with media networks, and ability for local sensitisation to IWRM issues and approaches 4. Development and facilitation support to in-country meetings and trainings 5. Support to the development and publications of local IEC materials 6. Support to demonstration project monitoring and evaluation 7. Support to the development of technical reports on key intervention areas.
3	Contractual services – Individuals	195	497,442	**Short Term contractual support includes but is not limited to the following:** 1. Reporting and publication development and print management support 2. ICT support through information management systems including web development and management, e-doc filing systems etc. 3. Support to local surveys such demography and resource assessments etc. 4. Support to meetings and trainings.
4	Travel		**Travel** $162,500.00 $195,000.00 $13,000.00 **$370,500.00** **Per diems** $65,000.00 $65,000.00 $48,750.00 **$178,750.00** **$549,250.00**	**Includes travel and per diems:** 1. Travel (International) within Pacific Region - 1 x 13 demo's x 5 yrs x @2500 - Annual SC Meetings 2. Travel (International) beyond Pacific Region - 1 x 13 demo's x 5 yrs x @3000 - Trainings 3. Local Transportation - @200 per year x 13 demo's x 5 yrs 1. Abroad (staff assigned to the action) 1 x 5 days x 5yrs x13 demo's @USD200 2. Abroad (Staff assigned to action) 1 x5 days x 5yrs x 13 demo's @USD200 3. Seminar/conf participants 3 x 5 days x 5 yrs x 13 demo's

5	Contractual services – Companies 72105 72115 72130		1,317,224	**Contractual services (Companies) - construction and engineering support:** 1. Improving planning for flood mitigation measures such as drainage design and works 2. Design and construction of hydrological stations 3. GIS/GPS equipment for mapping, imagery, surveying and data management support. 4. Saltwater flushing system design 5. Pumps and sewerage removal 6. Design and installation of greywater systems 7. Design and implementation of wastewater treatment systems 8. Establishment of zoning areas for land use planning.
6	Equipment and Furniture		1,251,825	**Equipment and furniture for Demonstration Project delivery- includes computer software and hardware, printers and technical equipment where required, water quality and quantity equipment etc. and also co-financed vehicles specifically to be used for project fieldwork activities:** 1. Transport (wherever possible countries have been encouraged to rent vehicles specifically for fieldwork, depending on need and frequency of use determined by focus of Demonstration Projects and geographic location) 2. Equipment for water quality and quantity assessment 3. Equipment for leakage detection and mitigation 4. Wastewater treatment system building materials - e.g. composting toilets, septic tanks etc. 5. Materials to protect forest reserves, groundwater extraction areas and surface water intake areas. 6. Water storage - tanks, roofing, guttering etc. 7. Equipment for pig pen construction and biogas generation 8. Equipment for waste collection - bunding, oil interceptors, bins 9. Equipment for water resources protection - borehole and wellhead covers etc. 10. Office equipment - scanners, UPS's, printers, 11. Flood mitigation - sirens and technical communications relays.
7	Communications		80,000	**Communications (in the majority of cases communications are co-financed by the national governments)** 1. Telephone landline charges 2. Mobile telephone and charges 3. Satellite phone 4. Video camera 5. Digital cameras 6. Microphones and web cameras' – skype users 7. Connection charges 8. Computer hardware & software 9. Fax machines
8	Miscellaneous		$20,150	**Miscellaneous – sundry etc (many of these items are co-financed by the national governments)** 1. Equipment storage fees 2. Duty of equipment and goods 3. Postage 4. Equipment and travel insurance 5. Bank charges
9	Project	538	672,000	**Project Coordination and Administration (538 weeks in total; 108 weeks p.a., or 540 working days**

	Coordination			**across implementation of 13 national Demonstration Projects)** 1. Administrative and financial support to Demonstration Project implementation and reporting to Executing and Implementing Agencies 2. Project audit services 3. Travel between national and regional project offices

Note on Project Costs: Costs presented in the budget are realistic for the Pacific Region due to a number of regionally unique circumstances, including (i) their small size and isolation – with a small number of flights and airline services creating higher costs per air mile than in many other parts of the world; (ii) higher transit costs when flying due to limited flight linkages and stop over costs; (iii) centralisation of government and therefore high national communication costs between main and outer islands, and regionally between countries due to geographic isolation and unpredictable communications (the region is prone to severe weather disturbances and communication breakdowns due to mediocre communications infrastructure); (iv) higher than average fuel costs due to transport/shipping charges and high taxation; (v) limited finance for operation and maintenance as a result of poor or non-existent cost recovery; (vi) limited economics of scale and competition for items in smaller countries causing high costs per capita; (vii) mining of infrastructure due to inadequate operation and maintenance (O&M) and poor asset management increasing O&M costs exponentially.

All equipment is specifically required for implementation of the National Demonstration Projects and therefore achievement of the **Component 1 Outcome:** *lessons learned from demonstrations of IWRM and water use efficiency approaches replicated and mainstreamed into existing cross-sectoral local, national and regional approaches to water management*, in turn leading to achievement of the **Component 1 Objective:** *practical demonstrations of IWRM and WUE focused on removing barriers to implementation at the community/local level and targeted towards national and regional level learning and application*. The innovative nature and new approaches suggested within this project requires, in some cases, new equipment and support apparatus to enable activities to be conducted. In all cases, the cheapest equipment and approaches will be used where they can perform the same function and deliver the intended results/impact. Co-financers will be heavily relied on concerning equipment loan. Hiring of equipment will be the preferred option, but each case will be considered in a cost effective manner.

Table 16: Overall Project Workplan

	Components and Activities	Year 1				Year 2				Year 3				Year 4				Year 5			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C1	**Demonstration, Capture and Transfer of Best Practices in IWRM and WUE**																				
1.1	Demonstration Implementation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.2	Project Implementation Arrangements Report[1]	•																			
1.3	Recruitment of National Project Staff, clarification of contracting process and role of Lead Agencies[2]	•																			
1.4	Confirmation of co-financing support for each Demonstration Project	•	•																		
1,5	Demonstration Project Implementation Guidance Manual	•	•																		
1.6	National Demonstration Project Staff training (PM&E, financial mgmt, reporting requirements, etc)		•	•																•	
1.7	Stakeholder analysis and engagement (including Lead Agency review)	•	•	•																	
1.8	Project twinning		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.9	Participatory Monitoring and Evaluation instigated		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1.10	Indicators assessment, baseline collection and logframe review	•	•							•	•										
1.11	Links established with other national & donor projects (SLM, PACC, etc)		•	•	•																
1.12	Drafting of Replication Framework		•	•																	
1.13	Preparation of Replication Toolkit			•	•																
1.14	Regional Communication Strategy developed	•	•																		
1.15	Awareness raising and lesson learning materials developed				•			•	•			•	•			•	•		•	•	•
1.16	Process, technical, socio-economic lesson learning				•				•				•				•		•	•	•
1.17	Lessons fed into regional IWRM Resource Centre and globally				•				•				•				•		•	•	•
	Overall Project Inception workshop		•																		
	Regional Steering Committee Meetings				•				•				•				•				•
	Regional Technical Advisory Group Meetings								•								•				
	PCU Reporting to RSC				•				•				•				•				•
	PCU reporting to UNDP/UNEP				•				•				•				•				•
	Demonstration Progress and Annual Reports	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Mid-Term Evaluation								•												
	Final Evaluation																			•	

	Components and Activities	Year 1				Year 2				Year 3				Year 4				Year 5			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C2	**IWRM and WUE Regional Indicator Framework**																				
2.1	Aggregation of Demonstration Project Indicators		•	•																	
2.2	Draft Regional Indicator Framework			•	•	•	•														
2.3	Regional Indicator Framework in place (linked to NSDS, NEAPs, etc)							•	•	•	•	•	•								
2.4	PM&E Plan developed per Demonstration Project	•	•	•																	
2.5	PM&E promotion with APEX Body using MSC, reflection & learning techniques				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
2.6	Training Needs Analysis					•	•	•	•												
2.7	Training in M&E						•	•	•												
2.8	Regional Action Matrix fully developed														•						
2.9	National Monitoring Plan development				•	•	•	•	•												
2.10	Logframe development and review, SMART indicator review and baseline information collection	•	•	•	•																
2.11	Storyline development			•	•																
2.12	National indicator development for IWRM and database storage				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Overall Project Inception workshop		•																		
	Regional Steering Committee Meetings				•				•				•				•				•
	Regional Technical Advisory Group Meetings								•								•				
	PCU Reporting to RSC				•				•				•				•				•
	PCU reporting to UNDP/UNEP				•				•				•				•				•
	Demonstration Progress and Annual Reports	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Mid-Term Evaluation								•												
	Final Evaluation																			•	

	Components and Activities	Year 1				Year 2				Year 3				Year 4				Year 5			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C3	**Policy, Legislative and Institutional Reform for IWRM and WUE**																				
3.1	EU IWRM Planning Meeting (Pre-Inception – co-financed)[3]	•																			
3.2	IWRM Roadmapping process –country driven options for support (C3)	•	•	•	•																
3.3	Policy/legislative review, baseline update based on Diagnostic Analysis	•	•	•	•																
3.4	IWRM Resource Centre development – website, links to IW:LEARN[3]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3.5	Draft IWRM Plans developed	•	•	•	•	•	•														
3.6	Final IWRM Plans in place								•												
3.7	Draft Water Use Efficiency Strategies developed	•	•	•	•	•	•														
3.8	Final Water Use Efficiency Strategies in place								•												
3.9	National APEX Body Support person recruited	•	•																		
3.10	Regional Strategic IWRM Communications Plan developed	•	•	•	•																
3.11	National Communication Plan development				•	•	•	•													
3.12	National Communication Plan implementation							•	•	•	•	•	•	•	•	•	•	•	•	•	•
3.13	Multi-sectoral IWRM APEX Body participation (ToRs, membership, etc)		•	•	•	•	•														
3.14	Replication Framework for Demonstration projects	•	•																		
3.15	Replication Toolkit developed						•	•	•												
3.16	National scaling-up & replication strategies in place based on Demo's									•	•	•	•	•	•	•	•	•	•	•	•
3.17	Development of associated policies (i.e.: National Sanitation Action plans)					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3.18	Partnership support and facilitation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3.19	IWRM toolkit development through IWRM Resource Centre	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3.20	Institutional review & recommendations for APEX body hosting/resources	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Overall Project Inception workshop		•																		
	Regional Steering Committee Meetings				•				•				•				•				•
	Regional Technical Advisory Group Meetings								•								•				
	PCU Reporting to RSC				•				•				•				•				•
	PCU reporting to UNDP/UNEP				•				•				•				•				•
	Demonstration Progress and Annual Reports	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Mid-Term Evaluation								•												
	Final Evaluation																			•	

	Components and Activities	Year 1				Year 2				Year 3				Year 4				Year 5			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
C4	**Regional and National Capacity Building & Sustainability Programme for IWRM & WUE, including Knowledge Exchange and Learning &Replication**																				
4.1	Awareness program development and integration in national institutional practice	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.2	5 twinning exchange programmes in place									•	•	•	•	•	•						
4..3	1 twinning programme with Caribbean and African SIDS											•	•	•	•						
4.4	Cross-sectoral regional learning mechanism in place (through National IWRM APEX Bodies) – cross-project attendance (PACC/SLM/CTI/etc)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.5	Attendance, presentation, sharing and learning and feedback at GEF IWC				•																
4.6	Attendance, presentation, sharing and learning and feedback at WWF 5		•																		
4.7	Attendance, presentation, sharing and learning and feedback at WWF 6														•						
4.8	Development of education materials for integration in national school curricula					•	•	•	•	•	•	•	•								
4.9	Support and sharing between Virtual Water Learning Centre in IWRM Resource Centre development	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.10	IWRM Resource Centre development – material production, website, links to IW:LEARN[3]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.11	Training of Trainers based on TNAs through National IWRM APEX Bodies						•	•	•	•	•	•	•								
4.12	Economic Tool development and implementation for Demonstrations					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.13	Questionnaires development and roll-out for tailored Continuing Professional Development (CPD) package design					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.14	Identification, promotion and support to National IWRM Champions					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Overall Project Inception workshop		•																		
	Regional Steering Committee Meetings				•				•				•				•				•
	Regional Technical Advisory Group Meetings								•								•				
	PCU Reporting to RSC				•				•				•				•				•
	PCU reporting to UNDP/UNEP				•				•				•				•				•
	Demonstration Progress and Annual Reports	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	Mid-Term Evaluation								•												
	Final Evaluation																			•	

Notes: [1] The Project Implementation Arrangement Report will be produced during the Pre-Inception Phase and will be available to the Project Coordination Unit upon their recruitment. [2] Recruitment is currently underway for the PCU. [3] Development of which is already occurring or is being developed at present under EU Water Facility co-financing. Yellow shading represents the Inception Phase. Due to the integrated nature of the project many components contain overlapping activities which complement the implementation of Demonstration Projects.

SECTION IV : ADDITIONAL INFORMATION

Annexes:

1. Hot Spot Analysis and Sensitive Areas
2. Pacific Regional Action Plan on Sustainable Water Management Summary
3. Pacific Island Countries Summary Information
4. Stakeholder Analysis and Involvement Plan
5. Demonstration Projects summary Information Tables
6. Participatory Monitoring and Evaluation Approach
7. Memorandum of Understanding with CEHI, Executing Agency for IWCAM
8. Communications Approach
9. Project Staff and Governance Structure Terms of Reference
10. IWRM Project Focal Points

Annex 1: Hot Spot Analysis and Sensitive Areas

Table A1: Results of Pacific Island Countries Hot Spot Analysis and Sensitive Areas Assessment

Country	Hotspot 1	GIWA Score	Hotspot 2	GIWA Score	Hotspot 3	GIWA Score
Cook Islands	Rarotonga lagoon degradation (Priority Issue: lagoon degradation from land use activity)	71	Water supply for Northern Cook Islands (Priority Issue : Surety of supply of drinking water)	51	Wetland protection (Priority Issue : Loss of wetland ecosystem)	42
Federated States of Micronesia	Integration of land management with surface water and ground water management (Pohnpei) (Priority Issue : Poor sanitation management leading to contamination of surface and groundwater and impacting on lagoon/marine ecosystem)	98	Catchment management on Chuuk state (Priority Issue : Lack of protection in catchment areas leading to pollution issues)	61	Water augmentation on Yaap (Priority Issue : Insufficient water supply for population)	51
Fiji Islands	Nadi flooding (drainage plan)	79	Sigatoka water demand (conflict resolution)	72	Labasa flooding (drainage plan)	72
Kiribati	Bonriki and Buota Water Reserve Areas (Major Concern: Freshwater shortage, Pollution, Habitat and Community Modification Priority Issue: Erosion of coast due to sand mining will reduce landmass with resulting freshwater shortages, Encroachments will pollute groundwater from human activities, Over pumping of galleries will increase salinity of waters	80	Betio Islet (Major Concern: Freshwater Shortage, Pollution, Habitat and Community Modification Priority Issue : Groundwater cannot be used due to high level of contamination from human activities., Household waste dumped anywhere underground or on the surface and in the sea, Lost of certain plant crops due to need to construct more buildings (urbanization))	70	-	
Marshall Islands	Laura Village (Priority issue/ justification: Large population, suffering from poor water and sewer service, have to rely on Kwajalein base, poor sanitation)	87	D.U.D. Area (Priority issue/ justification: Office very important but very weak and needs strengthening immediately)	83	Education on Water/Sanitation (Priority issue/ justification: Currently heavily affected by drought)	80
Nauru	Enhancing water security for Nauru through better water management and reduced contamination of ground water	-	-	-	-	-
Niue	Increase Cost in Pumping and Supplying Water for Domestic, Agriculture and Industrials Use.(Major concerns: Freshwater shortage, Pollution, Habitat and community modification, Unsustainable exploitation of living resources, Global change)	90	Niue Island Underground Freshwater-Agriculture Land Use Practice	94	Alofi Well Field Catchment	96

Palau	Ngerikiil Watershed. Location: Airai State, Palau; Southern Babeldaob. Natural conditions/phenomenon related to the site: 5 sub-watersheds, Low flow during dry season, High sedimentation levels during heavy rainfall. Nature of threats: Over-extraction, Low flow, Agricultural chemical pollution, Bacteriological contamination from septic tanks (piggery), Soil erosion sedimentation, Wild life habitat loss, Solid waste disposal	89	Ngerdorch Watershed (Location – Melekeok State and Ngchesar State, Palau; Eastern Babeldaob.	74	Ngarchelong State Landfill (Location – Ngarchelong State, Palau; Northern Babeldaob.	62
Papua New Guinea	Laloki River Catchment	77	Bumbu River Catchment	65	Wahgi River Catchment	64
Samoa	Apia Catchment (covering sub-catchments of Vaisigano and Fuluasou) Priority Issue- Severe degradation of catchment zone - water quality and quantity, pollution (eutrophication, suspended solids)	85	Apia Coastal Management (Priority Issue- Pollution (eutrophication, chemical), loss of ecosystems (mangroves)	84	Rainwater Harvesting in Aleisa and Tanumalala (Priority Issue- Reduction in stream flow or quality)	73
Solomon Islands	Honiara water resources (Location: Honiara. Natural conditions/phenomenon related to the site: Natural surface and groundwater resources with possible pollution from Honiara City residents and developments Priority issue- Pollution	85	Matepona River (Location: Guadalcanal Island. Surface Area:1-5 km^2 Natural conditions/phenomenon related to the site: Natural river water with pollution from mining operation Nature of threats and extent of threats (human and natural): Chemical pollution, sediment, sewage, land base developments compromised natural quality of river water Priority issue- Pollution	81	Urban Coastal Waters (Location: Honiara and Noro Natural conditions/ phenomenon related to the site: Natural water with possible pollution from land base pollutants. Priority issue- Pollution	77
Tonga	Neiafu Aquifer (Priority issue- Groundwater contamination and quantity)	85	Nuku'alofa Aquifer (Priority issue- Groundwater contamination and quantity)	83	Pangai Aquifer (Priority issue- Groundwater contamination and quantity)	77
Tuvalu	National freshwater shortage (Priority issue- Insufficient storage and poor maintenance of rainwater harvesting systems.)	81	Poor sanitation in Funafuti (Priority issue- Microbiological pollution of groundwater and eutrophication of Funafuti lagoon)	77	No collection or treatment of septic tank sludge (Priority issue- Tanks not functioning because full, and health risk of exposure to raw sludge while emptying)	72
Vanuatu	Sarataka Catchment (Priority issue- Watershed degradation and Pollution (Microbiological, Chemical))	89	Tagabe Catchment (Priority issue- Watershed degradation and Pollution (Microbiological, Chemical))	87	Mele Catchment (Priority issue- Freshwater shortage and Pollution (microbiological))	67

Country	Sensitive Area 1	GIWA Score	Sensitive Area 2	GIWA Score	Sensitive Area 3	GIWA Score
Cook Islands	Cook Islands policy Direction (Priority Issue : Lack of national policy direction and legislation for IWRM)	82	Water supply catchment Protection (Priority Issue : and use management to ensure high water quality in potable supply)	79	-	-
Federated State of Micronesia	Deforestation on Pohnpei (Priority Issue : Loss of rainforest ecosystem and changes in hydrological cycle following deforestation (particularly leading to sedimentation in lagoon))	115	-	-	-	-
Fiji Islands	Drought management north and eastern areas	114	Suva-Nausori water supply – water transfer	93	Nadi town plan	88
Kiribati	-	-	-	-	-	-
Republic of Marshall Islands	Mangrove Forests (Priority Issue/ justification: Fast growing population, increasing reliance on and pollution of water lens, no current plan for safeguarding)	78	National Water Policy(Priority Issue/ justification: Main population center of RMI, many water and wastewater problems being experienced)	73	EPA/Ministry of Health (Priority issue/ Justification: Poor inter-agency sharing of information and coordination of work and projects)	71
Nauru	-	-	-	-	-	-
Niue	Financial -Increase Cost in Supplying Water than Value of Production (Major issues: Reduction in stream flow or quality, Pollution of existing supplies, Stalinization of groundwater, Microbiological, Eutrophication (nutrient enrichment - creates harmful algal blooms) , Suspended solids (sediment erosion), Mining wastes, Radionuclide, Modification of ecosystems or ecotones, including community structure and/or species composition, Over-exploitation, Impact on biological and genetic diversity, Changes in hydrological cycle including droughts and cyclonic flooding and damage *i.e.* climate variability, Sea level change, Increased UV-b radiation as a result of ozone depletion, Changes in ocean CO2 source/sink function	88	Possible Contamination by Organic and In-organic of Underground Freshwater (Major concerns: Freshwater shortage- Reduction in stream flow or quality, Pollution of existing supplies, Stalinization of groundwater. Pollution- Microbiological, Eutrophication (nutrient enrichment - creates harmful algal blooms), Suspended solids (sediment erosion), Solid wastes, Mining wastes, Radionuclide. Habitat and community modification- Loss of ecosystems or ecotones, Modification of ecosystems or ecotones, including community structure and/or species composition. Global change- Changes in hydrological cycle including droughts and cyclonic flooding and damage *i.e.* climate variability, Sea level change,	87	Pollution of Alofi Well Field Catchment. Nature of threats and extent of threats (human and natural): Contamination of poor disposal method, storage method, seepage to coastal areas, Unknown Natural flow regime of the underground freshwater. Saltwater intrusion when over pumped, High risks of combination, wastewater, sanitation, oil spill, hospital wastewater .All possible high Risk thread as the main development area of the Island.	94

Republic of Palau	Ngaremeduu Conservation Area	86	Diongradid Watershed	74	Saltwater Intrusion	72
Papua New Guinea	Sepik River Catchment	76	Markham River Catchment	68	Ramu River Catchment	65
Samoa	Faleolo Aquifer (Priority Issue- Salinisation of ground water)	75	Togitogiga Catchment (Priority Issue- Pollution (agro-chemical))	70	Irrigation - Tanumalala/Aleisa (Priority Issue- Reduction in stream flow)	62
Solomon Islands	Guadalcanal Plains water resources (Priority Issue- Pollution)	108	Auluta Basin (Priority Issue- Pollution)	99	Water shortages in low lying Atolls	92
Tonga	Makave Aquifer (Priority issue- Groundwater contamination and quantity)	78	Hihifo Aquifer (Priority issue- Groundwater contamination and quantity)	76	Foa District Aquifer (Priority issue- Groundwater contamination and quantity)	
Tuvalu	Un-coordinated multi-level management of water and waste water (Priority Issue- complex array of individual families, government and communal factions that have roles managing water issues, thus causing poor management negative impact on public health and environment)	73	Lack of institutional support (Priority Issue- Lack of supportive legislation, management plan and building codes for management of water resources and wastewater ie rainwater harvesting systems, toilets etc)	65	Unsustainable attitudes (Priority Issue- Deeply ingrained beliefs/perception about our water resource: abundant despite shortages; should be free despite high cost of management/delivery; responsibility for clean water lies solely with government)	62
Vanuatu	Lakatoro/Norsup Catchment(Priority Issue- Freshwater shortage and Global Change)	88	Saratamata Catchment (Priority Issue- Sea Level Change and Pollution (suspended solids))	83	Aot River (Priority Issue- Pollution (chemical and mining wastes) and Global Change)	73

Table A2: Pacific Island Country Threats to Water Resources and Safe Water Supply and Sanitation

Country	Issues and Concerns
Cook Islands	
Threats	▪ Water quality problems (e.g. sewage pollution and solid waste disposal were noted as high priority issues in 1997) ▪ Limited water resources and sometimes severe shortages during droughts on some islands. Freshwater shortage was noted as a priority issue in 1997
Root Causes	▪ Increasing population growth and Climatic variability ▪ Reduction in surface water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Ageing water supply infrastructure, shortage of funds for repairs and replacements and shortage of trained staff and training opportunities, especially on outer islands ▪ Need for more awareness of catchment management ▪ High losses in some water supply systems and need for more adequate leakage control and water conservation ▪ Outdated water resources legislation and inadequate policy and regulations ▪ Shortage of hydrological and water quality data
Federated States of Micronesia	
Threats	▪ Pollution of water resources associated with sewage systems and solid waste disposal was the highest priority issue in 1997 (GEF-IWP, 2001) for all four states. ▪ Catchment management issues associated with conversion of forest to agriculture ▪ Freshwater sustainability especially through droughts. Freshwater shortage was noted as one of the high priority issues in 1997 (GEF-IWP, 2001) for all four states.
Root Causes	▪ Climatic variability and reduction in surface and groundwater quality ▪ Land degradation and coastal water pollutionSmall economic base (resulting in lack of cost recovery schemes and approaches)
Barriers	▪ High losses in some water distribution systems from leakage and wastage; ▪ Limited monitoring of water resources and water quality
Fiji	
Threats	▪ Water quality problems (e.g. sewage pollution and solid waste disposal were noted as high priority issues in 1997 (GEF-IWP, 2001)); ▪ Limited water resources and sometimes severe shortages during droughts on some islands. Freshwater shortage was noted as a high priority issue in 1997 (GEF-IWP, 2001). ▪ Contamination of some rural water supplies.
Root Causes	▪ Increasing population growth and climatic variability (floods and droughts) ▪ Reduction in surface and groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Outdated water resources legislation ▪ Shortage of hydrological and water quality data, especially in outer islands; ▪ High losses in some water supply systems and need for more adequate leakage control and water conservation;
Kiribati	
Threats	▪ Pollution associated with sewage systems and solid waste disposal was noted as the highest priority issue in 1997 (GEF-IWP, 2001); ▪ Freshwater sustainability through droughts. Freshwater shortage was noted as a high priority issue in 1997 (GEF-IWP, 2001);
Root Causes	▪ Future water resource development for Tarawa, given the high population increase; ▪ Climatic variability (droughts) and reduction in groundwater water quality
Barriers	▪ Management of groundwater catchments particularly for the main ground water supply sources (White et al., 1999b); ▪ No national water resources legislation (White et al, 1999b); ▪ Insufficient use of rainwater for supplementary water (Shalev, 1992; Metutera, 1994b) ▪ Insufficient demand management including leakage control and water conservation.

Marshall Islands	
Threats	▪ Pollution associated with sewage systems and solid waste disposal was noted as the highest priority issue in 1997 (GEF-IWP, 2001). Also, groundwater pollution due to agricultural and wastewater practices on the Laura freshwater lens, Majuro atoll is a concern; ▪ Freshwater sustainability especially through droughts. Freshwater shortage was noted as a high priority issue in 1997 (GEF-IWP, 2001);
Root Causes	▪ Increasing population growth and climatic variability (droughts) ▪ Reduction in groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Need for upgrading of outer island water supplies and for greater use of rainwater catchments for water supply.
Nauru	
Threats	▪ Water resources availability and sustainability given that the primary water supply is now desalination; ▪ Water quality problems (e.g. sewage pollution and solid waste disposal 1997 (GEF-IWP, 2001)); ▪ Possible over-pumping of wells on the coastal margin causing them to yield brackish water.
Root Causes	▪ Climatic variability (droughts) ▪ Reduction in groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Need for comprehensive groundwater assessment
Niue	
Threats	▪ Potential contamination of groundwater, principally from septic tanks and solid waste disposal sites
Root Causes	▪ Climatic variability (droughts and cyclones) ▪ Island vulnerability ▪ Reduction in groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Ongoing control of leakage from distribution systems;
Palau	
Threats	▪ Lack of freshwater assessments and watershed mis-use ▪ Agro-chemical pollutants and increased sedimentation ▪ Increasing concern about water quality due to increased development activities upstream of watercourses
Root Causes	▪ Increasing population and urbanisation, including tourism pressure ▪ Climatic variability and vulnerability ▪ Reduction in surface water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Inappropriate community engagement in existing approaches ▪ Ineffective water demand management approaches ▪ Poor regulatory approaches and insufficient cost-recovery ▪ Weak cross-sectoral linkages

Papua New Guinea	
Threats	▪ Freshwater sustainability through droughts for some areas of the country. Freshwater shortage was noted as a high priority issue in 1997 ▪ Increasing concern about water quality due to increased development activities upstream of watercourses ▪ Risk of surface water and groundwater pollution from mining and industrial activities ▪ Growing concern about microbiological quality degradation and many untreated water supply systems
Root Causes	▪ Increasing population growth and climatic variability (floods and droughts) ▪ Reduction in surface and groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ High unaccounted for water, leakages and illegal connections ▪ Communication problems between water agencies.
Samoa	
Threats	▪ Decline in freshwater quality due to pollution from land-based activities including sewage, solid waste, nutrients, sedimentation and chemicals (GEF-IWP, 2001) ▪ Freshwater sustainability through droughts for some areas of the country. Freshwater shortage was noted as a priority issue in 1997 (GEF-IWP, 2001);
Root Causes	▪ Increasing population growth and climatic variability (floods and droughts) ▪ Reduction in surface water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Limited knowledge about water resources (WMO, 1999; Samoa Government, 2000); ▪ Insufficient means (equipment, vehicles and personnel) to carry out much needed hydrological measurements (WMO, 1999); ▪ Need for greater public education and awareness about water conservation and greater community participation in water resources management (Samoa Government, 2000).
Solomon Islands	
Threats	▪ Surface water is frequently turbid and often as a result of clearing activities in upper catchment areas upstream landowners have allowed logging on their land to gain an income. If coastal ecosystems are to be protected, there is a need for upstream landowners to properly manage the land; ▪ Increasing demand on water resources from developments including hydro-power generation, nickel, gold mining, rice production, increasing population and continued logging activities in water catchments;
Root Causes	▪ Increasing population growth and climatic variability (floods and droughts) ▪ Reduction in surface and groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ Most water supplies are subject to fluctuations in water quantity and quality. Most urban centres have limited reticulation systems and have been unable to keep up with demand; ▪ Responsibility at government level for water supply is spread over a number of ministries; ▪ Groundwater resources on smaller islands are in urgent need of assessment; ▪ Insufficient resources and staffing to carry out routine hydrological assessments.
Tonga	
Threats	▪ Pollution associated with sewage systems and solid waste disposal (highest priority issue in 1997 (GEFIWP, 2001)); ▪ Water supply problems in remote islands during droughts, sometimes requiring importation of water by boat.
Root Causes	▪ Climatic variability (esp. droughts) ▪ Reduction in groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ The need for a greater level of water resources assessment and protection ▪ Present water supply problems (intermittent supply) in Neiafu, Vava'u and in Nuku'alofa (low pressure in some areas) largely as a result of high leakage;

Tuvalu	
Threats	▪ Issue of sustainability of rainwater catchments through droughts (freshwater shortage was noted as the highest priority issue in 1997 (GEF-IWP, 2001) ▪ Optimal rainwater catchment design procedures; ▪ Alternative options for water use apart from rainwater on Funafuti (e.g. use of brackish groundwater for toilet flushing for some buildings in Funafuti, such as hotel and new offices) ▪ It is noted that groundwater quality problems are not seen as an issue in 1997 (GEF-IWP, 2001)).
Root Causes	▪ Climatic variability (droughts) ▪ Reduction in groundwater water quality ▪ Land degradation and coastal water pollution
Barriers	▪ More adequate drought forecasting methods ▪ Requirement for greater storage facilities, especially for Funafuti as demand rises ▪ Further knowledge of sustainability of fresh groundwater resources on outer islands
Vanuatu	
Threats	▪ Water quality problems especially pollution from sanitation systems (e.g. sewage-related liquid pollution, was noted as a high priority issue in 1997 (GEF-IWP, 2001), followed by solid waste and nutrients).
Root Causes	▪ High risk of saline intrusion in coastal groundwater, particularly where coral limestone is present; ▪ Settlement in inland areas is posing a pollution threat to downstream coastal villages;
Barriers	▪ Severe shortage of water resources data and lack of water quality monitoring for both surface water and groundwater ▪ There is a need for more emphasis on water demand management in rural water supplies ▪ Fragmented administration of water resources and water supply.

Annex 2: Summary of Key Thematic Messages Linked to the Pacific Regional Action Plan

1. **Water Resources Management**

   1.1 Strengthen the capacity of small island countries to conduct water resources assessment and monitoring as a key component of sustainable water resources management.

   1.2 Implement strategies to utilize appropriate methods and technologies for water supply and sanitation systems and approaches for rural and peri-urban communities in small islands.

   1.3 Implement strategies to improve the management of water resources, and surface and groundwater catchments (watersheds) for the benefit of all sectors including local communities, development interests, and the environment.

2. **Island Vulnerability**

   2.1 There is a need for capacity development to enhance the application of climate information to cope with climate variability and change.

   2.2 Change the paradigm for dealing with Island Vulnerability from disaster response to hazard assessment and risk management, particularly in Integrated Water Resources Management.

3. **Awareness**

   3.1 A high quality participatory framework should be adopted at the national level to allow for open participation of communities in sustainable water and wastewater management.

   3.2 Access to, and availability of information on sustainable water and wastewater management should be provided to all levels of society.

   3.3 Water and sanitation education should be mainstreamed into the formal education system.

   3.4 Improve communication and coordination of all stakeholders in sustainable water and wastewater management including government, civil society, and the private sector.

4. **Technology**

   4.1 Appropriate institutions, infrastructure, and information will support sustainable water and wastewater management.

   4.2 Utility collaboration and regional partnership to reduce unaccounted-for water will significantly improve the sustainability of utilities and reduce the need for developing new water resources.

   4.3 Island specific regional training programmes should be developed, resulting in sustainable levels of skilled and knowledgeable people and communities within the water and wastewater sector.

5. **Institutional Arrangements**

   5.1 Work together through a comprehensive consultative process, encompassing good governance, to develop a shared national vision for managing water resources in a sustainable manner.

   5.2 Develop national instruments including national visions, policies, plans, and legislation appropriate to each island country taking into account the particular social, economic, environmental, and cultural needs of the citizens of each country.

   5.3 Promote and establish appropriate institutional arrangements resourced sufficiently to enable effective management of water resources and the provision of appropriate water services.

   5.4 Recognize and share the water resources management knowledge and skills of all stakeholders at a national and regional level in the process of developing and implementing the national vision.

   5.5 National and regional leadership in water resources management should be recognized and encouraged.

6. **Finance**

   6.1 Create a better and sustainable environment for investment by both the public and private sector, by developing and implementing national, sector, and strategic plans that identify the

economic, environmental, and social costs of different services and develop pricing policies, which ensure the proper allocation of resources for the water sector.

6.2 Establish financially-viable enterprises for water and sanitation that result in improved performance by developing appropriate financial and cost-recovery policies, tariffs, billing and collection systems, and financial and operating systems.

6.3 Reduce costs through improved operational efficiency, using benchmarking, development of water loss reduction programmes, and improved work practices.

6.4 Ensure access for the poor to water and sanitation services by developing pro-poor policies that include tariffs with lifeline blocks and transparent and targeted subsidies.

Annex 3: National Water Resources and Sanitation Assessments

Information for this section has been taken from a variety of sources including:

- National Diagnostic Reports;
- 'Country Briefing Notes' from 'Proceeding of the Pacific Regional Consultation on Water in Small Island Countries'. July-August 2002. Fiji (ADB & SOPAC);
- An Overview of integrated Water Resources Management in Pacific Island Countries: A National and Regional Assessment – SOPAC Miscellaneous Report 554 (revised edition). Carpenter, C. and Jones, P. August 2004.
- www.infoplease.com
- www.cia.gov/cia/publications/feedback

COOK ISLANDS

Area: 240 sq. km	Highest Elevation: 652 m	Population: 21,200 (2004)
GDP per capita: $5,000	Land Use: Arable: 17%	
GDP by sector:	Agriculture: 17%	Permanent Crop: 13%
Industry: 8%	Other: 70%	Services: 75%

Description: 15 islands, of which 12 are inhabited. North Islands = 7 sparsely populated low-lying coral atolls. South Islands = 8 elevated fertile volcanic islands (most of the population)
Natural Resources: Negligible
Economy: The key economic sectors include agriculture, tourism, black pearls, offshore banking and fisheries. Economic development hindered by isolation from foreign markets, lack of natural resources, periodic devastation from natural disasters, and inadequate infrastructure. The main economy base is agriculture with copra and citrus fruits being the major export. Limited manufacturing focuses on fruit processing, clothing and handicrafts.
Environmental Issues: Generally, in comparison to similar SIDS within the Pacific, environmental impacts are few, but the issue of sound water resources management is one of the main issues facing the Cook Islands.

The Cook Islands sources its water from two main sources. In the Southern Group of islands which includes the main island of Rarotonga, surface water is sourced from springs and streams within catchments valleys, while in the Northern Group of islands, water is sourced from rainwater and groundwater as the islands are coral atolls. Freshwater lens are present, however, the past practice of manually extracting water from wells have been abandoned. The old steel and galvanised pipes are having problems with corrosion and leakage. Replacement of the old pipes by uPVC and polyethylene pipes is in progress on the respective islands to alleviate these problems. Per capita consumption figures of about 260 litres per capita per day are high for a developing country, and water losses throughout the system are thought to be between 50-70%. Like many PIC's, since water supply issues are dominant in the management of water resources, attention generally has focused on the areas of greater population, namely, the towns and cities. In the Cook Islands, the trend is no different, with the primary focus having been on water supply systems within Rarotonga. The responsibility for water management including regulation falls under the auspices of the Ministry of Works (MoW), but other agencies also have a key interest including the Environment Service, Cook Islands Investment Corporation, Ministry and Finance and Economic Management, and Ministry of Health. The Department of Water Works within MoW is responsible for managing water supply in Rarotonga in consultations with island councils. Community meetings indicated that a significant proportion of the general public has a reasonable degree of awareness of the need to improve the water supply service and quality of water, which is consistent with a high proportion of respondents buying drinking water. Water intake zoning is needed to ensure public and animal access is reduced, thereby reducing possible pollution into the water system.

The Ministry of Health periodically carries out water monitoring for microbiological content (coliform). The water supply in Rarotonga and Outer islands are neither properly filtered nor disinfected. There are coarse filters at some intakes. During the wet season the water supply is often discoloured and turbid and contains silt, sediment and debris. The water system at present is vulnerable to any form of disaster, such as contamination from agriculture chemicals, sanitation contamination and saltwater intrusion.

Septic tank systems are widely used throughout Rarotonga, comprising of a septic tank and a soakaway. The septic sludge is currently dumped on vacant land, or on fields at the request of planters. There is only one reticulated sewerage system on Rarotonga, install in the early 50s. The sewer system collects sewage from the residents and is fed into septic tanks for treatment. The septic tanks were replaced in 1994 with an Enviroflow proprietary sewage treatment plant. But the plant was neither maintained nor operated correctly, and fell into disuse. The raw sewage currently bypasses the plant and flows into the sea.

The common theme in reviewing the water sector in the Cook Islands is that water management and water sector policy generally is not advanced. There is no single national water supply legislation in place except for scattered provisions that address the supply of water to the public such as the Rarotonga Waterworks Ordinance of 1960. In the absence of such a framework, water supply projects especially on the outer islands have been historically implemented without full assessment of their viability, sustainability and impact on the local community and environment. There is no national policy on water, sewerage or sanitation and there is no effective regulatory framework in which the public utilities operate to control and manage water. There is a lack of commercialisation within the water sector – water is provided free in Rarotonga – and there is generally a lack of capacity and expertise including human and technical resources in the water sector, both government and private sector.

The government recognises that improvements to water supply and water resources including catchment management have a direct impact on maintaining a clean environment and attracting tourism to assist economic development. However, like many PICs, the growing capital towns such as Rarotonga continue to be the focus of major infrastructure investment for water supply including major rehabilitation of the distribution network. Such focus continues despite the lack of water supply, sewerage tariffs and 'demand management' approaches, and the need for communities to take a greater responsibility for sanitation, wastewater and the environment including the catchment generally. These issues are being addressed albeit slowly by Government of the Cook Islands.

The operation of water supply facilities in the Outer Islands is now subsidised by the National Government, with any consultation regarding water supply generally channelled from the respective Island Secretary. Government priorities now serve to redress past socio economic imbalances within the Outer islands with initiatives based on equity and the alleviation of poorer standards, which help to justify strengthened and cooperative efforts by aid funding agencies.

Positive changes in governance arrangements are in place – for example, the devolution of responsibility from central government to island councils such as the island Council of Aitutaki where Mayors have been elected to allow communities to have a greater say and responsibility in managing local affairs. Furthermore, there is greater awareness of the fragility of the island system and the interdependence between urban and rural land use, water supply, health and environmental issues. This includes the impact of wastewater at the household and island level. In Rarotonga, for example, the Rarotonga Catchment Protection Committee has been established to promote awareness of the importance of land use activities in the catchments and the effects on water quality and environmental health downstream Like many PIC's, the Cook Islands face increasing development pressures spread out over many islands but with limited and financial, human and technical resources to address water sector issues.

Improvements in water supply and wastewater will make the Cook Islands more attractive to tourists, thus boosting the economic potential of the country. Financial sustainability is a must and the

introduction of water tariffs is needed. More independence is needed in the management and operations of the system, which implies a new commercial structure for water supply.

FIJI ISLANDS

Area: 18,270sq. km	Highest Elevation: 1,324 m	Population: 880,874 (2004)
GDP per capita: $5,800	Land Use: Arable: 11%	
GDP by sector:	Agriculture: 17%	Permanent Crop: 5%
Industry: 22%	Other: 84%	Services: 61%

Description: Includes 332 islands of which approximately 110 are inhabited. The islands are mostly mountainous and of volcanic origin
Natural Resources: Timber, fish, gold, copper, offshore oil potential, hydropower.
Economy: One of the most developed of the Pacific Islands, endowed with forest, mineral and fishery resources. Sugar exports and rising tourism are the major source of foreign exchange. Sugar represents one-third of industrial activity. Long-term economic problems include low investment and uncertain land ownership rights.
Environmental Issues: Deforestation and soil erosion

The natural terrain in Fiji is one of mostly volcanic mountains. Average annual precipitation over the Fiji group ranges from 1500mm on the smaller islands to over 4000 mm on the larger islands. Topographic affects mean however that much of this falls within the windward side of the islands. High annual, inter-annual and seasonal variation of rainfall makes Fiji particularly vulnerable to floods and droughts.

All urban centres within Fiji have metered, reticulated water supply systems, and many have wastewater treatment facilities. Even though 70% of the population has access to treated, metered reticulated water, continuity of supply is not ideal and maybe in question, particularly in the drier months. This high percentage is achieved because of the concentration of the population in the urban settlements and with urban corridors such as between Lautoka-Nadi and Nausori-Suva. The situation in rural areas is different, with most having their own supplies through subsidized small rural surface or borehole schemes. The smaller islands support significant but much smaller populations and have variable water resources, thus relying on conjunctive use of roof catchments, minor streams and boreholes.

Responsibly for Fiji's water resources falls within the jurisdiction of the Director of Water and Sewerage in the Public Works Department. The Fiji Public Works Department has responsibility to supply potable water supply to over 80% of the country population. The consistent development of water resources and supply strategies in Fiji has been thwarted by a lack of clear and comprehensive legislation compounded by the number of government agencies that are mandated to deal with water at one level or another. These include the Ministry of Public Works, the Ministry of Lands and Mineral Resources, Health, Regional development, Ministry of Housing Local Government Squatter Settlements and Environment and Agriculture and Irrigation. Hydrology falls within Public Works while the Ministry of Lands and Resources assists in the planning and assessment of ground water resources. Although Fiji is fortunate to have a plentiful supply of freshwater with high rainfall from volcanic islands, droughts and floods over the last twenty years have caused major interruptions to the collection, treatment and reticulation of potable water supplies issues. The symptoms of these impacts have been most noticeable in the towns and cities of Fiji where major water supply shortages and breakdown have been the norm, but also on small outer islands that rely mainly on rainwater.

Legislation related to water resources in Fiji is outdated but has generally served the nation well until recent times given the plentiful supply. Legislation identified as being in need of review to reflect current policy includes the Water Supply Act, Rivers and Streams Act, Native lands Act, Crown Acquisition of Lands Act and Electricity Act. The commercial use of water from groundwater supplies as well as resource management issues in catchments including logging, underlies the need for a

comprehensive review of national policy followed by legislation. Many of these issues are politically and socially sensitive in Fiji, with the shortage of water supply in towns and cities and need for major infrastructure investment being a major national 'front page' issue for the last decade.

Unfortunately, development in Fiji Islands over the last 15 years has been severely constrained by the political coups in 1987 and more recently in 2000. However, there is much optimism in both the community and government as reflected in the Governments Strategic Development Plan 2003-2005 that places a strong focus on water resource development, primarily in the context of improved supply to the major urban centres of Suva and Nausori. This includes the continued implementation of the Suva/Nausori Regional Water Supply Master Scheme improvements and expansion programme, as well continued support for the Self Help Rural Water Supply Scheme for rural communities. While the government's vision and action statements relate primarily to the provision of adequate, reliable and safe water supply, it falls short of 'addressing water and water use in a holistic and integrated manner that considers the multitude of water users'.

Like many PIC's, the resources given to the assessment of water resources, their sustainability and protection have been far less than resources given to the development of water infrastructure to ensure potable supply. Notwithstanding this, projects are up and running in Fiji which have a clear catchment basis including the Live and Learn River Care project which focuses on mobilising sugar cane communities in the upper inland catchments and the ESCAP funded Nadi River Basin project which takes an integrated approach with stakeholders to managing the important Nadi River catchment from mountains to sea. The need for integrated water resource management including water sector coordination is well recognised and in 2002 the Government established a National Water Committee to oversee the development of a Strategic Water Management Plan (SWMP) for Fiji. The main goal of the committee is to establish a plan and draft national water policy that has a major focus on water resources planning and management including addressing IWRM issues at the national and regional level. A draft national 'Water Policy for Fiji' was released in 2003.

Significant educational and awareness programmes are needed particularly in smaller rural, village and semi urban communities to develop a conservation attitude with regard to water. Wells on many small islands are contaminated with faecal coliform due principally to a lack of sanitation, habits and awareness. There is an "aid recipient" mentality on the part of some where high-tech solutions such as boreholes are sought for where simpler solutions such as conjunctive use of water from a number of sources needs to be established, with simpler, more sustainable solutions.

Whilst the development of plans for key areas are being considered for loan funding one major constraint not significantly being addressed is the question of cost recovery, with the cost to consumers for water being low compared to the rest of the region. The Government's commitment to deliver water for all and to maintain current cost structure means therefore the developing of better efficiencies and reducing wastage.

FEDERATED STATES OF MICRONESIA

Area: 702 sq. km	Highest Elevation: 791 m	Population: 108,155 (2004)
GDP per capita: $2,000	Land Use: Arable: 6%	
GDP by sector:	Agriculture: 50%	Permanent Crop: 46%
Industry: 4%	Other: 48%	Services: 46%

Description: 4 major island groups consisting of 607 islands which vary geologically from high mountainous islands to low lying coral atolls and volcanic outcroppings on Pohnpei, Kosrae, and Chuuk.
Economy: Key economic sectors are agriculture (subsistence farming), fisheries and tourism (plus some high grade phosphate deposits). Geographical isolation and poorly developed infrastructure are the major impediments to development

Environmental Issues: Over-fishing, climate change and pollution

About 60% of water resources in FSM exist as surface water in the form of small, intermittent streams that drain catchments areas of limited aerial extent. The streams are dry for about 20% of the year. The development of surface water is therefore inherently expensive, since it requires the construction of dams to impound the surface runoff for use during dry periods. The topography in the stream basins is not conducive to the construction of economical dams. Furthermore, surface water requires extensive and costly treatment, largely to reduce high turbidity, undesirable taste and odours, and to remove all micro-organisms. The remaining 40% of the islands' water resources exist as groundwater in small, dispersed zones of sedimentary deposits, weathered volcanics and weathered schist. These formations are not conducive to the development of high yielding wells. Drilling through this formation involved costlier investment also. However, the hydrogeology is suitable for multiple, low- to medium-yielding wells in the range of 20-150 gpm. The quality of the ground water is mostly excellent, but many health hazards in the FSM are related to poor water quality and limited water quantity. The small low lying coral islands face severe constraints in terms of both the quality and quantity of freshwater due to limited groundwater resources and protected by a thin permeable water lens. Water use practices, arising from the general historical availability of water from rains, are extravagant when water is available.

All four of the focal islands have coastal mangrove fringes and intermittent development along their coasts, with much less interior development. The natural vegetative cover is dense on all islands and has not generally been disrupted for intensive agriculture use. Whether planned or fortuitous, this has protected watersheds, helping to reduce the rapid runoff and maintaining a reasonable recharge opportunity for the aquifers that are important to each State for a portion of its water supply. The direct runoff from these intense rainfalls, even on these relatively small surface catchments, also provides one important source of water for all four islands; however, in each case, drought periods also arise when supplementation from ground water sources is important, and even critical. The islands are prone to extremely damaging natural disasters, in the form of typhoon, extended drought, landslides, tidal erosion and extensive floods. The islands of the FSM are particularly vulnerable to global warming and climate change and sea level rise. The FSM National Government has planned to launch a long term Infrastructure Development Plan. The IDP considers the future projects concerning Water, Waste Water/Solid Management needs within FSM.

Roof catchments exist in all four islands. In many of the islands, there are no appropriate actions or policy to protect and safeguard watershed and groundwater resources, which poses a threat due to the rapid population growth on the main islands. On the outer islands, there are no piped water systems and the residents rely exclusively on individual rainwater catchments and dug wells. The standard of construction and maintenance of these facilities varies considerably from island to island. The piped water systems utilize stream water sources and consist of a small intake across the stream, a raw water main to the treatment plant (for those systems which incorporate treatment) and a transmission and distribution network. Water treatment is by rapid filtration, followed by chlorination. Only 5 systems out of about 70 have treatment facilities, and most systems supply untreated water. Groundwater systems usually consist of a production borehole fitted with a submersible pump, and a transmission and distribution network. A chlorine injection procedure is sometime incorporated into the system at the wellhead. A total of about 90 boreholes have so far been drilled in the main islands.

Only limited areas are provided with sewerage systems so far and large numbers of household still have pit latrines or other unhygienic excreta disposal systems. Considerable attention is required for planned drainage in the developed areas to protect the road pavement and foothill areas from land erosion and flooding. There are now five sewerage systems, which serve Kolonia town in Pohnpei, Weno Island in Chuuk, Colonia town in Yap, Lelu town in Kosrae and the Tofol administrative area in Kosrae. The sewerage system in Weno Island, Chuuk State is non-functional and raw sewage is discharged into the Weno lagoon, through a 2,000-foot long marine outfall. The FSM is yet to establish an organized system for the collection and disposal of solid waste. There are several poorly constructed and

maintained dumpsites throughout the FSM. The dumping of solid waste in particular human excreta is considered on of the FSM's foremost environmental health problems.

Management of the water sector is complex in FSM as it is managed by a number of tiers of government, namely,

- The FSM national government which provides guidance and assistance including funding support for infrastructure projects to the state governments;
- State governments, which provide funding for capital improvements and operation and maintenance funds in each state. The key utility corporations in each state are the Pohnpei Utility Corporation (PUC), Chuuk Utility Corporation (CPUC), Kosrae Utility Corporation (KUC), Yap State Public Service Corporation (YSPSC) who take the lead role in the management, operations and maintenance of water supply and water resources management in each state, and
- Municipal government, which contribute to funding for capital improvements to local; water supply systems. Municipal governments working with community group and NGO's maintain many community water systems.

The government of FSM does not have any direct role in setting policy frameworks for the sector. The national government through the Department of Finance and Administration coordinates the mobilisation of funding for water supply projects for State and municipal governments to consider. Existing community based water projects are driven from the state and municipal level. There have been a number of IWRM projects in FSM including the Pohnpei Forestry Watershed Management Project that started in the mid 1980's. In nearly all of the island states, there are no overarching policies and plans to protect and safeguard watershed and groundwater resources. NGO's water based projects are few, with many local initiatives taken at the community level with municipal government support. Contamination of indiscriminately discharged human and livestock wastes is a common threat to freshwater resource in all states of FSM. Problems of land access in most states especially in Chuuk makes enforcement difficult. There is no national water committee and no overarching national plan developed to date. Given the diversity of tiers of government and dispersed nature of the populated islands, capacity and expertise in technical, design and planning of the water sector in FSM is limited.

The major threat to the development of the water sector and FSM generally comes from the potential termination of United States (US) funding under the US-FSM Compact of Free Association funding agreements. The US government has been involved in supporting some FSM states in water resource management as a basis to improve water supply quality in villages and towns. They have also been supporting water utilities by providing grants and hence the sustainability of many utilities would be under question if this support were to be reduced and phased out totally. Both national and state governments have recognised the need for realigning the institutions in the water sector to make them more efficient, including financial viability. At the national level, the need for integrated water resources legislation, clear policy and consistent planning approaches for improvement of a sustainable management sector are well recognised by government. Like many PIC's, donors and development banks such as ADB assist in reform of the water sector primarily with a focus on infrastructure and investment needs. Such needs including water supply, are reflected in the FSM Infrastructure Development Plan, 2003-2017.

As is the case in may SIDS throughout the Pacific cultural and traditional beliefs are entrenched in many peoples way of life in FSM. A good understanding of underlying cultural issues is likely to be very important when establishing water and environmental improvement programmes, particularly in rural areas. Cultural factors therefore affect the way groups use the environment and how they approach health and health services. In case of rural water supply and environmental sanitation the approach of community participation is crucial for sustainable development. Public participation in the water supply sector has historically been very low. There are no national level public education policies with respect to water supply and sanitation issues.

KIRIBATI

Area: 811 sq. km	Highest Elevation: 81 m	Population: 100.798 (2004)
GDP per capita: $800	Land Use: Arable: 3%	
GDP by sector:	Agriculture: 30%	Permanent Crop: 51%
Industry: 7%	Other: 46%	Services: 63%

Description: A group of 33 pacific atolls straddling the equator to include the three island groups; Gilbert Islands, Line Islands and Phoenix Islands Mostly low-lying coral atolls surrounded by extensive reefs. 21 of the 33 islands are uninhabited
Natural Resources: Phosphate (production discontinued in 1979 when exhausted). Banabu Island is 1 of 3 three great phosphate rock islands of the Pacific Ocean
Economy: The islands have few natural resources. The phosphate was exhausted at the time of independence. Copra and fishing now form the bulk of production and exports. Tourism represents about one-fifth of GDP. Development is constrained by a shortage of skilled workers, weak infrastructure and remoteness from international markets.
Environmental Issues: Heavy pollution in the lagoon of South Tarawa due to heavy population migration mixed with traditional practices such as lagoon latrines and open pit dumping. Ground water is at risk.

With a land area of only 726 square kilometres, Kiribati has a territorial area of over three million kilometres spread over 33 islands the majority of which are coral atolls. Rainwater in Kiribati is considered only as a supplementary water source. This is due to the uneven distribution of rainfall through out the year. Droughts lasting many months are common, making large storage tanks necessary. This is often very costly and beyond the reach of individuals and community groups. However, people are encouraged under the Law (building permit regulations) to include a tank of sufficient size (Minimum 5 m3) when constructing a new building.

South Tarawa supports the highest population density of the islands. Around 43% of the population now lives on South Tarawa which has a land area of approximately 18 square kilometres. The remaining population is scattered across the dispersed outer islands. Water on South Tarawa as well as outer islands is sourced from groundwater lens and where possible, supplemented with rainwater collection at the household level. The potable water supply from the existing reticulation is insufficient, and often restricted to one hour a day. Shortages of drinking water that have been experienced during prolonged droughts in some islands, appears to point out that the traditional methods of extracting drinking water from the ground are inadequate. Hand dug wells are traditionally excavated in the village area, which is nearly always located fairly close to the lagoon-side beach. Rainwater collection by individuals and institutions, which could substantially alleviate the shortage of drinking water, is not widespread enough. During prolonged droughts the freshwater lens shrinks, causing seawater intrusion. Consequently, the on-going introduction of water supply systems based on wells and galleries located a few hundred meters inland from the village, is absolutely necessary, not only in order to distance the source of water from potential sources of pollution, but also to assure that water will be extracted from the deepest part of the lens, where seawater intrusion is unlikely to occur (as long as the galleries are laid out correctly and are not over-pumped). Desalination technology will remain to be the only other alternative water source Banaba, a raised limestone island located west of Tarawa relies on rainwater harvesting supplemented by small desalination plants. A larger desalination plant supplements the reticulated groundwater system on South Tarawa and was established in 1999.The main draw back of desalination plants for SIDS is the energy cost of running such facilities.

The high incidence of water-related diseases (mainly diarrhoea), particularly on South Tarawa, can be attributed to people still using shallow open hand-dug wells contaminated by nearby sewage soak pits, leaking toilet pipes, and faces from Tarawa lagoon and local pig-pens. Numerous water supply and sanitation facilities installed in the rural areas have broken down. The common type of sanitation system in the country ranges from a simple pit latrine commonly used in the outer islands to sewerage system on the three major centres of South Tarawa; i.e. Betio, Bairiki and Bikenibeu. The raw sewage from the

sewerage system is discharged at the edge of the reef without any form of treatment. Compost toilets were introduced in the country very recently, but not very popular and considered culturally unacceptable. Only 6% of the South Tarawa population prefer to use compost toilets. Apart from pit latrines, septic tanks are quite common in the areas of South Tarawa that the sewerage system does not serve. Many water supply systems often have substantial leaks, and an active leak detection and repair program is essential for both delivery systems and individual household systems. The existing seawater-based sewerage system in South Tarawa is both under-utilised and wasteful. Public toilet facilities constructed in high-density areas are run-down and hardly used by the population who have therefore returned to the tradition of defecating on the beaches. Approximately 60% of the population still defecate on the beach at South Tarawa and this figure is substantially higher on the outer islands. The Public Utilities Board, responsible for the water supply and sewerage in South Tarawa, is in dire shortage of technical personnel. The water supply and sewerage systems are not adequately maintained. The water is charged at a very low rate ($5.00 to $10.00 per household per month) to domestic water users while commercial users are charged a very high rate of $5.00 to $8.00 per 1000 litres. Income generated from commercial users represents some 20% of water produced, which is not sufficient to meet the operation and maintenance costs of the water system.

Population densities are far less on the outer islands, and villages still use wells supplemented by galleries, which are often, located inland from villages to avoid pollution of the sources. The relationship between sustaining good water quality and improving poor sanitation practices is clear in this atoll setting where low standards of living are the norm. Outer island communities mainly need the upgrading and rehabilitation of old and damaged water systems originally installed under UNDP Projects. Other villages previously not installed with the system need such water systems to be able to have better access to limited freshwater water sources. Another main concern faced is seawater intrusion to shallow wells particularly in narrower width lands suffering from coastal erosion. The needs of South Tarawa communities are being addressed through implementation of the SAPHE Project. However water issue in terms of water access still exists particularly in areas that are not connected to the Public Utilities Board reticulated water system and in areas and households with lower income.

The institutional arrangements for water are shared between three main agencies – the Water Unit of the Ministry of Works and Energy (MWE), the Environmental Health Unit in the Ministry of Health and Family Planning and the Public Utilities Board (PUB), the water service provider on South Tarawa. The Water Unit in MWE has responsibility for overall water resource management and supply in Kiribati, both urban and outer island. The Environmental Health Unit in the Ministry of Health and Family Planning retains responsibility for water quality monitoring and provision of sanitary facilities in urban and rural villages. The PUB, a government owned corporation, has three key functional responsibilities – the urban water supply on South Tarawa, power generation and sewerage on South Tarawa. There has been a major realignment of functions in all the three main agencies over the last decade and institutional strengthening programmes continue in the PUB as well as the Water Engineering Unit (WEU) within MWE. This includes assistance with hydrology, water quality monitoring and resource assessment, and participatory water resource management and IWRM on the urban water reserves so as to conserve and protect the limited and valuable groundwater resource. A national resources management and protection plan is now being drafted with the assistance of ADB and a national steering committee is established as a result of this technical assistance. The need for overarching water legislation to reflect the refocused institutional roles and activities has been identified but has not been carried out.

The main problems in the water sector relate to (i) water supply on urban south Tarawa (ii) management and protection of the water resource, and (iii) development of capacity in the key water sector institutions including the PUB and WEU.

On South Tarawa, the reticulated groundwater is sourced from a major underground lens at Bonriki and Buota at the apex of South Tarawa and North Tarawa islands. Pumping rates remain conservative whilst water pressure is low due to limited water resources and variations caused by El Nino and climate change. Leakage loss is high due to the age of the systems (late 1970's aid funded project) and the

numerous illegal connections. All of the above have made it difficult for the PUB to increase tariff charges. Given the rising demand for a sustainable urban water supply, the development of groundwater resources into North Tarawa at Abatao and Tabiteuea is a priority. Land issues compounded by the reality of land shortage and complex family land ownership has meant that water reserves set aside for 'public' water supply have been under increasing pressure from squatters and agricultural/plantation uses. These issues continue to plague the protection of the current major reserves at Bonriki and Buota, thus leading to the establishment in 2002 of Water Reserve Management Committees. These partnerships with communities and government are now working through the numerous water resource management issues including annual compensation payments, squatter removal, cemetery relocation and appropriate land use, all integral to sustaining the future of the water resource and health of the atoll.

There has been a major increase in awareness of water supply and resource management issues on both South Tarawa and outer islands. Nearly all major water projects including the current $US17 million ADB funded water and sanitation project have piggybacked major community education and awareness programs, often facilitated by NGO's and government divisions at the community level. On outer islands, solar pumping systems are used to pump water from household and village infiltration galleries with funding assistance from UNDP while other donor programmes support projects in tank making, water conservation practices, good sanitation and wastewater practice and changes to the school curriculum to incorporate water resource themes.

MARSHALL ISLANDS

Area: 181 sq. km	Highest Elevation: 10 m	Population: 57.738 (2004)
GDP per capita: $1,600	Land Use: Arable: 17%	
GDP by sector:	Agriculture: 14%	Permanent Crop: 39%
Industry: 16%	Other: 44%	Services: 70%

Description: Two archipelagic chains of 30 atolls and 1,152 islands. Mostly low coral limestone and sand.
Natural Resources: Coconut products, marine products, deep seabed minerals.
Economy: Agriculture is primarily subsistence. Tourism employs less than 10% of labour force. The main hope for additional revenue is from existing natural resources
Environmental Issues: Inadequate potable water, Pollution of Majuro lagoon from domestic wastes and discharges from fishing vessels.

US Government assistance is the mainstay of this tiny island economy, Agricultural production is concentrated on small farms with the most important commercial crops being coconuts and breadfruit. Small-scale industry is limited to handicrafts, tuna processing, and copra. The tourist industry, now a small source of foreign exchange employing less than 10% of the labour force, remains the best hope for future added income. The islands have few natural resources, and imports far exceed exports. Under the terms of the Compact of Free Association, the US has provided more than $1 billion in aid since 1986.

An independent investigation by the government revealed in 2004 that the main source of fresh water is limited ground water supplies. With no surface water, rainwater is caught by roof catchments in the outer islands and collected from the airport runway in the Capital Island. The country is not constrained by water management issues alone, but also by capacity and human resource issues. As is the case with most Pacific SIDS the impacts of climate change, sea level rise and climate variability are all issues. Conflicts over ownership and access are increasing. Saltwater intrusion and pollution by human waste are reducing the availability of usable water. The Government acknowledges the need for suitable frameworks on integrated water resources management, and is seeking the support of the international community for regional initiatives such as the Pacific Regional Action Plan on Sustainable Water Management. Where investments have been made on water, these have typically involved the upgrading

and/or replacement of existing urban water supply schemes, for example in the capital Island of Majuro. Some of these investments have been accompanied by associated institutional reform and separation of the water provider from the core government services, through corporatisation and/or privatisation.

The notable attention accorded to water governance by development agencies, in terms of institutional strengthening especially of water service providers, has been very encouraging. However, national integrated water management, catchment scale and community governance have been a challenge. In this regard, the general focus on creating legislation and regulatory tools needs to be strengthened with better public awareness and education. Assistance is required in this area.

At the national level the National Environmental Management Strategies (NEMS) provides an overall strategic approach for water management. Momentum created by the World Water Forum has resulted in the Government embarking on more holistic initiatives on water resources management. Challenges relating to sustainable water resources management can be categorized into three thematic areas: unique fragile water resources, lack of financial and human resources, and the complexity of water governance.

NAURU

Area: 21 sq. km	Highest Elevation: 61 m	Population: 12,809 (2004)
GDP per capita: $5,000	Land Use: Arable: 0 %	
GDP by sector:	Agriculture:NA %	Permanent Crop: 0%
Industry: NA%	Other: 100%	Services: NA%

Description: World's smallest independent republic, the tiny state of Nauru consists of one 21km2 island and is 1 of the 3 great phosphate islands of the Pacific Ocean (although reserves are now depleted). Nauru is an isolated uplifted limestone island located just south of the equator, surrounded by a fringing coral reef some 120 to 300 metres wide. A narrow coastal plain surrounds a raised coral limestone plateau of pinnacles and outcrops, the latter 70% and 30% of the island land area respectively. The limestone plateau has been the focus of extensive phosphate mining for the past 80 years which is to be finally phased out in the next 10 ten years.
Economy: Revenues of this tiny island have traditionally come from exports of phosphates, but reserves are now depleted. Few other resources exist. The rehabilitation of mined land and the replacement of income from phosphates are serious long-term problems.
Environmental Issues: Very limited freshwater resources. Rainwater harvesting is common. Highly dependent on an ageing desalination plant. Intensive phosphate mining has left central Naura as a 90% wasteland.

Nauru consists of a sandy beach rising to fertile ring around raised coral reefs with a phosphate plateau in centre. Limited natural fresh water resources and periodic droughts are a major threat to the island. Roof storage tanks collect rainwater, but the island is mostly dependent on a single, aging desalination plant. Nauru is located in the dry belt of the equatorial oceanic zone, with annual rainfall extremely variable, averaging 2126 mm per year. Traditionally, the island has depended on phosphate deposits but these are now near exhaustion.

In anticipation of the exhaustion of Nauru's phosphate deposits, substantial amounts of phosphate income have been invested in trust funds to help cushion the transition and provide for Nauru's economic future. As a result of heavy spending from the trust funds, the government faces virtual bankruptcy. To cut costs the government has called for a freeze on wages, a reduction of over-staffed public service departments, privatisation of numerous government agencies, and closure of some overseas consulates. In recent years Nauru has encouraged the registration of offshore banks and corporations. In 2004 the deterioration in housing, hospitals, and other capital plant continued, and the cost to Australia of keeping the government and economy afloat has substantially mounted. Few comprehensive statistics on the Nauru economy exist, with estimates of Nauru's GDP varying widely.

The freshwater resources of Nauru are contained in Buanda lagoon, a landlocked, slightly brackish freshwater lake located in the southwest of the island on the plateau. Groundwater from the underlying lens is considered extensive, with the result it has been tapped by several hundred household wells to supplement the main source of potable water supply from desalination. Beneath the upper layer the water becomes increasingly brackish with depth until it meets salt water at 80 m below sea level. Replenishment or recharge of the freshwater lens is dependent on rainfall. A first approximation of the average groundwater recharge for Nauru is 800 mm per year.

A plant commissioned by the government from the National Phosphate Commission (NPC) provides desalinated water using waste heat generated from its power station. Water is delivered by truck to individual households and commercial storage tanks. When the plant is not in operation due to maintenance or breakdown, the island faces severe water shortages and an increased reliance on the groundwater sources for supply. The drought from 1998 to 2001 stretched the water resources on the island and highlighted the urgent need for a sustainable water supply system. The drought resulted in overuse of the lens and a decline in water quality, leading to rising health and environmental issues due to seepage from household sewage pits into the increasingly brackish and contaminated groundwater.

Long-term potential threats to the quality of the groundwater resource included contamination by cadmium, rubbish dump leachate and sewage. The brackish ground water from wells used as an alternative supply has high coliforms and high dissolved solids and the brackish ground water is not suitable as a potable supply. It was also found that increased extraction of ground water from wells around the perimeter of the island could lead to seawater intrusion as well as threatening the supply of freshwater to the roots of coastal plants.

The key players in the provision of water supply and resource management in Nauru are:
- the National Phosphate Commission for the establishment and operations of a desalination plant;
- the Nauru Works and Community Services for distribution of water supply to residents and business;
- the Department of Health for testing and monitoring water quality, and
- the Nauru Rehabilitation Corporation for data collection of wells and aquifers.

The national Department of Economic Development coordinates water sector activities including project proposals and liaison with donors and aid agencies.

Nauru is facing major economic difficulties as it dependency on phosphate-processing winds back in the next decade. With increased diesel costs to maintain the NPC power plant, it is becoming increasingly difficult to meet daily water needs of potable drinking water for the island population. At the request of the Ministry of Health, a draft Water Plan was commenced in 2002 with the support of WHO. The draft plan identified a range of priority actions including feasibility studies on an underground gallery for rainwater storage from airport runway run-off, establishment of a secondary desalination plant, extraction from the fresh surface layer from the groundwater lens (if possible), installation of groundwater monitoring wells and clear delineation of the extent of underground resources so as not to risk over pumping. Most of the water resources information available is some 20 years old and needs urgent updating to indicate data on safe yields, water quality and other important monitoring and assessment data. Finalization of the Water Plan including continued public awareness on the fragility of the islands resources is a major water resource priority. Much of the water shortage in Nauru is due to, or accentuated by, faulty management. Unless effective action is taken soon to conserve water and improve water supplies the years ahead will soon be dominated by recurring droughts.

NIUE

Area: 260 sq. km	Highest Elevation: 68m	Population: 2,156 (2004)
GDP per capita: $3,600	Land Use: Arable: 15%	
GDP by sector:	Agriculture: NA%	Permanent Crop: 12%

Industry: NA% Other: 73% Services: 55%

Description: Steep limestone coastal cliffs with a central plateau
Natural Resources: Fish and arable land
Economy: Agriculture is mostly subsistence/ Limited industry concentrated on fruit processing, honey and coconut cream. Trying to promote tourism
Environmental Issues: Increasing attention being given to conservation practices to control the loss of soil fertility for traditional slash-and-burn agriculture.

Niue is a small elevated coral outcrop with fringing coral reef. It consists of two terraces with the upper terrace forming the bulk of the island. It is believed to be the largest coral atoll in the world, with 13 villages spread around the lower coastal terrace. The population is a little over 2,000 persons. The economy suffers from the typical Pacific island problems of geographic isolation, few resources, and a small population. Government expenditures regularly exceed revenues, and the shortfall is made up by critically needed grants from New Zealand. The island in recent years has suffered a serious loss of population though migration to New Zealand. The island was badly hit by Cyclone Heta on 6th January, 2004, and this is likely to see further residents leave for New Zealand to rebuild their lives. Efforts to increase GDP include the promotion of tourism and a financial services industry.

There is no surface runoff in Niue in the form of rivers, streams, and lakes. As such, water for residential and commercial consumption can only be sourced from the underground water lens supplemented by the collection of rainwater at the village or household level. It is estimated approximately 66% of Niue's annual rainfall evaporates. The water quality of the lens is potable and it is piped untreated to all consumers in all villages. The Government meets all costs for pumping and distribution of water. Attempts to introduce a user pay system have up till now been decline by government. Approximately 85% of water that is pumped from the groundwater lens is used for domestic use, 10% for agricultural use and 5 % for commercial and industrial usage. All the 13 villages on the island have their own water system that consists of a submersible pump and a water reservoir except for the main village of Alofi, which has two reservoirs, and 4 submersible pumps. Water pumped from reservoirs to household storages is not treated, with households deciding themselves whether to treat or boil the water.

Responsibility for water supply and water resource management rests with:
- the Water Unit in the Ministry of Public Works and
- the Public Health Unit of the Health Department for water quality testing.

In terms of water supply, major recurrent problems identified have been leakages from distribution pipes and reservoirs and overflows resulting from manual operation of pumps. People are reluctant to report any leakages around the households because of costs of repairs. There is also a negligent attitude to water conservation. Water and subsequent electricity conservation has not been a high priority. AusAID funded an institutional strengthening program in the Water Unit in 1987 and included a successful leak detection program A draft Master Plan for waste, water and sanitation was prepared in 1998 with external funding but has not been finalized due to financial and human resource constraints. There has been no recent detailed surveys or assessment of the underground water resource since 1980. A Water Resource Act was passed by the government in 1996 but has not been able to be implemented because it requires drafting of detailed regulations. There is community concerns over 'catchment' rights and fears of demands for compensation by government from residents if the new Water Resource Act is enforced.

The underground fresh water reservoirs are very prone to contamination from land-based contaminants due to the very porous coral aquifer. Most households on the island have a septic system but most do not comply with the WHO standards. There are currently no drying pits for the sludge from the septic tanks, these were just pumped into a selected area far from any bore sites and about 1.5 km from the coastline. There are no proper waste dumps although an attempt was made to upgrade one of the existing dump near the main town into a proper and main dump. Later on, this dump will be used as a

transfer station for the main dump to be set up on the southern side of the island. Agricultural fertilizers and pesticides is one area of concern that is being addressed by the Pesticides Committee.

A study carried out by SOPAC on coastal water quality in 2003, originally initiated due to fish poisoning outbreaks and fish deaths, confirmed high nitrate and phosphate concentrations. This is believed to have been caused by inadequate wastewater treatment primarily from septic tanks draining into the groundwater regime. The survey highlights the vulnerability of the islands water resources to any land surface activities, and the close link between land and catchment activities and coastal zone impacts.

There have been no recent surveys on the underground lens in Niue since 1980. Modelling of the lens is urgently in need for a better and clear understanding of the characteristics of the lens and also to monitor for possible contamination from land-based activities. Water pumped from the lens is stored in reservoirs and directly fed to the consumers without treatment. Most of the water bore sites are located on the upper terrace and at a minimum distance of about 1.5 km from the coastline. The aquifer of about 50-60 meters is porous and ground level contaminants can be easily filtered through to the lens. However, there has been no known outbreak of disease, which relates to un-treated water and no complaints from the visitors to the island.

Awareness programmes exclusively for water campaigns have been run in the schools with technical and financial assistance from regional organisations. Funding to continue these awareness programs is the main hurdle at this stage, with no continuity. It is hoped that with concerted effort and co-operation from all concerned parties in managing and avoid contaminating the underground fresh water lens, fresh water can continue to be pumped un-treated to the consumers. However, regular testing of the artesian water is recommended. Currently although there is a Water Resource Act already passed by Government in 1996, the enforcing of the Act cannot be legally carried out until there is a regulation in place.

With the planned increase in economic development of the island including a fish cannery (with associated fish waste effluent disposal), cash cropping of vanilla and growth of the tourist industry, an IWRM approach needs to be developed for the island to ensure the adequate protection of the groundwater from over-abstraction and contamination. The immediate priority challenge for Niue however is to establish the water supply system following the devastating cyclone of 06 January 2004. In the longer term there is an urgent need for water resources assessment and a community education and awareness programme to operationalize and mainstream the Water Resources Act of 1996. Stronger partnerships between villages, residents and government are priorities to sustain and portent the water resource.

SAMOA

Area: 2,944 sq. km	Highest Elevation: 1,857 m	Population: 177,714 (2004)
GDP per capita: $5,600	Land Use: Arable: 21%	
GDP by sector:	Agriculture: 14%	Permanent Crop: 24%
Industry: 23%	Other: 55%	Services: 63%

Description: Two main and several smaller islands plus some uninhabited islets. A narrow coastal plain with volcanic rugged mountains in the interior.
Economy: Two-thirds of the labour force are engaged in agriculture which provides 90% of exports (coconut cream, coconut oil and copra). Limited manufacturing concentrates on agricultural products. Fisheries resources appear to be falling. Tourism is growing and now represents 25% of the GDP. The economy of Samoa has traditionally been dependent on development aid, family remittances from overseas,
Environmental Issues: Soil erosion, deforestation, invasive species, over-fishing

The water supply system in Samoa utilises rainfall, surface and underground water, and is fortunate in having adequate annual rainfall reasonably distributed throughout the year giving rise to a reliable source of water. The treatment mode for surface water that forms the main supply for the urban capital Apia is sand filtration followed by disinfection. Bore water used in many rural villages is either disinfected or pumped direct to household systems. Samoa generally has an acceptable level of access to surface and groundwater, with approximately 95% of the population having access to piped water, with approximately 65% supplied by surface water and 35% by borehole and rainwater. High water consumption and leakage have been some of the problems faced by the Samoa Water Authority, although measures are now in place to addresses these issues. Deforestation and land clearing leading to soil erosion contribute highly to poor water quality in terms of high turbidity values and bacteriological counts.

The institutional arrangements for the water sector have been realigned following a Public Service Reform Program review in 2001 and 2002. This review identified fragmentation of functions, lack of overarching legislation and lack of financial resources as key water sector issues. The institutional arrangements currently being embedded focus on water supply being under the auspices of the government owned corporation, the Samoa Water Authority (SWA); the Ministry of Agriculture, Forestry, Fisheries and Meteorology having responsibility for watershed management and hydrology; while the Ministry of Natural Resources and Environment being responsible for national resource and environmental policy. This includes protection of the water resource. The SWA is the designated service provider for the country's water supply in both urban and rural areas, with coastal villages either being part of a larger reticulated system such as exists to the north west of Apia, or subject to community water schemes managed, operated and maintained by the SWA.

The SWA has approximately 16,500 customers broken down into metered household customers, metered commercial customers and un-metered (or flat rate) customers. The existing tariff for metered consumers recognised the need to cut the very high household consumption rates, which existed at the time metering commenced. However, the experience has been that the installation of meters has resulted in a metered household cutting consumption from an estimated 4.6 cubic metres per day to around 2.0 cubic metres per day. Un-metered customers make up the bulk of the SWA's customer base. Consequently, the very low revenue generated by flat rate customers is not offset by the tax on commercial customers. Thus the low revenue from flat rate customers is a major reason why the SWA's revenues do not cover costs of production. The SWA has recognised that this situation is not sustainable. The high consumption rates are reducing the effectiveness of the water treatment plants.

The SWA has under gone major institutional strengthening programs over the last decade in areas such as corporate, asset, human resource and financial management, with assistance from a range of agencies such as AusAID, EU and SOPAC. The SWA with major EU grant funding has also undertaken major upgrading of reticulation systems in Apia and the rural areas on Upolu and Savaii. Installation of water meters and tariff charges in urban Apia and rural areas has meant a reduction in water usage to around 280 litres per day and reduction in unaccounted losses. With funding from the EU, the government of Samoa is currently undertaking a National Water Resource Policy to identify key water resource management issues and means of resolution. A national steering committee now exists to identify and action priorities, and there is a keen enthusiasm within government and NGO's to make further gains in water sector, noting its strong relationship with environmental and resource management in a small island setting. The institutional framework for water resources.

Samoa is currently going through the process of preparing a sanitation plan for Apia and investigating 'appropriate' technology for any wastewater treatment scheme or schemes that may be proposed for the Central Business District in Apia.

The concept of catchment management is well known in Samoa especially given the distance from the centre of the high dividing range to the fringing coast averages approximately 7 kilometres in length. Flash flooding during the wet season often followed by droughts in the dry season, has highlighted the interrelationship of urban and rural land use and other activities on the health of the catchment and

water resource. Government and NGO's have and continue to undertake community education and awareness programs including projects on the care and management of rivers, streams and the wider catchments. FAO, for example, has implemented watershed management projects under the former Ministry of Agriculture in the upper catchments in the 1990's. Unlike many other PIC's, the government of Samoa and key agencies such as the Ministry of Natural Resources and Environment, balance regulation and the problems of dealing with native landowners such as land access issues, with regular community education programs on all facets of protecting and sustaining the bio physical environment. This includes a strong and sustained focus on water resource and catchment management.

SOLOMON ISLANDS

Area: 28,450sq. km	Highest Elevation: 2,447 m	Population: 523,617 (2004)
GDP per capita: $1,700	Land Use: Arable: 1%	
GDP by sector:	Agriculture: 42%	Permanent Crop: 2%
Industry: 11%	Other: 97%	Services: 47%

Description: Scattered archipelago of about 1000 islands, mostly rugged and mountainous with some low-lying coral atolls
Natural Resources: Fish, forestry, gold, bauxite, phosphate, lead, zinc, nickel.
Economy: The bulk of the population are dependent on agriculture, fishing and forestry. The islands are rich in undeveloped mineral resources. Severe law-and-order problems in recent history.
Environmental Issues: Deforestation, soil erosion, majority of surrounding coral reefs are dead or dying.

The Solomon Islands support a coastline of 5,313 km. Severe ethnic violence, the closing of key business enterprises, and an empty government treasury have led to serious economic disarray, indeed near collapse. Tanker deliveries of crucial fuel supplies (including those for electrical generation) have become sporadic due to the government's inability to pay and attacks against ships. The disintegration of law and order left the economy in tatters by mid-2003.

Water resources availability in Solomon Islands varies considerably. It ranges from sizeable rivers to small streams from a high mountainous and dense rainforest islands to rainwater harvesting and thin fresh water lens of underground aquifers of the small low-lying atolls and islets. In 1986, flooding claimed about 100 lives. In 1995, drought severely affected most parts of the country causing severe food shortages. Bad development practices such as logging and the traditional slash-and-burn method of farming have gradually destroyed the quality and capacity of rivers and streams, threatening the availability water to many parts of the country. There are three main types of water source extraction methods employed; using gravity feed systems, the use of rain and roof catchments and hand-dug wells using hand pumps. Rural water supply is still provided by standpipe in most cases. With the increase in population, underground water source is also under threat due to human activities, saltwater intrusion and sea-level rise.

Leakage from water supply system is estimated to be around 70-80%. Water ownership and management is also a source of conflict in the country among social groups, clans, tribes and landowners. Water quality analysis in is a major problem. Most of the existing laboratories are incapable of undertaking the necessary analysis as specified in the International standards for water quality.

Four government ministries are directly involved in the assessment, planning, development and management of water resources; Ministry of Mines and Energy (MME), Ministry of Health and Medical Services (MHMS), Ministry of Culture, Tourism and Aviation (MCTA) and the Ministry of Transport, Works and Communication (MTWC). Other Non government organization are also involved with provision of safe water to the communities and villages, namely Adventist Development Relief Assistance (ADRA), World Vision (WV) and Solomon Islands Development Trust (SIDT). Among all

these, there is a need for an appropriate coordination and strategic planning and management of water resources in the country.

The government's aim is to provide safe water to present and future generations, and to develop an appropriate understanding of the local hydrology and water resources. Actions already taken include the securing of appropriate equipment for hydrological data collection and limited assessment of water resources. Future actions needed at the national level include an increase in awareness programmes on the understanding of water resources and impacts of climate, the establishment of appropriate water regulations for the protection of water resources, and the development of water resource policy.

PALAU

Area: 458 sq. km	Highest Elevation: 242 m	Population: 20,016 (2004)
GDP per capita: $9,000	Land Use: Arable: 9%	
GDP by sector:	Agriculture: NA%	Permanent Crop: 4%
Industry: NA%	Other: 87%	Services: NA%

Description: 6 islands groups and a further 300 islets varying from high mountainous on the main island to low coral islands fringed by large reef systems.
Natural Resources: Forests, minerals (especially gold), marine products, deep seabed minerals.
Economy: Primarily from tourism, subsistence agriculture and fishing.
Environmental Issues: Inadequate waste disposal facilities. Threats to the marine ecosystem from sand and coral dredging. Illegal fishing and over-fishing.

Over half of the population of Palau live in the two states of Koror and Airai. A new surface water treatment plant serves approximately 13,800 persons at present. Water is collected and treated at a trickling filter plant, with an ocean outfall. A bureau of public utilities part of the Palau National Government operates these two systems. There are over 2,000 connections, of which over 1,700 are metered. Unmetered customers are charged a flat rate of ($17/month in Koror and $5/month in Airai). The water charge for metered customers is 85 cents/1000 gallons. Practically all water consumers in Koror and Airai are now on 24-hour water service. A programme of metering all unmetered customers and an aggressive leak detection programme are urgently needed.

Due to the treatment process capability of the existing Airai water treatment plant being limited only to filtration and chlorination of the raw water, the quality of the water produced does not meet U.S. Public Health Service standards for public water systems. The nature of the available water source is such that the raw water must first pass through a chemical pre-treatment process prior to filtering and chlorination, in order to meet U.S. Public Health Service standards for maximum turbidity allowance in public water system, prior to distribution to the consumers.

Approximately 800 of the 3,500 people living outside the Koror-Airai water system's service area are without public water supplies. These people rely on rainwater caught in 55-gallon drums. The remaining 2,000 people use several small village water systems, which serve fewer than 100 households each. All of these village systems have surface water sources or shallow wells as their water sources. The best of the surface water systems provide only basic filtration and chlorination of the raw water before being pumped into the distribution system. There are several small public water systems located in the states on the island of Babeldaob. Four systems were built by Japanese private companies in the states of Melekeok, Ngarchelong (two systems), and Ngaremlengui and serve approximately 800 people.

Due to the topography of the service area, the majority of the gravity sewers are arranged in 34 "satellite" or regional collection areas which empty into their own individual sewage pump stations. The effluent is discharged through a pipe into 60-foot deep water in the Malakal Harbour. Although the wastewater system presently provides service to most of the hamlets in Koror State, additional satellite

systems are needed to serve areas still unsewered. These unsewered areas are also presently experiencing rapid growth.

Water quality sampling by the Palau Environmental Quality Protection Board has shown coastal waters to be contaminated by raw sewage near several of the outfall areas. To alleviate the improper disposal of human waste in the rural areas, the U.S. Environmental Protection Agency provided funds to implement a Rural Sanitation Programme.

PAPUA NEW GUINEA

Area: 462,840 sq. km	Highest Elevation: 4,509 m	Population: 5.42 million (2004)
GDP per capita: $2,200	Land Use: Arable: 0.5%	
GDP by sector:	Agriculture: 34%	Permanent Crop: 1.5%
Industry: 38%	Other: 98%	Services: 28%

Description: Mostly mountainous with coastal lowlands and rolling foothills
Natural Resources: Gold, copper, silver, natural gas, timber, oil
Economy: Richly endowed with natural resources but exploitation is hampered by the terrain and high cost of infrastructure. Agriculture is a subsistence for livelihood for 85% of population
Environmental Issues: Deforestation of the rain forest as a result of demand for tropical timber, pollution from mining, occasional severe droughts
.
Papua New Guinea consists of a group of islands including the eastern half of the island of New Guinea between the Coral Sea and the South Pacific Ocean. Mineral deposits, including oil, copper, and gold, account for 72% of export earnings. The economy has faltered over the past four years, but the government has had considerable success in attracting international support, specifically gaining the backing of the IMF and the World Bank in securing development assistance loans.

Approximately 15% of the population live in some 20 designated urban centres ranging from Port Moresby with 252, 000 persons to the smallest Lorengau with 5,800 persons. The bulk of the population, approximately 4.5 million people, live in rural areas and villages, with water sourced from surface water in catchments as well as groundwater. Although PNG has an abundance of water, ranking as one of the highest rainfall areas in the world, some of the lowland and islands adjoining the mainland have experienced water shortage problems and prolonged dry periods pronounced by El Nino during the last decade.

The majority of people in PNG who live in rural communities have access to questionable water quality and inadequate sanitation, 15% of the population live in urban areas with access to safe water and with adequate sanitation. The urban areas of PNG are generally provided with good reticulated water supply systems extracted either from ground water or surface source. Most have 24-hour supply with water quality meeting WHO Drinking Water Guidelines. The rural villages source their water from springs, wells, river, streams and rainwater, with some villages having communal reticulated village systems. Fourteen out of the 20 provincial towns and 3 out of the 86 district towns are supplied with safe treated drinking water. As such, accessibility to safe drinking water in rural areas is low.

The institutional setting for the water resources sector is characterised by national, provincial and local government involvement, namely;

- the Department of Environment and Conservation who regulate water resource discharge from groundwater, rivers, springs and lakes such as the issues of permits for extraction of groundwater and surface water resources;
- the state owned PNG Water Board who manages water supplies in 11 of the designated urban centres excluding Port Moresby;
- the state owned Port Moresby City Water Supply who manages and operates water and sewerage systems in Port Moresby;

- the Department of Health for water quality monitoring and promotion of water supply and sanitation in rural areas, and
- the rural Provincial and Local Governments who operate all the village and non-urban water supply and sanitation systems.

Like other PIC's, overall planning of the water sector including donor and project coordination is the responsibility of the national planning office, namely, the PNG Department of Planning.

There has been a considerable amount of consultation on issues in the water sector in PNG since the early 1990's. The National Water Supply and Sanitation Committee was formed in 1991 and continues to be the main consultative forum for water policy comprising a range of government agencies, agencies and donors such as WHO and UNICEF, plus NGO's. At the provincial and local levels, Water Supply and Sanitation Committees have also been set up Recent reviews include the recently completed ADB water sector study to identify water sector investment priorities while in 2002 JICA undertook a groundwater resource study for 8 district towns severely affected by drought during the 1997/1998 period. Draft environmental regulations were prepared in 2002 under the recently promulgated Environment Act of 2000. The government is keen to privatise urban water supply, with the government indicating it intention to privatise the PNG Water Board as the National Water Authority to achieve operational efficiencies. While there is no overarching water sector legislation, PNG has a range of dated water legislation including the Water resources Act, 1982: the Environmental Planning Act, 1978 and Environmental Contaminants Act, 1978.

Projects have included development of village water supply schemes, provision of solar and hand pumps, numerous institutional strengthening programmes and the like. Human resources issues, combined with continued domestic civil unrest and disorder issues, plus the sheer size of PNG including hundreds of different regional and local dialects, all form major constraints to comprehensive water resource management. In 2003 PNG held a National Water Seminar to refocus its efforts on achieving sustainable water management. The multi-stakeholder meeting has resulted in the creation of a National Water Association, with multi-stakeholder multi-departmental government and non-government representation, and a clear strategy for the development of a national water policy. With the bulk of the PNG population dispersed in rural areas, mainly highlands, and depending on a subsistence economy for survival, the provision of safe water to 50% of the PNG population by 2010, as stated in the 2001-2010 National Health Plan, is key priority.

In PNG the commonly held perception is that water is plentiful and therefore should be provided free of charge. There is a low public awareness on issues relating to water management. This may be attributed to the low profile of water supply and sanitation. The low level of access to safe water by the majority of the citizens is well documented.

TONGA

Area: sq. km	Highest Elevation: m	Population: (2004)
GDP per capita: $	Land Use: Arable: %	
GDP by sector:	Agriculture: %	Permanent Crop: %
Industry: %	Other: %	Services: %

Description: An archipelago of 169 islands of which 36 are inhabited. Most islands have a limestone base formed from uplifted coral formations; others have limestone overlying a volcanic base.
Economy: Tonga, a small, open, South Pacific island economy, has a narrow export base in agricultural goods. Squash, coconuts, bananas, and vanilla beans are the main crops, and agricultural exports make up two-thirds of total exports. The country must import a high proportion of its food, mainly from New Zealand. Tourism is the second-largest source of hard currency earnings following remittances. The country remains dependent on external aid and remittances from Tongan communities

overseas to offset its trade deficit. Tonga has a reasonably sound basic infrastructure and well-developed social services.

Environmental Issues: Deforestation is a serious concern as more and more land is cleared for agriculture and settlement. Some damage to coral reefs from starfish (Acanthaster planci) and indiscriminate coral and shell collectors. Over-hunting threatens the native sea turtle population.

The water resources of Tonga are primarily in the form of groundwater. Surface water resources are not present on most islands, except ‘Eua and some of the volcanic islands including Niuafo’ou and Niuatoputapu. Groundwater is normally pumped from drilled wells and some old dug wells, some of which are over 50 meters deep. The water supplies for the main urban centres: Nuku’alofa (Tongatapu), Pangai (Ha’apai) and Neiafu (Vava’u), and some villages’ water supplies are also source from groundwater. Rainwater is the supplementary source of portable water and is mainly collected from the rooftop and stored in reinforce concrete, fibre glass and galvanizes iron tanks.

There is a range of institutions involved in the delivery and management of water in Tonga. The key agencies are:

- the Ministry of Lands, Survey and Natural Resources who is responsible for assessment and monitoring of the water resource;
- the Tonga Water Board who is responsible for the planning, installation, operation and maintenance of the public water supplies in the selected urban areas including the capital Nuku’alofa on the main island of Tongatapu;
- the village water committees who are responsible for operating and maintaining the physical components of villages water supply systems outside of the reticulated systems;
- the Ministry of Health for implementing villages water supply schemes and undertaking water quality testing and monitoring, and
- the Water Resources Committee, a sub committee of the National Development Coordination Committee, who is responsible for initiating and reviewing development proposals as they relate to water resources and their planning and management.

The institutional framework for water resources is robust with a national water committee in existence and water master plans having been completed for the reticulated supply systems and for national water resource development. A draft Water Resource Bill is currently under consideration by government with a focus on ensuring the sustainable use of groundwater resources. Donor and aid projects have been active across a range of areas in the water sector including strengthening of the Tonga Water Board (for example, legislative review, leak detection programmes, improvement of the ‘Neiafu and ‘Eua water supply schemes including new infiltration galleries); establishment of local catchment management projects such as the catchment project to support sustainability of the ‘Eua water supply; UNESCO study of groundwater resources; installation of solar panels for pumping on outer islands, and pilot projects in the construction of domestic rainwater tanks on all inhabited islands.

While substantial gains have been made in the water sector in Tonga, many institutional and governance issues still remain for resolution to protect and sustain the limited water resources of the dispersed islands. These include lack of enforceable rules and regulatory framework for water management including hazard waste pollution and disposal; lack of clear utility operational structure over a number of islands; the need for clarifying the role of the Ministry of Environment in water conservation; water metering and tariff setting; the need for upgrading the water reticulation infrastructure in Nuka’lofa; and issues of land tenure and land use as they impact on sustaining the quality of the water resource. While there is a reasonable degree of community awareness on issues of water and the environment associated with projects including catchment management, coordination between agencies and sustaining partnerships with key stakeholders has been identified as a major issue to sustainable management of Tonga’s water resources.

Tonga needs to address several water resource issues, including implementing recommendations of Water Master Plan. There also a need for ongoing and appropriate water resources management awareness and conservation programmes. There is a need for upgrading water testing facilities and

laboratories as well as related training for technicians. As is the case with many pacific islands Tonga's ground water supplies are considered to be at significant risk of saltwater intrusion as a result of sea level rise through climate change. Finally there is a lack of water resource education and training at all levels within the country.

TUVALU

Area: 26 sq. km	Highest Elevation: 5 m	Population: 11,468 (2004)
GDP per capita: $1,100	Land Use: Arable: 0%	
GDP by sector:	Agriculture: ?%	Permanent Crop: 0%
Industry: ?%	Other: 100 %	Services: ?%

Description: Very low-lying narrow coral atolls. One of the smallest and most remote countries in the World. 9 atolls in total. 6 have lagoons open to the ocean, 2 have land-locked lagoons, and 1 has no lagoon.
Economy: Densely populated with poor soils. Vanuatu has no mineral reserves and few exports. Subsistence farming and fishing are the primary economic activities. Less than 1000 tourists per year. Government revenues are derived primarily from the sale of stamps and coins. Substantial income to the country comes from a Trust Fund established in 1987 by Australia, New Zealand and the UK.
Environmental Issues: since there are no streams or rivers and groundwater is not potable, most water needs must be met by catchment systems with storage facilities (the Japanese Government has built one desalination plant and plans to build one other); beachhead erosion because of the use of sand for building materials; excessive clearance of forest undergrowth for use as fuel; damage to coral reefs from the spread of the Crown of Thorns starfish; Tuvalu is very concerned about global increases in greenhouse gas emissions and their effect on rising sea levels, which threaten the country's underground water table; in 2000, the government appealed to Australia and New Zealand to take in Tuvaluans if rising sea levels should make evacuation necessary.

In the case of Tuvalu the only reliable, cheap and potable water resource is rainwater. It is therefore of great importance to have water management polices. One of its key objectives stated in the Development Plan is the "expansion of water supply systems on Funafuti and the outer islands, which should ensure that, by the end of the plan, every person in the country will have access to a more adequate supply of water" After Tuvalu gained independence in October 1978, there was an increase in the national priority to accord the provision of adequate supply of water, sanitation facilities and waste disposal.

There are three main sources of water supply in the outer islands and Funafuti, namely well water, desalination and rainwater. The wells are found in all the islands of Tuvalu except Niulakita in the southern group and Nanumaga in the Northern group. All wells are vulnerable to pollution by surface debris, frequently rotting vegetation and animal wastes. Groundwater lenses on each respective island are yet to be explored. Most island's ground water is available under the main village settlement thus making it contaminated because of the extensive use of pit latrines, septic tanks and animal wastes. There could be an option to use this limited but undrinkable resource for toilet flushing or other means of second-class water. Most houses in the Tuvalu have corrugated galvanized iron and aluminium roofing. The rainwater is collected from these roofs, which have PVC gutters that run water through to down pipes into Ferro-cement, fibreglass, block work or reinforced concrete, and plastic tanks. The use of hand pumps to fill overhead tanks and supply water into the house by the use of gravitational pressure is still quite common both in the outer island and Funafuti. Government Civil servant houses in Funafuti have electric water pumps that reticulate the water through the house whilst some private dwelling still preferred a container under the outlet of the tank. Tuvalu still prefers and would continue to use rainwater because of the consistent and high annual rainfall in the country.

More recently desalination plants were installed on Funafuti, Vaitupu and Nanumaga after Tuvalu experienced drought in 1999, along with the demolition of approximately 300 m3 of water storage facilities in Funafuti.

Tuvalu has a 10-year water master plan that needs to be legally adopted by Government. One of the key factors for a high water demand is the population increase. In Funafuti the high demand for water is an issue of serious concern. The influx of people to the capital Funafuti and insufficient water storage capacity is a major problem for the Government which would need to resort to either increasing its water storage capacity or look to other alternative sources of water supply to ease the increasing demand.

The current situation in Funafuti is that water shortages start directly after a week of no rain, a clear reflection of the lack of proper water management skills at the grass root level. Most families still buy their water requirement from Government, even following heavy rains, as they don't have adequate or effective water collection and storage facilities.

VANUATU

Area: 12,200 sq. km	Highest Elevation: 1,877 m	Population: 202,609 (2004)
GDP per capita: $2,900	Land Use: Arable: 2.5%	
GDP by sector:	Agriculture: 26%	Permanent Crop: 7.5%
Industry: 12%	Other: 90%	Services: 62%

Description: Mostly mountainous of volcanic origin with a narrow coastal plain.
Economy: Based primarily on small-scale agriculture which provides a living for 65% of the population. Fishing, offshore financial services and tourism are the other mainstays of the economy. Negligible mineral deposits.
Environmental Issues: The majority of the population have no access to reliable supplies of potable water. Also deforestation is a growing problem and sedimentation of coastal waters and fresh watercourses.

The archipelago of Vanuatu has about 74 populated islands. 81% of the population live in rural areas and are mainly occupied in subsistence and small holder farming with the remaining 19% of the population living in the two main urban areas of Port Vila on Efate and Luganville on Santo. The average population growth rate is 2.6% per annum whilst the urban growth rate is estimated to be 4.2% per annum. The high urban growth is resulting in the rapid development of fringing settlements not serviced by proper roads, electricity, water and sanitation.

The Republic of Vanuatu has abundant rainfall with numerous rivers and springs, and water from the aquifers is generally of very good quality requiring no treatment for consumption purposes. Water is sourced primarily from surface water in catchments and from groundwater wells and bores, and is chlorinated for safety reasons. The average rainfall varies from 2800mm per annum in the north, to only 1900mm per annum in the southern islands. A dry season occurs during June to December. Land ownership issues and conflict are dominant in the culture and also relate to the ownership of water, creating difficulties in many areas of water management including gaining access to water for supply, protecting water resources such as catchments, infrastructure maintenance and negotiating national projects such as hydropower generation.

The institutional arrangements for water are vested with 4 key agencies;

- the Water Division of the Department of Geology, Mines and Rural Water Supply is responsible for installation and maintenance of water systems in rural villages, urban water supply planning and approval, as well as water resource management, legislation;
- the Department of Health for water quality testing and monitoring, and

- the privately owned UNELCO, which, operates and manages the water supply system for the capital city, Port Vila, and
- The Department of Public Works Department which looks after water supply in Isangel, Lakatoro and Luganville, including infrastructure provision.

A number of other agencies such as Environment and Lands administer legislation and coordinate proposals that affect water resources such as leases and development applications.

A National Water Committee was established in 1994 to provide a forum for information exchange on key issues in the water sector, including national policy issues. The high level committee continues and has been an important conduit to consider major issues and projects such as the Rural Water Supply Master Plan, designation of water protection zones in and adjoining catchments, and draft water resources legislation currently before Parliament. There is currently no water legislation that clearly addresses issues such as private, customary and public access rights; protection of significant water resources and their catchments; development of policy and planning through the National Water Committee, and generally, provides for national water management and policy.

Water infrastructure in the urban areas has deteriorating rapidly, the majority of reticulated systems having been constructed in the 1950's and 1960's. Only the Lakatoro system was upgraded in 1995 and new sources for Isangel established in 1994. The transfer of water operation in 1994 from government to UNELCO has resulted in improved delivery and quality of water in Port Vila, with no marked increases in tariffs. Water supply for Port Vila continues to be sourced from groundwater and chlorinated. Water supply to the rural areas has been provided under the National Rural Water Supply Scheme that aims to provide potable water to all the rural population in Vanuatu. Community usage of water rather than individual tap connections has been the major focus of physical works, with approximately 65% of the rural population having access to formal water supply systems in 2001. The remaining 35% of the rural population access springs, rivers, private wells and water tanks to provide their water needs.

NGO's, aid donors and other agencies have been active in supporting the development of the water sector with projects ranging from institutional strengthening projects to community river and catchment care – for example, the UNESCO/SOPAC Catchment and Communities Project in Maewo, Santo and Epule which focuses assisting communities understanding how their catchments work via mapping, education, installation and water gauges and water quality monitoring. A similar project is also under way in the Tagabe River with the Tagabe River Catchment Protection Committee. Other projects include the construction of ferro-cement tanks for public, upgrading of community and private water supply including hand pumps and solar panels. Human and technical resource constraints including shortage of qualified staff, have affected all government departments including systematic collection of water resource data, water quality monitoring, regular maintenance programmes and water sector planning generally. Financial constraints combined with the size of the country and diversify in cultures and languages, provides limitations to implementing comprehensive community education and awareness programmes, notwithstanding community awareness has increased substantially over the last decade.

Whilst government and donor funds support the installation of new schemes and upgrades, it is the communities' responsibility to maintain the systems. Of the 1,170 systems in place, at least 30% do not work or require major work to fix them. While the supply of water in the government controlled areas is satisfactory, the government investments on these systems are only for operations and maintenance. The systems were built during the 50s and badly require upgrading.

The countries aim is to mainstream adaptation to Climate Change measures as a practical means toward protecting, building and maintaining sustainable water resource management. The shortage of skilled personnel and expertise will continue to slow progress in the water sector. The management and operation of rural water supply systems and government controlled urban systems are emerging to be

the crucial issue in the water sector. Although upgrades are planned, the systems cannot be expected to be operational without proper maintenance procedures.

Annex A4: Stakeholder Involvement Plan

Different categories of stakeholders will be involved in the full project including national government, regional government agencies, donors, the private sector, NGO's, advocacy groups, local communities and groups and business organisations. A participatory approach has been adopted through the project design phase, and this will continue during full implementation. SOPAC's regional experience and long-standing engagement with national governments across the region allows for the early identification and assessment of stakeholders relevant to the each national Demonstration Project and regional activities. Stakeholders identified during the project design phase are identified in Table A4.2 below. Pacific Partnership stakeholders are shown in Table A4.3.

The project approach at the national level will follow a framework provided by the PCU during the Inception Phase when Demonstration Project designs are re-visited and stakeholders are engaged to ensure projects will address the correct needs, and that activities are correctly focused. The added value of using this approach is that the communities involved in the project not only become resources to the project, but they form an integral part in delivering the project outcomes and ultimately securing project impact. Stakeholders, especially the immediate communities and institutions involved will form part of the monitoring and evaluation approach. Participatory Monitoring and Evaluation (PM&E) is discussed further in the documents and specific PM&E Annex.

The Demonstration Proposals and other project design documents will be shared with various stakeholders, targeted appropriately to each stakeholder group. For example, in coastal communities this could include working within existing community governance systems to identify pollution sources and identify possible sources for mitigating the effects of the pollution, and reducing the pollutant sources. Nationally there will be a need for each Project Manager to understand the potential support and barriers to successful project implementation. With assistance from the PCU and the IWRM Resource Centre, support will be provided to ensure that, where Demonstration Project design requires refinement, assistance will be provided in adjusting the project to fit with stakeholder requirements, and that projects utilise available resources well (through national support and other co-financing mechanisms). This will include identifying where possible problems could occur. As an example, stakeholder maps should be prepared for each country to help understand the risks involved, and to allow the project to understand the need to foster support to promote institutionalising IWRM approaches. This approach is integral to **Dublin Principle 2 –** ***water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels***.

An example of a generic stakeholder map is presented below in Figure A4.1 and stakeholder groups identified in Table A4.1. This type of approach help project implementers understand where support in implementation can be found, and where possible barriers may exist, and therefore where targeted capacity building, awareness raising and other similar activities are required. This will be a useful tool, backstopped by the PCU, and supported by the IWRM Resource Centre. The Pacific Partnership Initiative on Sustainable Water Management already provides valuable fora for the gathering of regional stakeholders. Donors will be invited to National IWRM APEX body meetings, as part of the sustainability approach embedded within the project. The participatory approach (as part of the monitoring and evaluation system), will ensure that stakeholders have an active role in the project and that negative effects of project activities, approaches etc are immediately identified, discussed and rectified. Only through this level of engagement can project approaches be mainstreamed into normal working practice, at both the community level in the project areas (villages, towns), and at the national institutional and policy setting level.

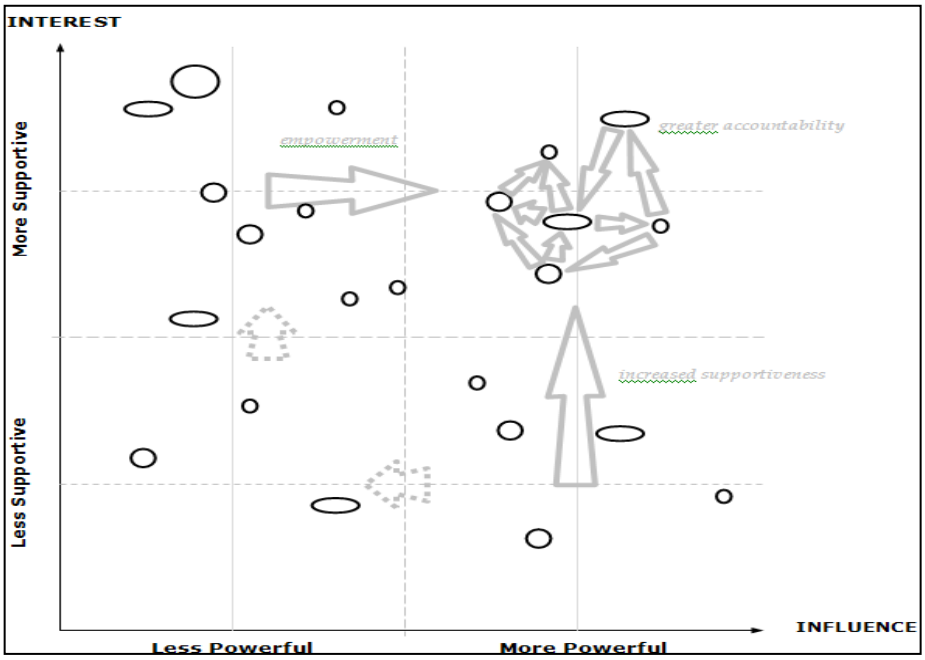

Figure A4.1: Example Generic Stakeholder Map

Table A4.1: Stakeholder Groups Identified

Type	Role
Politicians:	Supporting national multi-stakeholder consultation process, championing institutional, legislative and fiscal reforms to support IWRM processes, providing commitment and influence, approving national policies and plans.
Water and wastewater service providers:	National stakeholder participation and dialogue, advocacy for vulnerability of water sources to pollution and prevention, water demand management and conservation, cost-recovery and sensible tariff structures, technical capacity building, improving public communication, self assessment of institutional strengthening and reform.
Water resources or environment agencies:	National stakeholder participation and dialogue, advocacy of technical water resources management issues, data collection, capture, technical training and capacity building, decision-support systems, advocacy for inclusion in planning process, improving water user and community communication.
Health departments:	National stakeholder participation and dialogue, advocacy of the links between IWRM and water quality and public and environmental health.
Dept of Rural development:	National stakeholder participation and dialogue, promotion of best practice guidelines to rural communities, support of public awareness raising activities.
Non-government organisations:	National and catchment level stakeholder participation and dialogue, mobilising civil society groups, support of public awareness campaigns, dissemination of participatory catchment management approaches, encouragement of civil society involvement in multi-stakeholder dialogues and national interim water committees.
Schools and colleges:	Support the delivery of public awareness and education programmes, science fairs and engagement of children in IWRM.
Community based organisations:	Catchment and national level stakeholder participation and dialogue, promotion of information to communities, capacity building using education materials, advocacy for community inclusion in catchment and national consultations and a formalised role in the decision-making process.
Youth and children:	Participation in awareness, education programmes and dialogues, mobilisation of household and community concerns, influencing local water and wastewater use.
Communities:	Participation in awareness and education programmes, dialogues and mobilisation.

Table A4.2: Stakeholder Participation Table for IWRM Demonstration Projects (Lead Agencies in blue font)

Countries	Lead Agency	Other Participating Agencies	Co- financers
Cook Islands	• Ministry of Works • Office of the Prime Minister • Steering Committee provided by the National Water Safety Council • Local NGO	• Community Representatives • Department of Water Works • Local NGO's- Live and Learn Environmental Education • Ministry of Agriculture • Ministry of Health • Ministry of Marine Resources • National Environment Service	• ADB-Asia Development Bank, Preparing the Infrastructure Development Project/ Ministry of Finance and Economic Management (MFEM) • CIMRIS & NZAID Water Demand Management • Ministry of Health • Ministry of Marine Resources • Ministry of Works • Office of the Minister for Island Administration (OMIA) • Office of Prime Minister **SOPAC Programmes:** • SOPAC EU IWRM (EU funded) • SOPAC Island System Management (ISM) EDF 8/ EDF 9 • SOPAC WQM- Water Quality Monitoring and Capacity Building Programme for PIC's • SOPAC HYCOS- The Pacific Hydrological Cycle Observing System (EU funded) • SOPAC WDM- Water Demand Management Programme for Pacific Island Countries (NZAID funded) • SOPAC WSP- Pacific Water Safety Planning Programme (AusAID funded)
Fiji	• Land and Water Resource Management Division of the Ministry of Agriculture • Mineral Resources Department • National Water Committee	• Department of Lands and Surveys • Department of Tourism and relevant private sector operators. • Disaster Management Council • Fiji Visitors Bureau • Fiji Meteorological Service • Hydrology Division of Public Works Department, • Land Transport Authority • Ministry of Environment • Min of Provincial Development • Nadi Municipal Council • Native Land Trust Board • Public Works Department • The local committee and associated governance framework. • Town & Country Planning Department Water Supply Department • Land & Water Resources Management Dept of MAFF	• CRISP- Coral Reef Initiative for the South Pacific • EU- Flood Warning System for the Navua River, Fiji • HELP- Hydrology for the Environment, Life and Policy (UNESCO) • Live and Learn Environmental Education Governing Waters Project (EU) • LWRM- Land and Water Resources Management Unit • NZ Aid- Sustainable Land Use Options in the Sugar Cane Belt, Fiji • NZ Aid- Fiji Stream Health Monitoring and Assessment Kit Development **SOPAC Programmes:** • SOPAC EU- IWRM in Fiji • SOPAC HYCOS- Hydrological Cycle Observing System
Federated States	• Department of	• Conservation Society of Pohnpei	• Conservation Society of Pohnpei (CSP)

of Micronesia	Transportation, Communication, and Infrastructure (DTC&I) • Pohnpei Utilities Corporation (PUC)	• Pohnpei Environmental Protection Agency (EPA) • Department of Land (Pohnpei) • Local Government (Sokehs, Kitti, Madolehnimw, Uh, Nett and Kolonia)	• EPA Water Quality Monitoring Budget • EU ACP IWRM National Planning Programme • Japan International Cooperation Agency (JICA) • Micronesia Conservation Trust • Omnibus Infrastructure Development Project Loan, Asian Development Bank • Pacific Islands Ocean Fisheries Management Project • Pohnpei Department of Lands • Pohnpei Port Authority (PPA) • Pohnpei Utilities Corporation (PUC) • WHO and Institute Of Applied Sciences (IAS) (USP) Community Compliance **SOPAC Programmes:** • SOPAC HYCOS- Pacific Hydrological Cycle Observing System (NZAID funded) • SOPAC Water Demand Management (NZAID funded) • SOPAC Water Safety Planning/ World Health Organisation •
Kiribati	• Ministry of Public Works and Utilities • National Water and Sanitation Coordination Committee. • Public Utilities Board	• Education Youth & Sport Development • Environment, Lands and Agricultural Development • Fisheries & Marine Resources Development • Health and Medical Services, Finance and Economic Development • Internal and Social Affairs • Line and Phoenix Islands DevelopmentMeteorology Office.	• Ministry of Public Works & Utilities and Public Utilities Board (EU funded)
Republic of Marshall Islands	• The Republic of the Marshall Islands Environmental Protection Authority (RMIEPA)	• Majuro Water Sewage Company (MWSC) • Majuro Local Government (MalGov) • Majuro Solid Waste Company (MAWC) • Ministry of Finance • Ministry of Public Works • Laura Senior Landowners (Community) • Laura Farmers Association (Community) • NOAA Weather Station • College of the Marshall Islands (CMI) Land Grants Department.	• The Republic of the Marshall Islands Environmental Protection Authority (RMIEPA) • Majuro Water Sewage Company (MWSC) • Majuro Local Government (MalGov) • Majuro Solid Waste Company (MAWC) • Marshall Islands Visitors Authority • Marshall Islands Economic Policy, Planning and Statistics Office, Office of the President **SOPAC Programmes:** • Disaster Risk Reduction in Pacific ACP States (EU) • SOPAC HYCOS (Hydrological Cycle Observing System) (EU) • SOPAC IWRM Pacific SIDS Integrated Water Resources Management Planning Programme • SOPAC WDM (Water Demand Management) (NZAID) • SOPAC WQM Water Quality Monitoring capacity Building Programme for Pacific Island Countries (NZAID) • SOPAC WSP Pacific Water Safety Plans Programme (AusAID)
Nauru	• Ministry of Commerce,	• Departments of Health, Utilities and	• AusAID

	Industries and Resources (CIR)	Environment	• JICA • Pacific Adaptation to Climate Change (PACC) **SOPAC Programmes:** • EU EDF9 • EU Envelope B
Niue	• Department of Public Works	• Alofi North & Alofi South community groups • Attorney General's Office • DAFF- Department of Agriculture, Fishers and Forestry • Department of Community Affairs • Department of Economic, Planning, Development Unit • Department of Education • Department of Environment • DOH- Department of Health • Department of Justice, Lands and Survey • Department of Public works • EPDU: Planning Division • Meteorological Office • NIOFA- National Organic Farming Association • Niue Tourism Office • Office for External Affairs	• FAO- Food Security Programme/ Department of Agriculture, Forestry and Fisheries • NZAID- Road Infrastructure Improvement Project/ Water Supply Improvement Project, Department of Public Works • UNDP TRAC- Department of Environment • UNESCO- Water Act Support • Government of Venezuela- Land Management Improvement Project/ Department of Agriculture, Forestry and Fisheries **SOPAC Programmes:** • Hydrological Cycle Observation System - HYCOS (funded by EU); • Water Demand Management (funded by NZAID); • Water Quality Monitoring (funded by NZAID); • IWRM Planning (funded by the EU)
Palau	• The National Steering Committee for the Water Safety Program	• Airai State Government Ministry of Resources and Development • Belau National Museum (BNM) • Bureau of Agriculture-BOA • Bureau of Public Works-BPW • Environmental Quality Protection Board (EQPB) • Palau Automated Lands and Resources Information Systems- PALARIS) • Palau Conservation Society (PCS) • Public Health (Division of Environmental Health, DEH) • Various community groups	• Airai State • Belau Nation Museum • Bureau of Agriculture • Bureau of Public Works • Environmental Quality Protection Board (EQPB)/ (F AO funded) • Nat'l Govt • National Steering Committee • Palau Automated Lands and Resources Information Systems • Palau Conservation Society- Ecosystem-based Management (Packard Foundation funded) • US Forestry Service **SOPAC Programmes:** • SOPAC HYCOS • SOPAC WSP • Water Safety Committee /Water Safety Program (WHO/SOPAC)
PNG	• Department of Environment and Conservation • PNG Power Limited • Eda Ranu Limited	• Catchment stakeholders • Church and educational institutions and farmers • CMC • Department of Agriculture and Livestock • DoE • Department of Health • Industries • PNG Geological Survey DoL,	• Department of Health/ National Rural Water Supply and Sanitation Project (European Union funded) • Eda Ranu Limited (Eda Ranu Operational Account funded) • National Disaster Center/ National Disaster Management Project (EDF funded) **SOPAC Programmes:** • Department of Environment and Conservation/ Rehabilitation of Ramu River Hydrological Stations(EDF - through SOPAC)

		• Landowners, • PNG Power, • National Disaster Center • National Weather Service • NARI • NGOs • NISIT • UPNG	• Department of Environment and Conservation/Pacific HYCOS Flood Forecasting (EU through SOPAC)
Samoa	• Ministry of Natural Resources and Environment (Water Resources Division)	• CCC • Donors • Electric Power Corporation (EPC) • Ministry of Agriculture and Fisheries (MAF) • Ministry of Education, Sports and Culture METI and Siosiomaga Society (MESC) • Ministry of Finance • Ministry of Health • Samoa Tourism Authority • Samoa Water Authority (SWA) • Schools • SUNGO • Tourists	• ADB funded Samoa Sanitation and Drainage Project/ Samoa Sanitation and Drainage Project (SSDP) • JICA funded National Parks and Reserves Management Project • Programme/ Water Sector Support Programme (WASSP) **Samoa Government** • Electric Power Corporation (EPC) • Institute of Professional Engineers in Samoa (IPES) • Ministry of Agriculture and Fisheries(MAF) • Ministry of Natural Resources and Environment • MWTI • Samoa Water Authority (SWA) **SOPAC Programmes:** • EU funded Water Sector Support EU-WF funded (HYCOS) Project
Solomon Islands	• Ministry of Mines and Energy (MME)	• Honiara City Council; • Ministry of Commerce, Employment and Trade; • Ministry responsible for Agriculture and land use; • Ministry responsible for Environment and conservation • Ministry responsible for forest resources • Ministry responsible for Public health; • Ministry responsible for Tourism • Ministry responsible for Water Resources Management; • Solomon Islands Water Authority(SIWA) • Private sectors or developers • Town and Country Planning Board	• IWC Kongulai Catchment Risk Assessment Research • SIGWRP • SIWA Program to improve water supply and wastewater services in the urban centres of Solomon Islands • Solomon Islands Government - Water resources **SOPAC Programmes:** • Pacific Program for Water Governance (PfWG) • Regional IWRM ACP-EUWF Project • Regional Pacific HYCOS Project • Regional Water Demand Management Project (NZ Aid funded)
Tonga	• Ministry of Lands, Survey, Natural Resources and Environment	• District Officer • Langafonua (NGO) • Meteorological Services • Ministry of Agriculture & Food, Forestry and Fisheries • Ministry of Finance • Ministry of Health • Ministry of Tourism • Ministry of Works • Rep. from private sector	• EU WF- IWRM ACP-EU • EU WF- Pacific HYCOS • GEF NZ Aid • JPN • NZ • ROC • SIG • SIWA • WB **SOPAC Programmes:**

		• Rep. from the farmers • Rep. from National Youth Congress • Tonga Trust (NGO) • Tonga Water Board • Town Officer	• EU WF- IWRM ACP-EU • EU WF- Pacific HYCOS
Tuvalu	• Public Works Division within the Ministry of Energy and Works	• Community of Funafuti and Tuvalu • Department of Environment • Kaupule Funafuti • Landowners of Funafuti and the lessors of the sludge treatment site • Public Works Department • Meteorology Department • Ministry of Health • Ministry of Public Utilities and Industries • The Island Countries of the Pacific Region • Tuvalu Association of Non Government Organisations (TANGO) • Waste Management Unit	• Alofa Tuvalu N.G.O- Amatuku Center for Sustainable Development • AusAID V&A -Vulnerability and Adaptation Project • Foreign Fisheries Agency Fund- Fisheries Department Activities • Island Vulnerability • PACTAM • Ministry of Finance and Ministry of Works and Energy re AusAID project VnA • Ministry of Natural Resources re Foreign Fisheries Agency **SOPAC Programmes:** • EDF / B-Envelope - Reducing • EU-IWRM Project • EU- EDF10 • HYCOS- Hydrological Cycle Observing System Observing System
Vanuatu	• Department of Geology Mines and Water Resources (DGMWR)	• Communities • Live and learn (NGO) • Ministry of Agriculture, Quarantine, Livestock, Forestry and Fisheries - Department of Quarantine & Livestock - Department of Forestry - Department of Agriculture - Department of Fisheries • Ministry of Education • Ministry of Health • Ministry of Internal Affairs (Luganville Municipality; Sanma Provincial Government) • Ministry of Infrastructure and Public Utilities Public Works Department - Ports and Harbours; Meteorological Service • Ministry of Lands and Natural Resources Department of Geology, Mines & Water Resources (DGMWR) - Environment Unit; Energy Unit - Department of Lands • UNELCO (private sector water provider with existing water testing laboratory) • Vanuatu Rural Development Training Centres (VRDTC) • Wan Smol Bag (NGO) • Wan Tok (NGO)	• DGMWR/ Water Supply Committee Training (NZAID / Various funded) • JICA • National & Provincial Government • Live & Learn RiverCare; Waste Management Education Toolkit & Promoting Waste Minimisation in Vanuatu – Sustaining Change for Better Waste Management (SPREP & NZAid funded) • Live and Learn Environmental Education/ South Pacific RiverCare Project (NZAid funded) • Live and Learn Environmental Education/ Building a Sustainable Future (NZAid funded) **SOPAC Programmes:** • DGMWR/ Vanuatu Water Safety Plans (WSP) Program (AUSAID funded) • DGMWR/ Water Quality Monitoring Capacity Building Program for PICs (NZAID funded) • Pacific HYCOS project

Table A4.3: Pacific Partnership Stakeholders Relevant to Pacific IWRM Project (based on Pacific RAP Themes)

PROJECT TITLE	KEY MESSAGE	ACTION	IMPLEMENTING AGENCY	PARTNER ORGANISATION	LOCATION	START DATE	END DATE	DONOR
Theme 1:	**Water Resources Management**							
Pacific HYCOS	Strengthen capacity to conduct national water resources management and monitoring	Strengthen National Capacity	• SOPAC	• FSM • NMS • NHS • NIWA • UNESCO WMO	Regional	2006	2009	ACP-EU WF
Water Quality Monitoring Capacity Building Programme for Pacific Island Countries	Strengthen capacity to conduct national water resources management and monitoring	Water Quality Capacity Building	• WHO		Regional	2006	2008	NZAID
Regional Water Demand Management Programme	Utilise appropriate methods and technologies for water supply and sanitation systems for rural and peri-urban communities	Demand Management & Conservation	• Live & Learn • SOPAC	• SOPAC	Regional	2006	2009	NZAID
Regional Awareness & Education Programmes – World Water Day	Utilise appropriate methods and technologies for water supply and sanitation systems for rural and peri-urban communities	Demand Management & Conservation		• SOPAC • SPREP	Regional	Annual	Annual	Taiwan ROC
Water Quality Monitoring Capacity Building Programme for Pacific Island Countries	Utilise appropriate methods and technologies for water supply and sanitation systems for rural and peri-urban communities	National guidelines for drinking water quality	• WHO	• SOPAC • USP	Regional	2006	2008	NZAID
Water Quality Monitoring Capacity Building Programme for Pacific Island Countries	Utilise appropriate methods and technologies for water supply and sanitation systems for rural and peri-urban communities	WQ Monitoring & Mitigation Standards	• IAS-USP • SOPAC • WHO	• NZ, MoH	Regional	2006	2009	NZAID
Regional Awareness & Education Programmes – World Water Day	Utilise appropriate methods and technologies for water supply and sanitation systems for rural and peri-urban communities	Water Sector Community participation	• Live & Learn Environmental Education	• SOPAC • SPREP • UNESCO	Regional	Annual	Annual	NZHC, BHC, DFID, Taiwan/ROC
Sustainable Integrated Water Resources for Wastewater Management in Pacific Island Countries	Improve management of water resources and surface and groundwater catchments.	Implement IWRM principles & practices	• Pacific Partnership		Regional	2006	2008	GEF PDF-B UNDP/UNEP
Sustainable Integrated Water Resources Management in Pacific Island Countries	Improve management of water resources and surface and groundwater catchments.	Implement IWRM principles & practices	• Pacific Partnership		Regional	2007	2012	GEF Full Project UNDP/UNEP
Pacific SIDS Integrated Water Resources Planning Programme	Improve management of water resources and surface and groundwater catchments.	Implement IWRM principles & practices	• Pacific Partnership		Regional	2007	2010	ACP-EU WF
Water Quality Monitoring Capacity building Programme in Pacific Island Countries	Strengthen capacity to conduct national water resources management and monitoring	Strengthen National Capacity	• IAS-USP • SOPAC • WHO	• NZ, MoH	Regional	2006	2009	NZAID
Rooftop Rain Catchment Sizing			• WERI		FSM			US Geological survey Water Institute

								Program
Theme 2:	**Island Vulnerability**							
Pacific HYCOS	Develop capacity for application of climate information to cope with climate variability and change	Enhanced application of climate information	• SOPAC	• UNESCO • WMO	Regional	2005	2008	ACP-EU WF
Pacific Island Climate Prediction Programme Phase II	Change emphasis on Island Vulnerability from disaster response to hazard assessment and risk management	Climate Forecasting Based Risk Reduction	• BOM	• NMS	Regional	2007	2009	AUSAID
Pacific HYCOS	Change emphasis on Island Vulnerability from disaster response to hazard assessment and risk management	Climate Forecasting Based Risk Reduction	• SOPAC	• UNESCO • WMO	Regional	2004	2008	ACP-EU WF
Pacific Islands Global Climate Observing System	Develop capacity for application of climate information to cope with climate variability and change	Enhanced Application of Climate Information	• SPREP	• AusAID • NOAA • US GCOS • WMO	Regional			AusAID
Climate Change Adaption in Rural Communities in Fiji	Develop capacity for application of climate information to cope with climate variability and change	Enhanced Application of Climate Information	• Pacific Centre for Environment and Sustainable Development (PACE-SD)		Fiji	2006	2009	AusAID
Pacific Historical Climate Data Rescue	Develop capacity for application of climate information to cope with climate variability and change	Drought Prediction Schemes	• NOAA • NIWA	• PIC NMSs	Regional	2004	2008	NOAA
Climate Information and Products for Pacific Communities	Develop capacity for application of climate information to cope with climate variability and change	Drought Prediction Schemes	• SPREP	• BOM • Cook Islands NMS • NIWA • NOAA • Samoa NMS • SOPAC	Regional	2007	2008	NZAID
Pacific Historical Climate Data Rescue	Change emphasis on Island Vulnerability from disaster response to hazard assessment and risk management	Climate Forecasting Based Risk Reduction	• NOAA • NIWA	• PIC NMSs	Regional	2004	2008	NOAA
Theme 3:	**Awareness**							
Kiribati - Ecosanitation Training	Make information on sustainable water and wastewater management available and accessible to all levels of society	Householder on-site W&S training programmes						Taiwan/RO
ADB Technical Assistance Community Education and Awareness Program (CEAP)	Make information on sustainable water and wastewater management available and accessible to all levels of society	Strengthen capacity in water and wastewater management	• ADB Technical Assistance Team, WSD		Suva-Nausori	2005		ADB
Theme 4:	**Technology**							
Regional Water Demand Management Programme	Improve sustainability of utilities and water resources by reducing unaccounted-for water	Training Programmes for UFW	• SOPAC	• SOPAC	Regional	2006	2009	NZAID
Improving Sanitation and Wastewater Management in PICs	Develop regional training programmes for water and wastewater sector staff and communities	Island Specific Training Programmes	• UNEP/GPA • SOPAC	• SPREP • USP	Fiji	2005		UNEP/GPA
Piloting Climate Change Adaptation to Protect Human Health	Impliment a range of strategies,policies n measures that will decrease health vulneability and to current climate variability and future climate change			• UNDP • WHO	FIJI	2006		GEF

Theme 5:	**Institutional Arrangements**							
ADB Technical Assistance Community Education and Awareness Program (CEAP)	Promote and establish appropriate institutional arrangements	Appropriate institutional arrangements & reform	• ADB Technical Assistance Team, WSD		Suva-Nausori	2005		ADB
Theme 6:	**Finance**							
	Develop strategies to achieve sustainable rural community water and sanitation services	Increase funding for rural W & S						
	Develop strategies to achieve sustainable rural community water and sanitation services	Local Trusts and savings schemes to fund rural water supply						

Annex 5: Summary National Demonstration Project Proposals (*including initial indicators used in formulation of overall project logframe*)

Cook Islands Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3
Cook Islands	Integrated freshwater and coastal	The demonstration of sustainable water resources and purpose is for an improved understanding of the quality and quantity of surface water and groundwater and their vulnerabilities	To demonstrate through a process of policy change, capacity building and technical information gathering and management, the delivery of improved water quality in the freshwater and near coastal environments and an improved water resource management structure ▪ Community involvement in IWRM ▪ Improved ability to carry water quality monitoring ▪ Improved network of water quality sampling ▪ Greater efficiency in water use by agriculture ▪ Improved lagoon environment	***Component 1*** 1.0 Water quality & quantity into lagoon	1.1 Wastewater Treatment Assessment	1.2. Demonstration of Wastewater Treatment Systems	1.3. Groundwater Assessment
				Component 2 2.0 Knowledge dissemination	2.1 Water portal development	2.2. Water portal replication	
				Component 3 3.0 Institutional strengthening and development of human resource capability	3.1 Policy		

Fiji Islands Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3	Activity 4
Fiji	Flood Management and Effects Mitigation in the Nadi River Basin	To improve flood preparedness and integrate land and water management planning within the Nadi Basin using an integrated flood management approach.	Improved catchment resilience to flood impacts and better flood preparedness and management within the Nadi Basin using Integrated Flood Management approaches. ▪ Basin wide hydro-climate monitoring system established by project year 3 ▪ Communication programme in place by project year 3 between agencies responsible ▪ Operation and maintenance schedule, resources and budget in place by yr 2 of the project ▪ Institutional home, budget, mandate for use and responsibilities assigned to GIS system by end yr 3 ▪ Flood response and preparedness plans in place by end yr 3 ▪ Concept report on Nadi Basin Catchment Council including draft Council ToR by end month 6	***Component 1*** 1.0 Rainfall	1.1 Upgrade hydro-climate monitoring network	1.2 Intense event forecasting		
				Component 2 2.0 Runoff	2.1 Rainfall – runoff prediction	2.2 Best-practice cultivation guide	2.3 Capacity building – land management	2.4 Monitoring detention dams
				Component 3 3.0 River network & floodplain	3.1 Riparian & floodplain vegetation mapping	3.2 Flood warning system	3.3 Sediment flux assessment	3.4 Floodplain inundation modelling
				Component 4 4.0 River/water health	4.1 Riparian management guidelines	4.2 Water quality & biological surveillance		
				Component 5 5.0 Coastal health	5.1 Mangrove mapping & ecological assessment	5.2 Water quality variability	5.3 Water quality & biological surveillance	
				Component 6 6.0 Nadi IWRM – flood management plan Monitoring, evaluation, reflection and learning by all stakeholders	6.1 Plan documentation & stakeholder engagement			

Federated States of Micronesia Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3
FSM	Ridge to Reef: Protecting water quality from source to sea in the FSM	Sustainable Integrated Water and Wastewater Management in the Federated State of Micronesia	Improved drinking water quality and a significant reduction in pollutants entering fresh and marine waters around Pohnpei Island and in Chuuk State. ▪ 50% increase in forest wardens by year 5 ▪ Payment for Eco-system services(PES) introduce into municipalities by year 5 ▪ Three additional municipalities participate in Watershed Forest Reserve by year 5 ▪ 5% reduction in NTU in 2 rivers by year 5 ▪ Doubling of PUC water testing frequency by year 5 ▪ 70% reduction in leaching of pig waste into water ways in the 2 pilot communities by year 5	***Component 1*** 1.0 Watershed Protection and Improvement	1.1 Supporting CSP in community engagement	1.2. Demonstration of Wastewater Treatment Systems	1.3. Groundwater Assessment
				Component 2 2.0 Protecting Fresh and Marine Water Quality (including bio-gas demonstration)	2.1 Pollution source assessment and options to reduce pollutants	2.2. Water portal replication	
				Component 3 3.0 Water Safety Planning	3.1 Development of Water Safety Plan for Pohnpei and surrounding environs	3.2 Development of a Harbour Water Quality and Mgmt Plan	
				Component 4 4.0 Policy Support	4.1 Policy support activities		

Nauru Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3	Activity 4
Nauru	Enhancing water security for Nauru through better water management and reduced contamination of ground water.	Sustainable Integrated Water and Wastewater Management in Nauru	To adopt a system of affordable as well as a working system for the sustainable integrated water resource and management of wastewater ▪ Establishment of a Steering Committee for the National Sanitation and Wastewater Management ▪ 100 more rainwater tanks. Topside groundwater reservoir by year 5 of Project ▪ 3 Trained sanitation management officers by yr 5 of project ▪ 80% reduction of pollutants in drinking water ▪ 80% of the houses have access to non-portable freshwater by yr 5 of project	***Component 1*** 1.0 Protect ground water resources	1.1Reduced contamination of ground water due to pollution from anthropogenic sources	1.2 A more informed basis on the status of waste water impacts on ground water resources in Nauru		
				Component 2 2.0 Reduce stress on valuable water resources through conservation and better water management	2.1 Reduction in use of fresh water for non potable uses	2.2 Strategies for dealing with water shortages due to severe events		
				Component 3 3.0 To build capacity and raise awareness about sanitation and water management issues amongst all the people of Nauru	3.1 Community more resilient to drought and events that may lead to water shortage.	3.2 Community better informed and aware of the importance of sanitation and waste management	3.3 Effective communications strategy about waste and water issues amongst the community.	3.4 Enhanced understanding of the relationship between human health and integrity of the ecosystem and environment.

Niue Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5
Niue	Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model For The Alofi Town Ground water Supply And Nearshore Reef Fishery	To develop a sustainable national IWRM capacity and institutional framework by demonstrating the effectiveness of IWRM approaches to protecting the groundwater supplies and near-shore fisheries of Alofi Town from polluting and potentially land-based	To demonstrate the effectiveness of IWRM approaches to protecting the groundwater supplies and near-shore fisheries of Alofi Town from polluting and potentially land-based activities ▪ Increase in % of tanks meeting adequate effluent standards ▪ Reduction in Water Use per crop production unit ▪ New abstraction licence management system and new legislation	***Component 1*** 1.0 Urban Land Use Protection Measures	1.1 Septic tank improvements	1.2 Solid waste improvements	1.3 Fuel oil storage improvements	1.4 Hazardous waste improvements	
				Component 2 2.0 Rural/Agricultural Land Use Protection Measures	2.1 Agro-chemical storage and usage	2.2 Piggery effluent waste management	2.3 Fish Processing Facility effluent waste usage	2.4 Road run-off management (oil interceptors)	
				Component 3 3.0 Water Conservation & Demand Management Measures	3.1 Storage tanks to reduce peak demand abstraction rates	3.2 Leakage reduction programme	3.3 Conservation & awareness campaign	3.4 Crop water usage.	
				Component 4 4.0 Water Resources Management	4.1 Investigation boreholes	4.2 Production Bore Yield Tests	4.3 Water quality monitoring	4.4 Borehole Headworks Protection	
				Component 5 5.0 Water Policy and Planning Measures	5.1 Review and Update relevant national legislation	5.2 Enforce environmental protection regulations	5.3 Introduce Land Use Planning & Groundwater Protection Zones	5.4 Implement Abstraction Licensing and Water Rights	5.5 Education and Community Awareness

Republic of Palau Summary Demonstration Project

Country	Title	Objective	Components	Activity 1	Activity 2	Activity 3
Palau	Ngerikiil Watershed Restoration for Improvement of Water Quality	The critical resource concerns are: • Soil Erosion and Sedimentation • Nutrient, Fertilizer and Pesticide Pollution • Solid Waste Disposal • Invasive Species • Wildlife Habitat Loss ▪ 25% of riparian zone is re-vegetated with native trees by yr 3 ▪ 5% reduction in chemicals used to treat source water at Ngeruobel WTP by end of project ▪ 1 water quality monitoring program developed by year 1 ▪ 1 aquatic invertebrate survey completed per quarter per monitoring site ▪ Legislation/policy for PES established by year 4	***Component 1*** 1.0 Improvement surface water quality	1.1 Survey pollutant sources 1.1.1 Sanitary survey 1.1.2 Pollutant sources mapped 1.1.3 Pollutant sources reduced	1.2 Revegetate riparian to minimize sedimentation levels 1.2.1 Riparian revegetated with native tree species 1.2.2 Chemical usage for water treatment reduced 1.2.3 Chemical pollutants of river waters monitored	1.3 Establish long-term monitoring program 1.3.1 Water quality monitoring program developed/formalized 1.3.2 Monthly water quality monitoring visits carried out 1.3.3 Water quantity monitoring program developed
			Component 2 2.0 Drainage mitigation	2.1 Vegetate drainage ways 2.1.1 Drainage ways of 'Compact Road' affecting water source vegetated	2.2 Storm water workshop 2.2.1 People trained in storm water management	2.3 Chemical analysis of road drainage 2.3.1 Road run-off analysed
			Component 3 3.0 Improvement of biodiversity/bioindicators	3.1 Monitoring of ecosystem health through bioindicators 3.1.1 Ongoing aquatic invertebrate monitoring data collected 3.1.2 Dragonfly surveys conducted 3.1.3 Bird population surveys conducted 3.1.4 Monitoring sites conducted		
			Component 4 4.0 Policy/Awareness	4.1 Establish "Payment for Ecosystem Services" 4.1.1 Revenue collected from water users by Year	4.2 Socio-economic Impact Survey 4.2.1 Socio-economic survey conducted	4.3 Increased Awareness of watershed protection 4.3.1 Protection of environment to protect watershed 4.3.2 Legislation for watershed protection passed at end of Project period 4.3.3 Water safety Plan
			Component 5 5.0 Documentation	5.1 Reports to SOPAC/GEF 5.1.1 Update GEF through SOPAC on project progress	5.2 Documentation of watershed restoration strategy 5.2.1 Watershed restoration documented	

Papua New Guinea Summary Demonstration Project

Country	Title	Objective	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7	Activity 8	Activity 9	Activity 10
PNG	Rehabilitation, Management and Monitoring of Laloki River system for economical, social and environmental benefits	To promote the sustainable use of the Laloki River water resources for the economic and social benefit city and the surrounding area. ▪ Environment impact assessment done on 5 current activities and 2 planned and alternative water and land use activities by end of project life ▪ Publication of a sub-policy of Environment (Waters in PNG) Policy by end of yr 3 ▪ Identify 1 appropriate agricultural practices in the catchment by end of project life ▪ Report produced on all current point source discharge water use permits by end year 2 ▪ 10 permits rolled into the new environmental regime by early year 3	***Component 1*** 1.0 Formulate an integrated and sustainable catchment management plan for the Laloki River	1.1 Develop a communication strategy and conduct education and awareness on the need for an integrated and sustainable catchment management plan	1.2 Undertake topographic, hydro-geological, vegetation, biodiversity, socio-economic and land use surveys of the catchment.	1.3 Undertake a demand analysis of the river system for all existing and planned in-stream and off-stream uses.	1.4 Develop an appropriate hydrological model of the catchment.	1.5 Using the model, evaluate the impacts of current, planned and alternative water and land uses	1.6 Formulate an Integrated Catchment Management Plan (ICMP)	1.7 Under the ICMP, develop a water use and waste disposal policy for the catchment	1.8 Examine the implementation of the ICMP through the Catchment Management Committee (CMC).	1.9 Undertake appropriate policy and legislative reviews.	1.10 Evaluate lessons learned and compile a replication strategy for other catchments
			Component 2 2.0 Improve waste management and reduce human-induced contamination of the Laloki River	2.1 Review all the land uses including subsistence and commercial agricultural practices in the catchment	2.2 Carry out a contaminant loading assessment of the river.	2.3 Identify and implement appropriate methods and technologies appropriate for various waste disposal practices.	2.4 Review existing water use permits of point source discharges	2.5 Organize licensing of all new activities and transfer current water use permits into the new environment regulatory regime	2.6 Work with the UNCCD Sustainable Land Management project to produce a Land Use Plan for the catchment.				
			Component 3 3.0 Develop Site specific water quality criteria for the Catchment	3.1 Appraise the existing water quality situation of the catchment from Sirinumu reservoir, Goldie River and down to the Waigani swamp.	3.2 Develop and implement a water quality monitoring program of the Laloki and Goldie river systems	3.3 Develop site specific water quality criteria for the Laloki River and surrounds.	3.4 Enforce the water quality criteria within the catchment with the assistance of the CMC and all stakeholders						
			Component 4 4.0 Establish a representative and viable hydro-meteorological network for the Laloki River catchment (done jointly with the Pacific-HYCOS)	4.1 Develop a communication strategy and carry out education and awareness on the importance of the project and significance of the hydro-meteorological network	4.2 Undertake a physiographic evaluation of the catchment and review the old hydrometric stations	4.3 Identify locations for a representative hydro-meteorological network throughout the catchment in close collaboration with villagers and institutions	4.4 Identify and acquire appropriate flow, rainfall, water quality and groundwater measurement equipment taking into account durability, user friendliness and cost	4.5 Establish stations and train local data collectors.	4.6 Evaluate station operation and data collection and carry out improvement and training as required.	4.7 Ensure continuous reliable operation of stations and provision of data to the main database unit.			

Republic of Marshall Islands Summary Demonstration Project

Country	Title	Objective	Components	Activity 1
RMI	Integrated Water Management & Development Plan for Laura Groundwater Lens, Majuro Atoll	The objectives of the LWLPCC will be: • To implement the pre-agreed remediation strategies for the protection of the Laura Lens; • To collect data and create a database of resource use and the potential sources of pollutants within a Geographic Information System • To raise public awareness for protection and promotion of sustainable development of the groundwater resources at Laura. • To build the capacity of the members to understand the water related issues affecting the community • To empower the traditional landowners to take more responsibility and actively participate in decision making for the protecting the water source in the area • To reduce conflict of groundwater resource use and its threats by involving all relevant stakeholders in the decision making process; • To create a vision for the future in light of the growing population, the potential increase of pollutants and its implications on society • To review the outputs of the project on a regular basis and make improvements. ▪ Three operational Community Septic Tank Systems installed by end of year 5 ▪ Reduced number of water related diseases by 80% by end of year 5 ▪ By the end of the project, 100% of all residences will be using flushed toilet and connected to a sanitary Community Septic tanks ▪ About 70% of Laura residences have access to rainwater by end of year 1	***Component 1*** 1.0 Construction and Installation of Community Disposal Septic Tank Systems	1.1 Implementation of new Septic Tanks Systems to be designed by water resource engineers to ensure the system will be robust and meet the demand of the community
			Component 2 2.0 Installation of Saltwater Flushed Toilet and Solid Waste Collection Bins at individual households	2.1 Improved sanitary facilities at Laura households and management of solid waste disposal.
			Component 3 3.0 Relocation of pig pens to safer areas away from homes situated directly above the groundwater	3.1 Reduced pollutant sources to groundwater
			Component 4 4.0 Implement Rainwater Harvesting System	4.1 More rainwater tanks made accessible
			Component 5 5.0 Develop and Implement Solid waste Collection and Disposal System	5.1 Better management of solid waste disposal and reduce uncontrolled landfill activities
			Component 6 6.0 Establishment of zoning in the area using GIS to ensure activities that cause pollution are located far from the water source.	6.1 Better management of water extraction and water supply.
			Component 7 7.0 Consultation with the Stakeholders at the National and Local Level	7.1 Increased awareness on the proper usage and protection of water resources.
			Component 8 8.0 Implement the monitoring and collection of sewage from Laura to the Majuro Public Sewer	8.1 Periodic emptying of Laura Community Septic to avoid groundwater pollution
			Component 9 9.0 Assessment of the Laura Population density using GIS	9.1 Data collection on the number of households and acquire population density.
			Component 10 10.0 Decommissioning of overflowing and leaking septic tanks.	10.1 Reduce eliminate sources of pollutants to groundwater resource.
			Component 11 11.0 Provide Sewage Service Truck to transport the Monitoring Team to inspect the Community Septic Tank	11.1 Provision of sewage service truck for Laura Community to dispose wastes at sanitary sewage disposal site.
			Component 12 12.0 Install saltwater pump for toilet flushing	12.1 Provide saltwater for flushing toilets to a Community Septic Tanks.

Samoa Summary Demonstration Project

Country	Title	Objective	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5
Samoa	Rehabilitation and Sustainable Management of Apia Catchment	To rehabilitate and manage the Apia catchment in a sustainable manner in order to improve the quality and quantity of the water resources for enhanced water supply and hydropower generation, socio-economic advancement and reduced environmental adverse impacts. ▪ By December 2009 National Water Services Policy finalised and approved by Cabinet ▪ Land Use Plan developed by December 2009 ▪ Water Safety Plan for underground and surface water development by June 2010 ▪ Establishment of 2 protection water zones by year 5 ▪ By 2012 soil classification and infiltration rates completed ▪ Sanitary facilities for Loimata o Apaula & Lanotoo in place by July 2010 ▪ At least two farmers within project area by December 2010	***Component 1*** 1.0 Project Management and Coordination	1.1 Establish Project Management Unit within MNRE-WRD	1.2 Contract and appoint Project Management Unit personnel (Project Coordinator and Project Assistant)	1.3 Coordinate, develop and implement Project Monitoring and Evaluation Plan	1.4 Coordinate CCC meetings and other project meetings	1.5 Provide quarterly progress reports
			Component 2 2.0 Policy and Plans formulation and review for effective water conservation, allocation and provision	2.1 Develop a Land Use Plan	2.2 Review of watershed management plan (Vaisigano and Fuluasou)	2.3 Develop a watershed conservation policy and plan	2.4 Develop a water safety plan for underground and surface water	2.5 Review National Water Resources Policy and finalise National Water Services Policy
			Component 3 3.0 Conservation and Rehabilitation of Degraded Areas to Reduce Water Pollution	3.1 Collect information and update the National Water Resources Information Management System	3.2 Assess impacts of land use activities (e.g. agricultural, land clearing, earthworks, infrastructural developments etc) on water (fresh and coastal), soil and biodiversity quality and public health	3.3 Implement priority mitigation measures based on findings of land use impact assessment	3.4 Implement water, soil and land use monitoring programme	3.5 Develop and implement appropriate eco-tourism activities
			Component 4 4.0 Awareness and Capacity Building for Prevention of Water Pollution and Wastage	4.1 Water Demand management for targeted end users within the watershed	4.2 Implementation of effective public education/awareness and capacity building programmes for watershed users			

Solomon Islands Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6
Solomon Islands	Managing Honiara City Water Supply and Reducing Pollution through IWRM Approaches	To have best management strategies and protection measures for Honiara city water resources to ensure there is sustainable water supply and wastewater services in the Honiara City. The lessons learnt would be transferable to other urban centers in the country.	To demonstrate management strategies and protection measures for critical watersheds, aquifers and well-fields within Honiara city through proper assessment of potential water resources to determine the extent and location of aquifers, the extent of threats of pollution and the potential resources available for extraction without over-exploitation of available for extraction without over-exploitation of the resources. ▪ Identification of pollution points to Honiara water supply sources and surrounding environment within Honiara City, especially Panatina bore field and Rove spring sources ▪ Water Safety Plan in place for Honiara and being implemented in 3rd yr ▪ 10-20% improvement on Coliform for Panatina water supply in 4th year	***Component 1*** 1.0 Water Safety Planning and Demand Management	1.1 Assessment to quantify sustainable water abstraction for Honiara water supply	1.2 Survey of the ecosystem functions and natural resources of the surrounding environment including intended Honiara Protected Zone for aquifer/well field protection and that this should also include an assessment of liquid and solid waste pollution going into the marine environment	1.3 Review of land based activities (land use, industrial and residential waste) likely to impact water quality and supportive ecosystems within Honiara city;	1.4 Recommend Water Safety Planning for urban and rural water supply services	1.5 Survey to identify wastage and leakages in selected Honiara city water supply zones as wastage and leakages can be classed as a water demand management approach	1.6 Recommend options for recovery and reduction in losses in the system
				Component 2 2.0 Management Strategies, Policy and Legislative review	2.1 Adoption of a Water Use Efficiency Plan for Honiara city to promote water conservation	2.2 Adoption of a Water Safety Plan to promote the protection of urban and rural water supply services	2.3 Designation of a conservation area for selected Honiara city aquifers/well fields	2.4 Develop and adopt a watershed/aquifer protection Management Plan	2.5 Adopt monitoring and compliance mechanisms based on amended policy and legislations	
				Component 3 3.0 Stakeholder participation, awareness and capacity building	3.1 Building awareness for integrated Honiara water resources management and protection	3.2 Training and education for effective IWRM	3.3 Develop and implement clear communications strategies for the projects general campaigns			

Tonga Summary Demonstration Project

Country	Title	Objective	Purpose	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7
Tonga	Improvement and Sustainable Management of Neiafu; Vava'u's Groundwater Resource	Sustainable water resource assessment and protection of the fragile Neiafu Groundwater Resources	Improved understanding of the quality and quantity of surface water, groundwater, rainwater, coastal receiving waters, and their vulnerabilities to land based pollution. ▪ Reduction in pollutant by 20% from baseline levels ▪ Reduction in septic tank leakage by 50% above baseline levels ▪ Regular water quality monitoring system in place with distribution of results to stakeholders via the Aquifer Mgmt Committee ▪ Reduction by 40% from baseline in water supply. Leakage monitoring processes in place and TWB actively working to reduce leaks including cost recovery improvement fro O&M	***Component 1*** 1.0 Mitigate Threats from Contaminants	1.1 Review and develop options for implementation for agricultural practices and land-use as they pertain to well-field and aquifer integrity	1.2 Develop and implement alternative options to minimise impacts of sewage and liquid waste practices (onsite demonstrations)	1.3 Review health statistics that may be associated to water contamination and address them in all stages of the project	1.4 Consult and address community concerns	1.5 Monitoring and compliance based on Water Resource Management Bill		
				Component 2 2.0 Protect Aquifer and Supportive Ecosystem	2.1 A Hydro-Geological survey of the aquifer and well-field area	2.2 Survey of water wastage and leaks in the groundwater extraction and distribution process	2.3 Review of options for recovery and recycling of water and reductions in losses in the system (both commercial and domestic)	2.4 Strengthen evaluation and monitoring of water resources	2.5 Development of an awareness and training programme for implementation	2.6 Establish a Committee to oversee the management of the Neiafu aquifer and a Technical Working Group for technical assistance	2.7 Capacity Building for institutional strengthening (communities, health services, farmers affected, Neiafu Groundwater Management Committee, etc)
				Component 3 3.0 Develop Water Resource Management Plan for Neiafu, including incentives for water conservation	3.1 Develop scenarios for the future of the Aquifer (e.g. major proposed developments and their expected impacts, etc.)	3.2 Management strategies	3.3 Financial sustainability mechanisms				

Tuvalu Summary Demonstration Project

Country	Title	Objective	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7	Activity 8	Activity 9	Activity 10	Activity 11
Tuvalu	Integrated Sustainable Wastewater Management (Ecosan) for Tuvalu	To demonstrate that improved sanitation technology and practices can provide protection of primary and secondary water resources, marine biodiversity, livelihood, and food security, and practically demonstrate the links between public health and the conservation of natural assets. ▪ 80% feedbacks received from community on preferred sanitation system and 100+ volunteers to trial new or improved systems ▪ 90 dry sanitation systems complete over the 5 years within the specified or identified areas ▪ 50% of households in identified areas with proper septic tank systems ▪ Water shortage reduced by 10 times at	***Component 1*** 1.0 Public health, and contamination of ground water, coastal and marine environment	1.1 Update statistics on flush toilets with septic tanks; pour flush latrines, and no toilets on Fongafale	1.2 Conduct random survey of attitudes/perceptions re different types of toilets and pollution of marine environment	1.3 Water quality assessments in Fongafale lagoon	1.4 Update health statistics on waterborne disease	1.5 Present sanitation problems and potential solutions	1.6 Invite volunteer households to trial composting toilets, improved septic systems, and bio digester units	1.7 Review of sludge handling and options for disposal/ treatment. If community wants centralized disposal then	1.8 Government to identify leased land for potential treatment site	1.9 Proceed with design of preferred option for sludge treatment and negotiate lease of private land if government lease site not acceptable to community. Cost and identify funding (EU-EDF10?)	1.10Complete IWP video and circulate. Use radio to advertise community consultation and invite households for trial sanitation systems, report options and negotiations for sludge treatment, ongoing community feedback on project etc	1.11Co-operate with TANGO, Kaupule, to promote links between conservation, public health, food security, livelihood
			Component 2 2.0 Promote dry eco sanitation systems to reduce consumptions on primary water	2.1 Develop appropriate design of dry based on feedback from current CT users, previous trainees and PWD staff	2.2 Construct 80-100 composting toilets in cross section of Fongafale households, and trial bio-digesters	2.3 Replace or repair septic systems at volunteer households	2.4 Conduct training sessions for government, community, private sector on common toilet systems and how to design and build effective dry and waterborne treatment	2.5 Monitor trial sanitation systems/community response	2.6 Record progress of demonstration project on Fongafale and conduct information exchange with selected outer island communities	2.7 Construct trial sanitation systems in volunteer households. Trial should include comparing various building materials to reduce cost and demand on coastal aggregate etc, and local aesthetics re design and materials	2.8 Monitor trial sanitation systems/community response	2.9 Evaluate project against socio-economic and physical indicators. Refine design of trial sanitation systems based on user feedback, effective treatment	2.10 Transfer of best practices in water resource protection and conservation to rest of Tuvalu, the Pacific Region and beyond	
			Component 3	3.1 Improve	3.2 Engage	3.3 Revise,								

		the end of 5 years at the target houses	3.0 Protecting water supply and reducing island vulnerability	in rain water collection	community to give Cabinet mandate to enact and enforce building code and endorse Integrated Water Resources Plan	update & implement Draft Water Resources & Sanitation Management Bill and Draft Integrated Water Resources Management Plan, regulations, guidelines and design of roof catchments, rain storages and sanitation systems in the Tuvalu National Building Code								

Vanuatu Summary Demonstration Project

Country	Title	Objective	Components	Activity 1	Activity 2	Activity 3	Activity 4	Activity 5	Activity 6	Activity 7
Vanuatu	Sustainable Management of Sarakata Watershed	To prepare an integrated Sarakata Watershed Management Plan involving the existing Sanma Provincial and National Water Resources Advisory committees and stakeholders. It will provide a model from which lessons can be learnt and best practice replicated in other watersheds. The specific objectives include: 1. Operative Sarakata ridge to reef watershed management plan 2. Ecology and biodiversity from ridge to reef supports & sustains wise resource use 3. Consumer water quality consistently meets WHO standards 4. Consumer water availability consistently meets WHO standards 5. Impacts of flooding mitigated 6. Watershed managed for sustainable hydro power 7. Community actively contributes to and benefits from sustainable watershed management ▪ Declaration of Sarakata watershed as physical planning zone for Sanma province by yr 5, 1 land use map developed by yr 2 ▪ 1 farming practices manual developed and operational by yr 4 ▪ No. of trees replanted per year, control of logging licences ▪ 1 Water safety plan	***Component 1*** Project Management Unit Established	1.1 Project manager and staff contracted	1.2 Project offices established	1.3 Membership and TOR of Water Resource Steering Committee established	1.4 Project management and monitoring systems established	1.5 Project Steering Committee meetings		
			Component 2 Sarakata Watershed Management Plan	2.1 Participatory ecological and socio-economic survey	2.2 Technical surveys undertaken and data collated	2.3 Prepare watershed land use maps using VANRIS	2.4 Identify core values and uses	2.5 Identify management strategies	2.6 Identify policies & plans	2.7 Identify monitoring, evaluation, reflection & learning strategies
			Component 3 Protect ecology and biodiversity from Ridge to Reef	3.1 Implement commercial & domestic farming & agriculture management practice	3.2 Manage de-forestation & promote re-forestation	3.3 Promote alternative land uses	3.4 Coastal management practices	3.5 Community resource use agreements	3.6 Establish protected areas	
			Component 4 Deliver safe and secure water to consumers – Luganville; Fanofo; Pal on; other	4.1 Relocate Luganville water supply	4.2 Fence Luganville source	4.3 Develop WSP for ALL water supplies	4.4 Demand management mechanisms	4.5 Sanitation & waste management	4.6 Establish water quality monitoring	
			Component 5 Mitigate Flooding	5.1 Preliminary flood mapping on topo maps	5.2 Upgrade telemetric monitoring system	5.3 Flood Mitigation guidelines	5.4 Establish active flood warning system			
			Component 6 Manage watershed for sustainable hydropower	6.1 Manage and upgrade hydro scheme						
			Component 7 Develop & implement policy & regulations	7.1 Gazette & implement water protection zones	7.2 Establish & implement resource management legislation & Sarakata Watershed management plan	7.3 Compensation policy & delivery	7.4 Local resource use policy & plans	7.5 Effective communication strategies	7.6 Establish enforcement unit	
			Component 8 Community actively contribute to watershed management	8.1 River Care awareness	8.2 Water Safety Plans community awareness	8.3 Building sustainable futures community education	8.4 Waste Management national education & awareness	8.5 Community development training	8.6 Water Committee training	9.6 Plumber training
			Component 9 Monitoring, evaluation, reflection and learning by all stakeholders	9.1 Monitoring & evaluation undertaken by stakeholders within the Project	9.2 Monitoring & evaluation of Project activities					

		developed for Luganville by yr 1 ▪ 3 community water safety plans developed by yr 5 ▪ 1 flood mapping completed and warning system established and operational by yr5								

Annex A6: Monitoring and Evaluation Approach for Pacific IWRM

The overall strategic results framework/project logframe contains a number of indicators (both baseline and target) including sources of verification for project monitoring. At the national Demonstration Project level, during the PDF-B project design phase each country has developed a draft logframe and initially identified both baseline and target indicators for project monitoring.

During the first 6 months of the project each Demonstration Project will be re-visited using a participatory monitoring and evaluation approach. Demonstration Projects will be reported in a detailed manner to ensure that all lessons are recorded and learnt from as the project develops. Synthesising these lessons learned and disseminating them will be a key role of the regional PCU. Well designed Demonstration Projects provide a unique opportunity for countries to use activities projects as proving grounds to test new approaches and identify sustainable solutions to environmental problems. A key role of national project management staff, the IWRM APEX Bodies[89], and national government is to learn the lessons from the Demonstration Projects and to roll these new approaches into national best practice.

Monitoring Process

Standard GEF indicators focus on Process, Stress Reduction, and Environmental Status. This project will look to expand on these three types of indicators and use them within the overall IWRM and Water Use Efficiency Regional Indicator Framework developed under Component 2 [C2] of the project. The purpose of this framework is to develop a series of indicators tailored to Pacific SIDS situations at the technical and socio-economic level, and to develop IWRM cross-cutting indicators. This will be based on a Participatory Monitoring and Evaluation (PM&E) approach at the Demonstration level, and scaled up appropriately to the national and regional levels.

Participatory Monitoring and evaluation focuses on five principles:

(i) ***Participation*** – stakeholders participate in all aspects of choosing indicators and in collecting and analysing data;

(ii) ***Negotiation*** – stakeholders negotiate over what will and will not be monitored and evaluated, how and when data will be collected, and how findings will be presented;

(iii) ***Learning*** – participation, negotiation, and collective working leads to learning, ownership and investment in those findings;

(iv) ***Flexibility*** – is essential, as the purpose of PM&E is improved learning for improved results, leading to ongoing change and adaptation in approaches;

(v) ***Stakeholder Involvement*** – when multiple stakeholders work together (a key principle of IWRM) to develop indicators, they also clarify expectations and priorities, negotiate common approaches, and build ownership of outcomes.

Engaging with local communities is intended to build sustainable support for the project through including them in re-defining project activities, and helping management staff identify indicators and ways to collect and therefore annually monitor change (both negative and positive) to ensure benefits are delivered and negative effects can be mitigated against as they occur. National Project Management staff will refine the draft Demonstration Project logframes and include concrete baseline and target indicators as required, based on this first 6 month consultation period. One key element of this initial period will be to explain to communities what will be available to them and expected from them, and how project resources will be used, based on their willingness to engage. Past experience of other International Waters projects suggests that communities expect to receive the investment made by GEF to help them implement the project, based on poor information and mixed messages. All information and resources available will be explained to communities in a transparent manner to gauge their initial interest in the projects, and their willingness to become involved in implementation and the PM&E approach.

[89] And National Project Steering Committees where they are not the IWRM APEX Bodies in countries.

The sustainability of work undertaken at the local level must be underpinned by the community owning, and driving the Demonstration Projects. A critical element will be securing national project management staff who can work with the communities involved. Project monitoring therefore has to be realistic in understanding that behaviour change at the community and national level takes time in order to achieve long-lasting benefits.

An important step in the PM&E approach is the inclusion of activities and events to learn from M&E information and to share this information between different levels in national government, and to feed this information into the region. Reflective learning allows people a regular opportunity to reflect on recent events, make use of M&E information, discuss developments, and feed ideas into existing practice and planning. Reflective learning can be an informal or formal process that is planned in current project activities. In identifying the scope of PM&E it is necessary to identify stakeholders who must be involved in the PM&E process. Stakeholder identification therefore needs to be as thorough as possible. This stakeholder identification process asks the following questions: *(i)* who are the current major users of M&E information; and, *(ii)* who are the users of PM&E information?

Figure A6.1 below shows the PM&E framework. The PM&E Matrix involves analysing the stakeholders of the project in terms of not only who they are, but what information they may have, and what information they may need. This also involves analysing how much capacity and motivation they have to bring about change, and their role in the M&E approach of each Demonstration Project (stakeholder accountability in terms of their role to inform, consult, partner during the project cycle). This process ensures that where indicators are developed, they are developed by all project stakeholders together, and clear roles are identified for information and data collection, and presentation of that information to analyse project progress.

The PM&E Action Plan is aimed at assisting national project staff to implement the PM&E matrix. Supported by the Regional PCU, the matrix streamlines information to identify time, financial and human resource use. This involves project management considering: (i) the tasks which need to be completed and which are time bound; (ii) identifying who is responsible for implementing the tasks with stakeholders; (iii) identifying where the tasks will be completed; (iv) identifying resources (vehicles, equipment, reports, computers, etc) that are needed, including from co-financers; and, (v) expectations at the end of the task(s).

The PM&E approach will work at four levels, with each level providing indicators which can be aggregated up to the next level and rolled-out over the region and shared globally. In developing the suite of indicators priority will be given to matching project with national indicator requirements and focus in line with the principles of PM&E. The process for indicator development is based on the following four stages:

1. **Demonstration Project** – to ensure individual projects identify indicators and they provide a tool for measurable progress to be identified (and where poor practice can be identified);
2. **National** – project level indicators applicable at the national level will be adjusted/scaled-up appropriately to be of use at the national level, facilitated by the IWRM APEX Body and Demonstration Project staff. This will include supporting project staff to develop national monitoring plans for IWRM using EU co-financing support (adopting a standardised reporting approach)[90];
3. **Demonstration sub-group** - demonstration level indicators will provide an effective way of monitoring progress, and will be aggregated at each of the Demonstration Project Group[91] levels to enable projects to learn from each other as part of the project twinning approach. This may include where possible project exchange visits within sub-groups to learn from each

[90] This will include appropriate links and sharing of indicators with the Sustainable Land Management national execution projects where appropriate. For example, links can be made with the SLM project for the Marshall Islands which aims to improve SLM to improve community adaptation to periods of low rainfall and improved coastal management. Similarly, in FSM a key indicator is the percentage of communities benefitting from improved land management through mapping and EIA technologies and integrated watershed management plans.

[91] (i) Watershed Management; (ii) Wastewater & Sanitation Management; (iii) Water Resources Assessment & Protection; (iv) Water Use Efficiency & Safety.

others projects and to monitor and provide advice to projects on their progress, backstopped by the Regional Project Coordination Unit;

4. **Regional** – building on the national and sub-group levels, indicators will be scaled-up to provide regional level indicators where appropriate. This will also link to Pacific RAP progress monitoring and MDG delivery. Information and lessons will be shared with other regional CROP Agencies and the Pacific Partnership on sustainable Water Management.

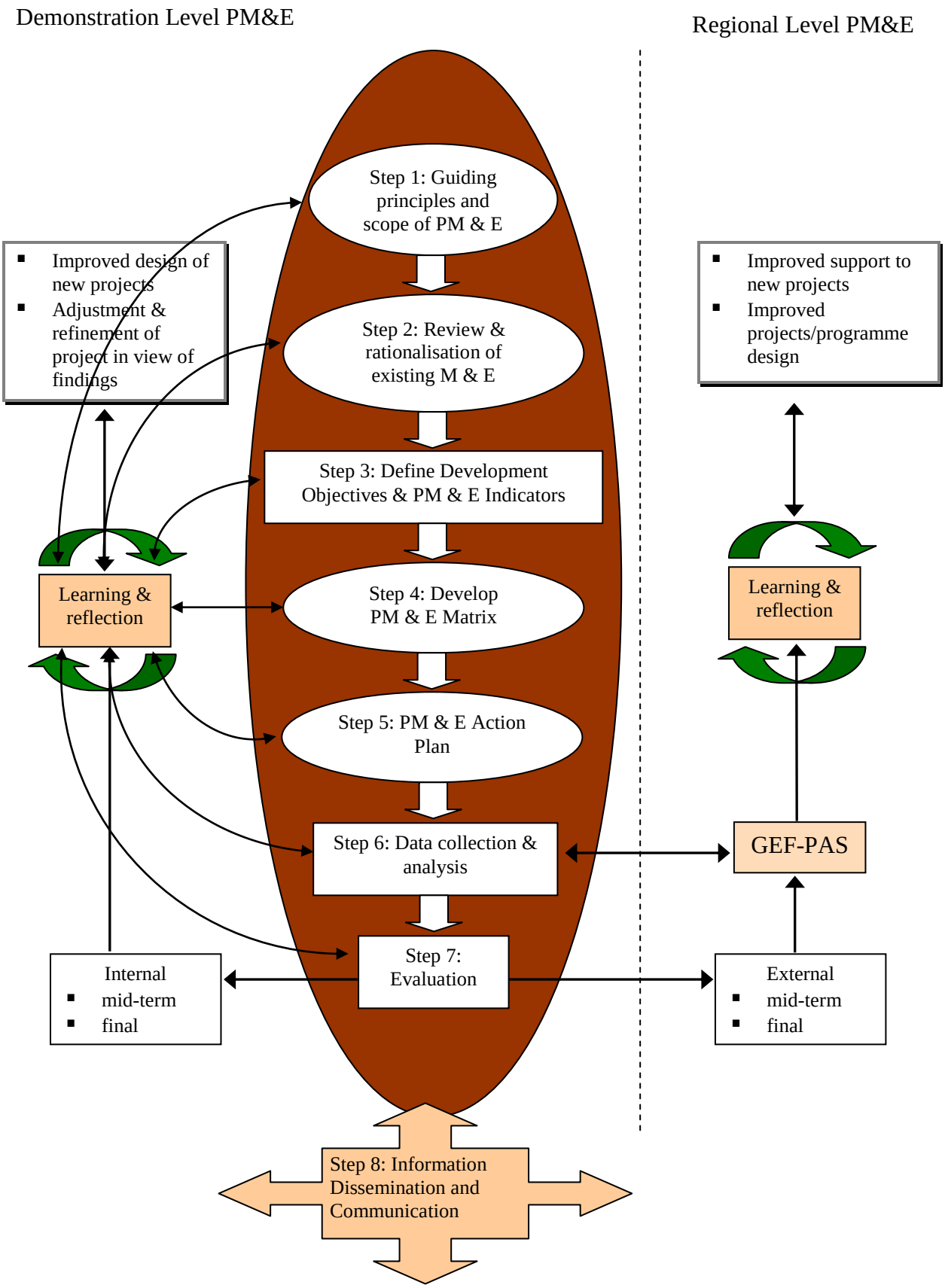

Figure A6.1: Participatory Monitoring and Evaluation Framework

Demonstration project level indicators will provide an effective way of monitoring progress, and will be aggregated at each of the Demonstration project group[92] levels to enable projects to learn from each other as part of the project *twinning* approach. Demonstration level indicators will therefore provide an annual measure of progress at the project level, and will be scaled-up to provide a suite of cross-cutting indicators which relate to IWRM, NAP, NAPA, NSDSs, and other national planning processes as a way to monitor progress, using National IWRM APEX Bodies as the cross sectoral facilitators[93]. The purpose of the Regional Indicator Framework is to collate optimal indicators which conform to GEF's requirements of Process, Stress Reduction and Environmental Status, but will also include wider indicators using IWRM and WUE as the guiding framework. By raising the need and developing approaches for indicators countries will be supported in monitoring approaches, including improving institutional capacity for monitoring and action on those monitoring results to address water and environmental challenges. One key element of this approach is to avoid the common pitfall of 'projectising' indicators by collecting baseline and other indicator information for only specific projects and not supporting national indicator collection and monitoring approaches at the same time. This causes duplication, discontinuous data, poor geographic and sectoral coverage, and often relies on outdated information.

National Project Managers and support staff, including other local support to the projects (relevant government staff, co-financers where applicable, NGO's, etc) will receive training in PM&E approaches during the Inception Phase of the project[94]. Through the collaborative working of the Project Coordination Unit and the EU Water Facility staff, supported with consultancies where required and requested, capacity will be developed in monitoring, and understanding the formulation and role of indicators, including the need to develop administrative processes and human and financial resources in order to act upon monitoring information.

The first six months of the project provides the opportunity to focus on re-visiting project design and refinement where required. The overall first 12 months of the project will be used for this re-design period, including the collection of suitable baseline information, and for the necessary training of national project staff to ensure that by month 12 all countries are at a similar status in terms of Demonstration Project implementation and national staff capacities.

The Indicator Framework under Component C2 of the project will assist National Project staff to scale-up and aggregate indicators from Demonstration Projects into national government, working with the National IWRM APEX Bodies in each country as facilitators of the information to government, and through providing the cross-sectoral linkages.

Supporting the development of the Indicator Framework will be the Pacific RAP matrix. The project will re-design the existing matrix to provide indicators for progress monitoring in implementing Pacific RAP activities for each country[95]. Further information will be provided on national IWRM status using the matrix, which will also be used to identify gaps in investments by national governments, and also to improve donor programming, investment priorities and harmonisation. Information from the RAP matrix and the Indicator Framework will be fed into the specific GEF-PAS program level monitoring framework[96].

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[92] (i) Watershed Management; (ii) Wastewater & Sanitation Management; (iii) Water Resources Assessment & Protection; (iv) Water Use Efficiency & Safety.

[93] This approach is cost effective and has additional benefits in building national IWRM APEX Body confidence and skills, including M&E understanding, and through awareness raising through promotion of IWRM at the senior national level. See Fenton, D., and Jacobs, G. 2006. *Resource Kit: Monitoring, Evaluation and Reporting for Sustainable Land Management in LDC and SIDS Countries*. UNDP/GEF Global Support Unit. For further information on the Sustainable Land Management approach. SLM has adopted a prosaic and fixed format for project monitoring.

[94] To maximise the return on previous donor investments, including those through GEF, and to utilise existing national knowledge, previous project experience will be revived wherever possible and available. This includes utilising people trained in monitoring and evaluation approaches from the earlier IWP project which adopted a Training-of Trainers approach.

[95] Working with EU Water Facility co-funding.

[96] Theme 2 of the Pacific RAP focuses on Island Vulnerability. The development of the Pacific RAP matrix will provide information on investment gaps to help future country and regional donor programming on dealing with the two Key Messages in the RAP under Island Vulnerability: (1) *There is a need for capacity development to enhance the application of climate information to cope with climate variability and change*; (2) *Change the paradigm for dealing with Island Vulnerability from disaster response to hazard assessment and risk*

Furthermore, the project has global significance in terms of delivering against the MDGs and specific actions and measures detailed in the Johannesburg Plan of Implementation and the Pacific RAP themes (see tables at the end of this annex). The project will focus on delivering IWRM under the four Dublin Principles[97].

Indicators

Indicators are either quantitative or qualitative statements or measured or observed parameters. These parameters can be used over time to describe existing situations and measure changes or trends. GEF uses three standard types of indicators:

Process indicators, which establish regional or national frameworks/conditions for improving environmental/water resources quality or quantity but do not themselves deliver stress reduction or improved environmental/water resources quality or quantity. The establishment of process indicators is essential to characterize the completion of institutional processes on the multi-country level or national level that will result in joint action on needed policy, legal, and institutional reforms and investments that aim to reduce environmental stress on transboundary water bodies. For the Pacific IWRM project management indicators will be included as Process indicators to ensure that 360^{O} feedback is provided to the UN Agencies and GEF-PAS to provide information on why things happened the way they did to improve future project and programme planning. The role of the PCU is to report on both good and bad project implementation so that lessons can be learned.

Stress reduction indicators, which relate to specific on-the-ground measures implemented by the countries, and which characterize and quantify specific reductions in environmental/water resources stress on water bodies, e.g. reduction in pollutant releases, more sustainable fishing levels and/or practices, improved freshwater flows, reduced rate of introduction of invasive species, increased habitat restoration or protection, etc.

Environmental Status indicators, which demonstrate improvements in the environmental status as well as any associated socio-economic improvements. These indicators are usually 'static' snapshots of environmental and socioeconomic conditions at a given point in time so, like Stress Reduction, are usually reported against a baseline year and level to show change/improvement.

Based on feedback from Implementing Agencies and other GEF International Waters projects the Pacific IWRM project does not intend to use Environmental Status indicators. Environmental Status will be determined by baseline information for environmental stress indicators[98]. National Diagnostic Analysis reports already provide useful baseline information for indicator development. Other indicators the project will develop and use both at the National Demonstration level and then at the regional level within the IWRM and WUE Regional Indicator Framework include:

Socio-economic indicators – indicators which demonstrate improvements in the livelihood base of people involved in or affected by the project. This may include access to safe water supply and sanitation services, improvement in hygienic behaviour, etc.

Water Use Efficiency indicators will demonstrate improvement in the use of water resources. This could include reductions in leakage from water supply networks, improvement in equipment used for efficiency purposes (both water and energy consumption), improvement in water resource use (use of

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management, particularly in Integrated Water Resource Management. See the GEF Pacific Alliance for Sustainability Program Framework document, February 2008.

[97] **Principle No. 1:** Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment; **Principle No. 2:** Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels; **Principle No. 3:** Women play a central part in the provision, management and safeguarding of water; and, **Principle No. 4:** Water has an economic value in all its competing uses and should be recognized as an economic good.

[98] Also based on feedback from the GEF Fourth Biennial International Waters Conference, 31 July – 3 August, 2007, Cape Town, Republic of South Africa. Close working will be fostered between the IWRM and IWCAM projects concerning indicators, and documents have already been shared including: Heileman, S., and Walling, L. 2008. *IWCAM Indicators Mechanism and Capacity Assessment*. Integrating Watershed & Coastal Areas Management in the Caribbean Small Island Developing States (IWCAM) Project. DRAFT document under development.

non-potable water for toilet flushing and not water resources for drinking), alternative technologies (composting toilets, membrane filters to improve water quality and therefore reduce health costs).

Catalytic indicators represent events and activities which occur which, when combined with others, including the project interventions, have a catalytic effect and can therefore improve the situation with no direct involvement from the project. This may include policy reform at the national level which has immediate benefits for the areas to be addressed by the project. However, catalytic indicators can also represent the combined effect of approaches in the project and/or with other projects which as a collective whole provide more benefit that the sum of their respective parts.

Governance indicators relate to the national IWRM policy planning process. Governance represents the range of political, social, economic and administrative systems that are in place to develop and manage water resources and the delivery of water services at different levels of society. Good governance is also about supporting civil society to help them make good decisions – and to provide them with the necessary skills and confidence to hold their Governments accountable. Within the water sector, good governance requires three things:

- *Capability* – having the ability to get things done such as providing safe water supplies and sanitation, setting good rules and regulations, creating good conditions for economic growth, managing public finances in a transparent manner and cost-effectively, and making sure government serves peoples needs;
- *Responsiveness* – means taking account of public policies and institutions to assess whether they serve the needs of the people and their rights, such as providing ways for people to say what they think and need, implementing policies which are of benefit to everyone, and are not exclusive to different parts of society, using public finances to benefit everyone, and preventing discrimination to allow everyone equal right and opportunity to benefit – all relevant within the water sector; and,
- *Accountability* – means being answerable for what is done, allowing civil society (people, private sector, etc) to scrutinise public institutions, policies and government and hold them accountable for what they deliver.

Reform and strengthening of water sectors can often be considered as an 'entry point' for wider national reform as water is cross sectoral and multi-level, therefore providing an opportunity to assess how government manages a vital resource. Lessons learnt in the water sector can often be transposed into other sectors.

X-cutting indicators are those which affect more than one single sector. For example, reducing freshwater pollution into coastal receiving waters from a wastewater treatment plan may have benefits on nearby fishstocks and other marine organisms, including their habitat. Improving sanitation systems together with hand washing campaigns and other awareness raising activities could have benefits for the health sector, as it is hoped that safer sanitation systems and following hygienic practices reduces diarrhoeal cases, especially in children.

Proxy indicators may need to be used in some cases where information is not available or where a clear result of an intervention is not easy to determine. These will be developed during the first 6-12 months of the project. Proxy indicators are more likely to be used for cross sectoral indicators.

Baseline Data - represents information collected at the initial stage of the project. Baseline data provides a basis for measuring progress in achieving project objectives and outputs/outcomes. It allows for "before" and "after" project scenarios to measure the impact of the project interventions. Baseline data allows you to look at the "with" and "without" project scenarios. Baseline data will be collected by National Project staff, and the communities/wider stakeholders involved in the project area (both geographical and sectoral). By including a wider sample than the project alone national project management staff will be able to compare the effects of the project on the environment and beneficiaries with those who were not directly targeted by the project.

Annex A7: Memorandum of Understanding with the Caribbean Environmental Health Institute

SOUTH PACIFIC APPLIED GEOSCIENCE COMMISSION

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Postal Address: SOPAC Secretariat
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Suva, Fiji Islands
Street Address: Mead Road, Suva, Fiji Islands

4th April, 2003

Mr Vincent Sweeney
Carribean Environmental Health Institute
PO Box 1111
The Morne
Castries
St Lucia

RE: MoU between CEHI and SOPAC

Dear Vincent,

Please find herewith a copy of the MoU that was signed between us, CEHI and SOPAC, at the 3rd World Water Forum in Kyoto on the 16th of March 2003.

We are looking forward to further collaboration between CEHI and SOPAC and are confident that the first step towards implementing the Joint Programme for Action will be taken in the coming months.

In the light of the preparations for the UN Global Conference on the Sustainable Development of SIDS we will ensure that the organising committee in Mauritius and at UNDESA will receive the appropriate documentation of the 3rd World Water Forum outcomes on Water in Small Island Countries and the Dialogue on Water and Climate.

I hope this information is to your satisfaction,

Kindest regards.

ALF SIMPSON
DIRECTOR, SOPAC

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE CARIBBEAN ENVIRONMENTAL HEALTH INSTITUTE (CEHI)

AND

THE SOUTH PACIFIC APPLIED GEOSCIENCE COMMISSION (SOPAC)

3rd World Water Forum
Kyoto, Japan, 16 March 2003

The Caribbean Environmental Health Institute, hereinafter referred to as 'CEHI' and the South Pacific Applied Geoscience Commission, hereinafter referred to as 'SOPAC',

Recognizing the management of freshwater resources and adaptation to climate change and variability is closely linked with the sustainable development of small island countries, and

Further recognizing the outcomes of the regional consultations in preparation for the World Summit on Sustainable Development, the World Water Forum and the Pacific and Caribbean Dialogues on Water and Climate,

Noting that CEHI, as an institution of the Caribbean Community (CARICOM) is recognized by its Member States as the regional organization with responsibility for activities related to environmental health; and also that CEHI is mandated to assist its members with the sustainable development of their water resources,

Further noting that SOPAC is mandated by its Member States as the regional organization with responsibility for activities related to water resources; and also that SOPAC uses geoscience to assist its small island members with the sustainable development of their physical environment as well as water resources,

Acknowledging that many aspects of water resources management, environmental health and geoscience afford an excellent opportunity for cooperation between Caribbean and Pacific Small Island Countries, therefore

HAVE AGREED AS FOLLOWS:

ARTICLE 1

Co-operation and consultation

1. The parties agree to co-operate on matters concerning the freshwater environment, capacity-building, data and information management, applied research, sharing of expertise, and on issues of mutual interest and benefit as result of the Small Island Countries Dialogue on Water and Climate and the outcomes of the Water in Small Island Countries session at the World Water Forum, 16-23 March 2003, Kyoto, Japan.

2. The parties agree to co-operate in the implementation of the recommendations relevant to small island countries adopted at the 3rd World Water Forum, and detailed in the Joint Programme for Action and Portfolio of Water Actions for Small Island Countries.

3. Co-operation between the parties will be established to facilitate the preparations for Barbados +10.

4. The modalities of co-operation between the parties will include the joint development of new intra- and inter-regional initiatives, including the preparation of proposals connected with Water Governance, Water Resources Assessment and Monitoring, Water Demand Management, Applied Research on improved Water Resource Management, Adaptation to Climate Change, and Integrated Water Resources Management.

ARTICLE II

Representation

1. In agreeing that the development of national capabilities is also a priority, the parties agree to jointly sponsor and undertake various workshops and activities within the framework of the above terms of co-operation.

2. Representatives of either party shall be invited to the appropriate meetings of the other.

ARTICLE III

Exchange of information and documents

1. The parties agree to the exchange of publications between the two agencies, for distribution by SOPAC within the Pacific region and by CEHI in the Caribbean region and establish linkages through the respective CEHI and SOPAC websites.

2. Each party shall keep the other informed of developments in the work and activities of mutual interest.

ARTICLE IV

Implementation

1. The Executive Director of CEHI and the Director of SOPAC may make specific arrangements for the satisfactory implementation of this Memorandum of Understanding.

2. The parties agree that all joint activities will be conducted as full partners co-ordinated by the respective Secretariats, with the full recognition of the respective organizations, and any financial obligation by either party is solely within its purview and is strictly voluntary.

3. This Memorandum of Understanding shall not impinge on or interfere with the sovereign rights of any individual member of either organization.

ARTICLE V

Amendments

The provisions of this Memorandum of Understanding may be amended by mutual agreement of the two parties. The amendments shall enter into force after the approval of their appropriate bodies.

ARTICLE VI

Termination of the Memorandum of Understanding

Either party may terminate this Memorandum of Understanding subject to six months' written notice. If one of the parties decides to terminate this Memorandum of Understanding the obligations previously entered into in respect of projects under implementation through this Memorandum of Understanding shall be decided upon by the parties on a case-by-case basis.

ARTICLE VII

Entry into force

After this Memorandum of Understanding has received the approval of the appropriate bodies of the two parties, it shall enter into force immediately upon signature by the Executive Director of CEHI and the Director of SOPAC.

Done at the 3rd World Water Forum, Kyoto, Japan, on 16 March 2003, in two copies in the English language.

For the Caribbean Environmental Health Institute (CEHI)

Vincent Sweeney
Executive Director

Witness
Hon. Felix Finisterre,
Minister of Communication, Works, Transport & Public Utilities,
Govt. of Saint Lucia

For the South Pacific Applied Scientific Geoscience Commission (SOPAC)

Alfred Simpson
Director

Witness
Hon. Fielakepa,
Minister of Lands, Survey & Natural Resources,
Kingdom of Tonga

Annex A8: Communications Approach for Pacific IWRM Project[99]

Thanks to Steve Menzies of the National Consumer Council in the UK, former Communications Specialist with the Pacific International Waters Project (April 2004 – May 2006) for his advice and assistance in the preparation of this Annex.

Developing a Communications Strategy

Development of a communications strategy can help to:

- Establish a 'baseline' picture of existing "Knowledge levels, Attitudes, Practices and Behaviours" (KAPBs) that will in turn indicate where there are gaps in behaviours or attitudes that need to be addressed or targeted[100];
- Identify key actors and channels for communications including traditional forms of communication;
- Clarify and reinforce project objectives, particularly in terms of strengthening environment and resource management at the national level;
- Link communications objectives to project objectives;
- Set achievable project objectives, given available resources;
- Develop useful tools and activities to raise awareness;
- Identify key indicators (including behaviour change indicators) and measure their performance; and,
- Influence key stakeholders and gain support in re-allocation of resources and in developing policies and institutions necessary to achieve project goals.

The overall IWP Communications Strategy[101] follows a 5-stage process:

Stage 1: Assess

- The current KAPBs and gaps that need to be addressed;
- The problem (including how local communities and project stakeholders perceive the problem, which can be ascertained through baseline KAPB research or situational analysis;
- The target audiences;
- Communication channels and opportunities; and,
- Resources available to implement communications activities.

Stage 2: Plan

Set realistic, achievable and measurable objectives. Both SMART objectives and 'necessary and sufficient' indicators.

Stage 3: Design

Develop effective messages, communication interventions or activities that engage stakeholders in learning about the problem and in identifying solutions.

Stage 4: Pre-test

Test these messages and methods with their target audiences.

Stage 5: Evaluation

Find ways to continuously improve their communications programmes through reflective learning and using monitoring.

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[99] Information from this section has been taken from a number of different sources including: Menzies, S. Undated. GEF IWCAM Project communications Planning Guide – DRAFT. IWCAM, GEF, UNDP, UNEP, CEHI. Eik, K., Csagoly, P., and Menzies, S. 2006. *A Communications Planning Guide for International Waters Projects*. UNDP, GEF. Menzies, S. 2006. Communications and the Pacific International Waters Project. Specific awareness raising and communications work will be conducted under the co-financing EU IWRM National Planning Programme, specifically higher level advocacy work.

[100] The Strategic Action plan and the Pacific RAP both identified weaknesses in understanding as a root cause of environmental degradation across the Pacific region.

[101] Eik, K., Csagoly, P., and Menzies, S. 2006. *A Communications Planning Guide for International Waters Projects*. UNDP, GEF. Menzies, S. 2006. Communications and the Pacific International Waters Project.

Background to the Pacific IWRM Project

The Pacific IWRM Project has the overall objective of improving water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans. The overall goal of the project is to contribute to sustainable development in the Pacific Island Region through improvements in natural resource and environmental management, in alignment with the GEF-Pacific Alliance for Sustainability strategic programmatic goal.

The Pacific IWRM Project aims to achieve the objective through 4 components:

1. Demonstrate, Capture and Transfer of Best Practices in IWRM and WUE
2. Develop an IWRM and WUE Regional Indicator Framework
3. Support Policy, Legislative and Institutional Reform for IWRM and WUE
4. Provide a Regional and National Capacity Building and Sustainability Programme for IWRM and WUE, including Knowledge Exchange and Learning and Replication

Demonstration Projects - National Demonstration Projects will deliver on-the-ground demonstrations targeted at national hotspots where specific threats have been identified. They must, most critically, develop mechanisms for the replication of activities and the transfer of best lessons and practices. Each Demonstration activity has been designed to substantially involve national and local NGOs and community groups which are concerned stakeholders in these areas.

Target Audiences

National Focal Points (NFPs)

The NFPs are the key linkage points between the Project Coordination Unit, the lead agencies, the National Intersectoral Committees, the Demonstration Projects, Project Steering Committees, the national stakeholders, the communities, and the wider public. Note that the IWRM project will build on existing capacity developed under the earlier IWP Project, and where appropriate, through discussion with the national IWP National Coordinators, will build on IWP communication strategies and approaches, people used, as resources, key lessons and experience.

Demonstration Project Managers and Assistants

The Demonstration Project Managers will be responsible for developing and implementing their own Communications Strategies in collaboration with their Project Teams. Demonstration Project Managers are the public faces of the Demonstration Projects. Communication Strategies can assist the Project Managers to:

- Clarify their project objectives and target audiences at the community and national levels;
- Clarify national communications objectives and targets such as lobbying for new legislation or more effective regulatory enforcement, greater resources and institutional changes;
- Identify key project partners that will help them to implement their communications plans and campaigns;
- Identify the most effective media and communications activities to meet their short and long-term objectives;

Lead Agencies/Ministries

It is vital that key persons within lead agencies see how the IWRM Project, including Demonstration Projects can be used to improve their ongoing work to manage natural resources throughout watershed areas, both during and beyond the life of the Project. IW Projects worldwide have attempted to find effective ways to promote ownership of the project within lead agencies. Tactics have included:

- Profiling key management officials in the media/videos
- Involving key lead agency managers and staff in project Communications Teams

National IWRM APEX Body/Intersectoral Committees
One role of the APEX bodies includes the promotion of project concepts and objectives at the national level, thereby ensuring integration of IWRM into national policy and planning frameworks. As such they are responsible for the long-term sustainability of the project and the national replication/integration of lessons beyond 2013. Concerted effort must be made if project activities are to have an impact beyond the immediate community and stakeholder level. APEX Bodies must therefore have input into any communications planning approaches.

Demonstration Project Communities
At the community level the Communications Strategies can help to:

- Promote the objectives, processes and benefits of the Demonstration Projects
- Help to prioritize issues to be addressed and help to identify solutions
- Raise awareness of the specific problems the project is trying to address.
- Promote/support specific behaviour and activities to reduce waste, and protect freshwater and coastal water quality.
- Promote the establishment of community-based management plans and other tools

The use of "community champions" can be an effective way of communicating the key behaviour the project is trying to promote. Involving them is necessary for community mobilization and can help with monitoring.

Wider National Public
Generating understanding and support from the wider public is necessary if there is to be sustainable change at the national level. National level social marketing campaigns may help promote behaviour change.

Other key Target Audience members include:

- Private Sector: national and regional organizations representing farmers; fisherfolk; manufacturers; hotel owners/managers; tour operators; dive operators; yachtsmen etc.
- Scientific Community
- SOPAC and CROP Agencies
- Non-government organizations
- Implementing Agencies
- Regional Partners and Co-financers
- Other Projects
- International/Donors
- International Partners (e.g.: Global Water Partnership)

***Key Messages* - s**pecific messages will be adapted for specific target audiences. Messages should be communicated consistently and incorporated into local messaging efforts. As far as possible they should refer to the negative consequences of poor management of water, watersheds and coastal area natural resources upon human health and the economy, in line with the overall project objective. Messages will need to be reinforced and stressed on a regular basis. Specific Demonstration Projects may require very precise messages that are practical, 'how to do it' types of messages which promote specific behaviour and practices.

The Communications Strategy will follow a similar format to the following three approaches:

1. Public Relations and Awareness Raising;
2. Developing Social Marketing – Behaviour Modification Campaigns to encourage behaviour and attitudinal change to counter negative impacts and to promote sustainable practices;
3. Documentation and Communicating Lessons Learned and Best Practice in order to encourage replication of successful approaches.

Each of these approaches is briefly discussed below and expanded on.

Public Relations and Awareness Raising

Activities to consider:

- Communications strategy
- Project brochures
- Media IWRM Workshop
- Media Releases
- Profiles of key managers
- Feature press article/s
- Media tours of Demonstration project sites
- Short radio messages
- Video documentary/public service announcements (ideally, to be done with both a PR perspective in mind and an 'instructional' perspective for later communication of best practices
- Country web page on IWRM website/links with partners
- 'media event's for key milestones

Communications Strategy

The outlining of a communications strategy is a useful exercise to conduct early. Clearly identify the objectives, processes and benefits of the project for key target audiences (including the community) at the local, national and regional level. A rapid assessment of communications capacity might be needed in order to ensure that the communications strategy is realistic, actionable and measurable.

Project Brochure

Project brochures should be simple and should clearly describe the objectives, processes and benefits of the project. Target audiences should be carefully considered – project partners? National and community level stakeholders? regional partners? The IWRM Synopsis and Pacific IWRM Brochure have already been designed, published and disseminated under the Project Design Phase.

Media IWRM Workshop or Session

Organizing a session to sensitize the media to IWRM issues, whether a workshop or shorter format meeting, can be well worth the effort. It is an opportunity to introduce the media to IWRM issues and the process, to establish a network of contacts amongst local media and to get feedback from them on public interests and perspectives as well as preferred ways of receiving information from the project. Media information kits should be developed for and distributed at such events. They could consist of simple briefing sheets, contact information and any public education materials developed for the project. Media coverage of such an event should also be pursued so that the opportunity to reach the wider public as well is not lost. The regional PCU will assist National Demonstration Staff with these workshops and the information and materials required.

Media Releases

Media releases are distinguished from feature press articles in that they should be used to provide information on events, landmark project developments, and updates of public significance. They should be concise, relevant to public interest, and clearly provide information on who should be contacted for additional information or for interviews. They should ideally be followed up by a phone call, particularly if coverage of the event is desired. Key persons or "champions" referred to in the media release or who are spokespersons for the project should be prepared for requests for interviews, whether in person or via telephone. Each National Demonstration Project should also have a 'timeline' for which key milestones should be achieved and should plan to have media releases and/or media events at each of these junctures

Profiles of Key Managers

Key managers within lead agencies/ministries and the project can be profiled to help clarify connections between community activities and relevant plans to improve watershed and coastal areas management at the national level. Short case studies on valuable approaches and experiences of the project managers will be actively supported via website and other media (newsletter, etc).

Feature Press Article/s
Establishing a contact at a local newspaper editorial department can be helpful in terms of placing feature articles, tip sheets and interviews. Feature articles written by the Project Manager, or with the guidance of the IWRM APEX Bodies, Regional PCU, etc can be placed in national or local newspapers and regional magazines. Editors can be approached to determine their willingness to print single or short series of articles accompanied by an illustration. They are often willing to provide space free of charge (copy) provided that the articles are placed exclusively with them at the national level. News story ideas can also be provided to features editors. Alternatively, local journalists could be contracted to write articles. Feature articles should: help clarify project objectives at community and national levels; raise local awareness by showing the regional importance and interest in the work; build local media interest in the project.

Short radio messages
Radio is listened to extensively throughout the Pacific and can therefore be an effective broadcast medium. Community radio in particular is listened to in areas where it exists. Short radio messages (two minutes or less) can be pre-recorded/produced and aired by arrangement on several radio stations, sometimes as public service announcements. Government Information Services are often available to assist with production in most countries and may make time slots for public service announcements (PSAs) available to the project.

Video documentary/public service announcements
Establish contact with television news and current affairs editors and reporters. Providing news story ideas, tip sheets, media releases and videotaped coverage of events makes it easier and quicker for them to provide coverage, particularly as it is not always possible for them to reach remote areas. Some Demonstration Projects already have funds for the production of a video within their budgets. Wherever possible, video footage should be shot 'instructionally' so that later 'how to do it' best practice examples can be clearly communicated. The PCU will also consider other video options for the overall project, including links to Television Trust for the Environment for global dissemination.

Country web page on Pacific IWRM website/links with partners
The PCU will be responsible for the IWRM Project web site and will be creating pages dedicated to specific Demonstration Projects which should consider the type of content which they would publish. Where demos are affiliated with agencies or NGOs, the relevant links can be created from the IWRM web site. Material for the web page can be based upon that prepared for the information brochure referred to earlier.

Phase II: Social Marketing – Behavioural Modification[102]

Social marketing entails the following:
- Audience research – it is important to develop a clear understanding of the root causes of specific environmental problems.
- Analysis of the GAPs
- Campaign focus – decide issue/s to be tackled (e.g. recycling, proper disposal of hazardous wastes, chemical over-use by farmers); targets; messages, products and activities, monitoring and evaluation, pre-testing; timeline and implementation schedule.
- Participatory strategy design and material development
- Participatory implementation
- Evaluation

Possible Approach
The aim here is to develop and implement a social marketing campaign which promotes changes in behaviour at the national and community levels. Key to the success of such a campaign is not only demonstrating the link between the behaviour and the negative impact but also upon presenting practical alternatives. While Demonstration Projects will be guided by the objectives of their

[102] For further information see: Menzies, S. 2004. The Social Marketing Guide for the Pacific. Pacific International Waters Project.

respective projects in determining the particular issue to be focused upon in this phase, the PCU will use a more general approach to a more pervasive issue.

The root cause analysis conducted in the project development stage (Hot-Spot analyses, Diagnostic Analysis Reports, etc) examined the primary environmental issues and problems associated with water resource management in PICs, then followed a logical progression to identify the root causes. Many of the root causes are closely linked or overlapping. An examination of the root causes may be helpful in determining what group and behaviour, or set of behaviours, might be reasonably targeted during the course of the project.

PCU Social Marketing-Behavioural Modification Campaign

In an effort to change the "approach to problem-solving" (if not the actual behaviour) of decision-makers, the PCU will target decision-makers with the aim of convincing/persuading them that an intersectoral approach to the management of water resources across the entire watershed and coastal area is essential if sustainable social and economic development is to take place and that they have an important role in ensuring this. The Pacific IWRM Project makes tools and resources (IWRM) available to assist them.

The root causes acting together to cause degradation of aquifers, surface water quality and land in a particular area include:

1. limited communication and collaboration between various sectors;
2. a fragmented approach to environmental management;
3. limited information on alternative practices;
4. limited knowledge of inadequate laws and policies linked to an absence of intersectoral networking and communication as a result of weak institutional arrangements.

At the regional and national level it is possible to reasonably treat with the above in a "social marketing" campaign of limited duration. The PCU will design a campaign which:

- surveys decision makers and technocrats in different sectors to determine their level of understanding of the problems associated with watershed and coastal area management.
- targets decision-makers and technocrats at national and regional level (key actors) with the aim of sensitizing them to the issues of aquifer, surface water quality and land degradation and introducing them to some of the IWRM resources and tools which can help them to address the problem (through the Pacific IWRM resource centre).
- sends messages describing the extent of the problem (supported by figures and statistics etc.), presenting resources and tools being created, alternatives or actions already being undertaken by the IWRM Project to address these and how these resources and tools can be accessed both during and after the project.
- creates opportunities for sharing best practice and lessons learned by the various Demonstration Projects.
- evaluates the impact of this campaign.

Convincing decision-makers that these problems can only be solved using an integrated approach, introducing them to easily accessible tools, and, persuading them to use them on an ongoing basis is a major challenge given the many things which compete for their time. The uptake of such messages by decision-makers and their actual use of the resources provided by the IWRM project would be a major achievement.

Demonstration Project Social Marketing-Behavioural Modification Campaign

National Demonstration Projects will have to determine, based upon their particular circumstances, the behaviour which they might best address in the time available. Different stakeholders in the community could be brought together to decide upon the focus of such a campaign as well as to design and implement it. The benefit of this approach would include getting their buy-in and input/"wisdom" as to the local situation early.

Phase III: Document and Communicate Lessons Learned

While documentation is a routine activity at every level and stage of the project, it is important to ensure that information is easily accessible and to find effective ways of promoting the benefits and lessons learned in the IWRM project. The PCU, the National IWRM APEX Bodies and Demonstration Project Managers in particular need to give these issues consideration. Tools such as video and photo documentation are very useful. Advance planning is however necessary in order to incorporate these into reporting and documentation. This aspect of communications planning can have a significant positive impact upon the project sustainability. Information and resources developed as part of the project should be available to the many stakeholders well beyond the life of the project.

General Documentation and Dissemination of Information Activities

Several activities undertaken by the PCU as well as in Phase I of the Communications Plan, Public Relations and Awareness Raising, will promote the outputs of the project and how they may be accessed. During the Project, the following activities or products could be considered as means of communicating best practice and lessons learned. They could all be based upon the outputs of various project activities:

- Technical Reports
- Guides/ toolkits re. Legislation, Indicators etc.
- 1-page fact sheets or Decision-Makers Briefing Sheets
- Demonstration Project Case Studies Book
- Individual Demonstration Project Videos (in some instances already budgeted for)
- Focus meetings/workshops/seminars

Outputs of Consultancies

The Project will include consultancies which will generate outputs that must be made available if they are to reach as many stakeholders as possible.

Annex A9: Project Staff and Governance Structure Terms of Reference

Terms of References for Project Governance Bodies and Key Project Staff

Regional Steering Committee

A specific responsibility of the RSC will be to facilitate liaison with the GEF Implementing Agencies (UNDP/UNEP) regarding overall governance of the project. The Regional Steering Committee shall:

- Be comprised of the 14 PIC Country PDFB IWRM Focal Points, two (2) NGO representatives as the agenda of the RSC dictates. As the Executing Agency, SOPAC will Chair the RSC Annual Meetings, and the Project Manager will act as the Secretary to the Regional Project Steering Committee. UNDP and UNEP will participate as ex-officio members of the RSC;
- Provide governance assistance, policy guidance and political support in order to facilitate and catalyze implementation of the project, and to ensure relevant regional project outcomes are appropriately incorporated into other regional policies, programmes, and national actions;
- Annually review programme progress and make managerial and financial recommendations as appropriate, including recruitment for the Project Coordination Unit, review and approval of annual reports, budgets and workplans; and,
- Serve as liaison to the GEF-PAS Coordinating Agency and involve the GEF Implementing Agencies, as appropriate. Other relevant GEF Executing Agencies and Operational Focal Points will be invited to attend the Annual Meeting of the RSC as required. Links to the GEF-PAS Coordinating Agency will include ensuring that project activities link to the programmatic approach of the GEF-PAS and are consistent with the overall framework, including linking IWRM project M&E to GEF-PAS M&E.

Regional Project Coordination Unit

The PCU will be, where required, guided by the decisions of the Regional Project Steering Committee, National Demonstration Project Steering Committees and other Advisory Committees (such as the Pacific Partnership) to support the implementation of project outputs through the following tasks:

- Assistance in networking between Regional and National Steering Committees, sub-committees and National Project Teams for all participating countries;
- Organization of technical cooperation activities between regional organizations for capacity building, water and environmental policy, and management related to the implementation of the Pacific IWRM Project;
- Organization of consultative meetings for introducing and implementing programme activities;
- Collection and dissemination of information on policy, economic, scientific and technical issues related to the project;
- Provision of support for the preparation of technical and feasibility studies;
- Preparation of regional progress reports (administrative and financial) concerning programme activities and other monitoring requirements;
- Support National project teams in the preparation of national progress reports (administrative and financial) concerning project activities;
- Establishment of and assistance in networking between specialized institutions in participating countries and technical specialists from elsewhere;
- Assistance in implementing demonstration projects through guidance and administrative support;
- Delivery of the regional components of the project with National Coordinators;
- Maintenance of project information archives- photos, video, documents, outputs, etc, through the IWRM Resource Centre;
- Appropriate dissemination and publication of materials and outputs from the project;
- Capturing Demonstration Project, Regional Component, and project process lessons learned and disseminating them in appropriate formats (maintaining project website and links to IW:LEARN,

etc). This includes advising countries on contractual issues to ensure external consultants delivered have broad accessibility for the region and add value to the project;

- Coordination with the SOPAC Water work programme and activities to ensure relevant linkages are made between water projects, especially the EU Water Facility funded National IWRM Planning Programme;
- Coordination with other international, multilateral and bilateral activities among participating PICs related to the implementation of the project, including sourcing additional funding to ensure future sustainability of project interventions (for example, through the GEF Small Grants Programme for community initiatives, supported by National Project Staff); and,
- Programme management (financial, logistical, monitoring and strategic) particularly in the context of the UNDP/UNEP and GEF and other relevant regional projects.

Pacific IWRM Focal Points

Given their role in the design of the Pacific IWRM Project, IWRM Focal Points will have the following responsibilities and duties:

- Act in the role of the Regional Steering Committee Member for the respective PIC and in this capacity:
    - Provide technical assistance, policy guidance and political support in order to facilitate and catalyse implementation of the project;
    - Annually review programme progress and make recommendations as appropriate; and
    - Serve as liaison to and involve the GEF Implementing Agencies, as appropriate;
- Provide project oversight to the Pacific IWRM project in their respective country on, but not limited to, technical, logistical and administrative delivery of the demonstration projects;
- Facilitate the requirements and provide the role of coordination of information and appropriate linkages between the GEF Pacific IWRM Project and the EU Water Facility IWRM Planning Programme;
- In their role as a member of the National Steering Committee, assist with the selection and recruitment of both the National Coordinators and National Assistants in their countries;
- Select one IWRM Focal Point from the 14 PICs to sit on the recruitment panel for members of the Regional Project Coordination Unit.

Regional Project Coordination Unit - Specific Post Descriptions

1. Regional Project Manager [co-financed position]
The Regional Project Manager shall be contracted to SOPAC and will be responsible for the overall coordination, implementation, supervision and delivery of the GEF funded Pacific IWRM Project. The position will be co-funded between the GEF Pacific IWRM project, and the EU Water Facility IWRM National Planning Programme. The two projects will be implemented in a coordinated approach to support countries in the development of IWRM plans and environmental stress reduction.

He/she shall liaise directly with the National Project Teams (National Coordinators and National Assistants), National Steering Committees and the Regional Steering Committee and other relevant bodies and stakeholders were relevant. He/she will also liaise with representatives of the UNDP, UNEP and GEF, as well as other regional donors, in order to coordinate the annual work plan for the project.

The Project Manager will also liaise with other project managers and coordinators of related and relevant projects and programmes, including the EU Water Facility IWRM National Planning Programme, and other GEF funded projects such as the Pacific Adaptation to Climate Change (PACC) Project, national Sustainable Land Management (SLM) Projects, and the Caribbean Integrated Watershed and Coastal Area Management (IWCAM) project implemented through various partners. This will include close coordination with the Secretariat of the Pacific Regional Environmental Programme (SPREP), Secretariat of the Pacific Community (SPC) and the Caribbean Environmental Health Institute (CEHI) who are responsible for the implementation of these projects and programmes.

He/she shall be responsible for all technical, planning, managerial, monitoring, progress and financial reporting for the project. He/she will provide overall supervision for all staff in the Programme Coordination Unit (PCU). This will include recruitment and performance monitoring.

The Project Manager will consult and coordinate closely with the Director and other representatives of SOPAC and report directly to the Director of SOPAC and to the UNDP Resident Representative in Suva and the UNEP office in Nairobi. He/she shall also consult with the respective UNDP officers in Samoa, Bangkok, and New York and other senior representatives of partner agencies. Supplementary technical guidance will be provided by UNDP/GEF.

In particular the Project Manager will:

- Serve as the Head of the Project Coordination Unit (PCU) located in the offices of SOPAC, and manage its staff and budget
- Assume general responsibility for the day-to-day management and implementation of all project objectives and activities;
- Supervise all UNDP/UNEP/GEF related activities pursuant to implementation of the objectives and specific activities of the Pacific IWRM Project, specifically the successful implementation of National Demonstration Projects across the Pacific region;
- Prepare the annual work plan of the programme, in a format consistent with SOPAC's budget, work programme and monitoring and evaluation procedures and Financial Regulations on the basis of the Project Documents (UNDP and UNEP Prodocs), and in close consultation and coordination with the RSC, National IWRM APEX Bodies, National Project Teams, EU IWRM National Planning Programme, GEF partners and relevant donors;
- Act as the Secretary to the RSC during its meetings and its sub-committees;
- Coordinate and monitor the activities described in the work plan, and report to the UN Agencies and Regional Project Steering Committee;
- Facilitate liaison and networking between and among the 14 country participants, relevant regional organisations, other relevant organisations, non-governmental organisations, key stakeholders and other individuals involved in project implementation using the Pacific Partnership Initiative for Sustainable Water Management as the coordination vehicle;

- Foster and establish links with other related South Pacific programmes and projects and, where appropriate, with other regional GEF International Waters projects, e.g. IW:LEARN.
- Ensure consistency between the various programme elements and related activities provided or funded by other donor organizations;
- Prepare and oversee the development of Terms of Reference for consultants and contractors, and be ultimately responsible for the delivery of work produced by consultants under the project;
- Coordinate and oversee the preparation of the substantive and operational reports for the Pacific IWRM Project implementation;
- Collect and disseminate information on policy, economic, social, scientific, and technical issues related to the Pacific IWRM Project implementation;
- Promote public awareness and participatory activities necessary for successful Pacific IWRM Project implementation;
- Assist in the delivery of training courses on both technical and project management, monitoring and evaluation issues to strengthen regional capacity in this area;
- Lead in the development of stress reduction, process, environmental, socio-economic, water use efficiency, catalytic, governance and cross-cutting indicators as part of the IWRM and Water Use Efficiency Indicators Framework component of the project. Develop further regional indicators to monitoring implementation of the Pacific Regional Action Plan and for determining investment planning where necessary;
- Provide support for the preparation of technical and feasibility studies and coordinate monitoring and evaluation activities, including delivering regular progress and monitoring reports to UNDP/UNEP, GEF and the EU IWRM National Planning Programme where required;
- Prepare progress and monitoring reports concerning project activities; and
- Participate and prepare project reviews where required;
- Source additional funding for initiatives started by the project at the local, national and regional level to ensure sustainability of the interventions. This includes working with national governments to assist them in learning from project initiatives and looking for mainstreaming opportunities to ensure replication and sustainability.

Qualifications

The selected candidate will have:

- At least ten years of professional experience in senior project management posts with increasing modern management responsibility in fields related to the assignment;
- Demonstrated flexible cross-cultural team leadership, diplomatic and negotiation skills;
- Demonstrable excellent verbal and written communications skills, both at a technical level and in the preparation of information for policy makers and wider civil society;
- Previous experience in the operational aspects of large UN-funded projects or similar regional/multi-country projects, as well as experience with funding organizations such as the GEF will be an advantage;
- Proven financial management experience of large and complex multi-country budgets;
- Qualifications in project management or business administration with further qualifications in one or more of the following disciplines: natural sciences, social sciences, public health, environment, economics, or engineering (or related discipline). Small Islands Developing States and integrated water resource management experience will be an advantage.
- Excellent working knowledge of English. Familiarity and knowledge of participating Pacific Island Countries and their languages would be an advantage;
- Familiarity with the goals and procedures of international organizations, in particular of the GEF implementing agencies (UNDP, UNEP, World Bank), and of SOPAC and CROP agencies in the Pacific. Knowledge of GEF co-financing approaches will be a distinct advantage;
- Experience of aligning project goals with wider development frameworks for long term benefits and understanding of cross-sectoral national planning processes will be highly regarded.
- Experience of evaluating both technical projects and organisational strategy, policy development and change management, including development of M&E frameworks will be an advantage.

Other essential requirements include: the ability to manage the work of consultants; a proven ability to work as part of a dynamic inter-disciplinary and/or multi-cultural team; the ability to meet project deadlines, often under difficult circumstances; and an ability to live and work within Pacific Island Communities. Applicants with experience of integrated water resources management issues in the Pacific region, as outlined in the Pacific Regional Action Plan and Strategic Action Plan will be at an advantage. Broad based development professionals are actively encouraged to apply.

Further information on the project and National Demonstration Project Proposals to be implemented under the Pacific IWRM project can be found on: http://www.sopac.org/IWRM+Outputs

Duty Station: SOPAC
Duration: An initial fixed-term contract of three years.

2. Environmental Engineer/Management Specialist [co-financed position]
The Environmental Engineer will work under the direct supervision of the Project Manager. The Environmental Engineer will assume direct responsibility for the technical delivery of the regional and national project components of the project, working with other members of the PCU as the principal technical project post. The position will be co-funded between the GEF Pacific IWRM project, and the EU Water Facility IWRM National Planning Programme. The two projects will be implemented in a coordinated approach to support countries in the development of IWRM plans and environmental stress reduction.

The Environmental Engineer will work with other related programmes of CROP agencies as well as UNDP/UNEP and other partners. More specifically the Environmental Engineer will be responsible for the technical components of the Pacific IWRM Project.

In particular the Environmental Engineer will:

- Contribute to the development of the annual work plan of the programme;
- Support the Project Manager, principally in technical capacity, during Regional Steering Committee members, in an liaison with UNDP, UNEP, GEF, and other regional CROP Agencies;
- Coordinate and monitor the activities of the national demonstration projects and other regional components of the project as per the annual work plan, and provide assistance to countries in developing national M&E plans (especially indicator development and monitoring);
- Facilitate liaison and networking between and among the 14 country participants, in particular the relevant regional organisations, other relevant organizations, nongovernmental organizations, key stakeholders and other individuals involved in project implementation on matters related to IWRM and environmental management;
- Assist with the preparation and oversight of Terms of Reference for consultants and contractors;
- Provide technical advice and support to Pacific Island Countries in the implementation of their national Demonstration Projects (focussing on wastewater, sanitation, water supply, water resource management, pollution mitigation). This may also include input to the development of technical reports and the preparation of the substantive and operational reports for the regional project;
- Collect and disseminate information on policy, economic, scientific, and technical issues related to the Pacific IWRM Project implementation;
- Promote public awareness of environmental management including IWRM development of demonstrations and the successful Pacific IWRM Project implementation;
- Assist with the preparation of technical and feasibility studies, and monitoring and evaluation activities where applicable;
- Support the development of National Integrated Water Resource Management Plans and other IWRM processes under the EU Water Facility IWRM National Planning Programme;
- Assist in the development of stress reduction, process, environmental, socio-economic, water use efficiency, catalytic, governance and cross-cutting indicators as part of the IWRM and Water Use Efficiency Indicators Framework component of the project. Develop further regional indicators to

monitoring implementation of the Pacific Regional Action Plan and for determining investment planning where necessary;
- Assist in the delivery of training courses on both technical and project management, monitoring and evaluation issues to strengthen regional capacity in this area;
- Support project dissemination and knowledge sharing activities between countries and across the region;
- Assist with the preparation of progress reports concerning project activities; and
- Participate and prepare project reviews where required.

Qualifications
- The selected candidate will have a degree in: environmental engineering (or a related engineering discipline) or environmental science/management. Further qualifications in environmental management, public health, hydrology, hydrogeology will be an advantage. Small Islands Developing States experience will be highly regarded, as will experience of understanding the links between land based pollution and the impacts on receiving coastal waters. Further experience in monitoring and evaluation will be an advantage;
- At least 5 years of professional experience in senior technical or policy advice posts;
- Demonstrated technical and project delivery skills, including experience of working in cross sectoral environments;
- Demonstrable excellent verbal and written communications skills, both at a technical level and in the preparation of information for policy makers and wider civil society;
- Previous experience in the delivery of regional/multi-country projects, as well as experience with funding organizations such as the GEF will be an advantage;
- Excellent working knowledge of English. Familiarity and knowledge of participating countries and their languages would be an advantage;
- Familiarity with the goals and procedures of international organizations, in particular of the GEF implementing agencies (UNDP, UNEP, World Bank), and of SOPAC and CROP agencies in the Pacific.

Other essential requirements include: the ability to manage the work of consultants; a proven ability to work as part of an inter-disciplinary and/or multi-cultural team; the ability to meet project deadlines, often under difficult circumstances; and an ability to live and work within Pacific Island Communities.

Applicants with a direct experience of water and environmental management issues in the Pacific region will be highly regarded.

Further information on the project and National Demonstration Project Proposals to be implemented under the Pacific IWRM project can be found on: http://www.sopac.org/IWRM+Outputs

Duty Station: SOPAC
Duration: An initial fixed-term contract of three years.

3. Communications/Community Assessment and Participation Adviser [co-financed position]
The Communications/Community Assessment and Participation Adviser will work under the direct supervision of the Project Manager of the Pacific IWRM Project. The Adviser will assume direct responsibility for the substantial community assessment, participation, information, communication and education activities of the project. The position will be co-funded between the GEF Pacific IWRM project, and the EU Water Facility IWRM National Planning Programme. The two projects will be implemented in a coordinated approach to support countries in the development of IWRM plans and environmental stress reduction. Specifically the Specialist will:

- Coordinate and provide technical input to the full range of project activities related to the assessment of community issues, community participation and awareness and education needs;
- Serve as an expert resource for the various committees and working groups of the project;

- Assure the development of and be responsible for the successful implementation of the work plan as it relates to community participation and information, communication and education activities;
- Assist with the preparation and oversight of Terms of Reference for consultants and contractors;
- Assist in the delivery of training courses on both technical and project management, monitoring and evaluation issues to strengthen regional capacity in this area;
- Assist in the development of stress reduction, process, environmental, socio-economic, water use efficiency, catalytic, governance and cross-cutting indicators as part of the IWRM and Water Use Efficiency Indicators Framework component of the project. Develop further regional indicators to monitoring implementation of the Pacific Regional Action Plan and for determining investment planning where necessary;
- Collect and disseminate information on monitoring and evaluation related to the Pacific IWRM Project, including working with consultant support (where necessary) and national project teams (National Project Managers and National Assistants) to formulate storylines with communities to develop participatory monitoring and evaluation processes within national demonstration projects;
- Coordinate and provide technical input to the full range of activities related to the development and implementation of the project information, communication and education requirements for both the national demonstration projects and regional components, including but not limited to communication strategies, publication materials and media campaigns;
- Work closely with the EU Water Facility funded IWRM National Planning Programme Team in the development and implementation of communication and awareness raising and information management approaches;
- Other essential requirements include: the proven ability to work as part of an inter-disciplinary and/or multi-cultural team; the ability to meet project deadlines, often under difficult circumstances; experience with the assessment of social, cultural and economic conditions in Pacific island countries; an understanding of Pacific cultures; and an ability to live and work within Pacific island communities.

Qualifications

- The selected candidate will have an advanced degree in a discipline in the social sciences, communications/media/information management, or education fields. Direct experience with community assessment/empowerment, and public education issues as they relate to the project will be highly regarded. Small Islands Developing States experience will be an advantage, as will specific further qualifications or experience in monitoring and evaluation. Knowledge of social development issues such as gender access and mainstreaming will be expected;
- The candidate must have communications and information management experience with high-level advocacy experience, including familiarity with communications through different forms of media. Candidates with information management experience will be highly regarded;
- The candidate must have demonstrable excellent written and oral communication skills in English, familiarity and knowledge of participating countries and their languages would be an advantage;
- A minimum of eight years of direct, relevant, field-based experience is a necessity;

Applicants with direct experience of freshwater and coastal socio-cultural issues in the Pacific region will be highly regarded. Applicants with experience from the private sector and NGOs are encouraged to apply.

Further information on the project and National Demonstration Project Proposals to be implemented under the Pacific IWRM project can be found on: http://www.sopac.org/IWRM+Outputs

Duty Station: SOPAC
Duration: An initial fixed-term contract of three years

4. Financial Adviser

The Financial Adviser will work under the direct supervision of the Project Manager of the Pacific IWRM project. The Adviser will assume direct responsibility for the financial management of the Pacific IWRM Project, under the supervision of the Project Manager whilst also working closely with

other IWRM project team members as part of the Regional Project Coordination Unit. Close liaison will be required with the National project delivery teams (14 National Coordinators and National Assistants), and the EU Water Facility IWRM National Planning Programme. The two projects will be implemented in a coordinated approach to support countries in the development of IWRM plans and environmental stress reduction. More specifically the Financial Adviser will:

- Be responsible for, coordinate and report on the financial management for the full IWRM regional project activities, including assisting and collating national financial information and reporting to to SOPAC, UN Agencies, and the GEF;
- Serve as an expert resource for the various committees and working groups of the project on financial reporting requirements;
- Provide support to the PCU and the national teams on efficient and effective financial management, including training support;
- Assure the development of and be responsible for the successful implementation of the work plan regarding project financial management, including regular financial monitoring and reporting as per UNDP and UNEP requirements;
- Assist the Project Manager in the supervision of any Project Officer staff;
- Other essential requirements include: the ability to manage the work of consultants and committees; a proven ability to work as part of an inter-disciplinary and/or multi-cultural team; the ability to meet project deadlines, often under difficult circumstances; experience with the assessment of social, cultural and economic conditions in Pacific Island Countries; an understanding of Pacific cultures; and an ability to live and work within Pacific island communities.

Qualifications

- The selected candidate will have a degree in accounting, financial management, or a similar subject, with demonstrable experience in complex project financial management.
- The candidate must possess excellent written and oral communication skills in English, familiarity and knowledge of financial processes and procedures used across the Pacific region, in CROP Agencies, and/or the private sector would be an advantage;
- A minimum of five years of direct, relevant, project-based experience is a necessity;
- Excellent working knowledge of English. Familiarity and knowledge of participating Pacific Island Countries and their languages would be an advantage;
- Experience in providing a streamlined financial service role to a multi-cultural project management team, including experience in developing and delivering financial training materials and presentations;
- Familiarity with the goals and procedures of international organizations, in particular of the GEF implementing agencies (UNDP, UNEP, World Bank), and of SOPAC and CROP agencies in the Pacific.

This position demands a high degree of integrity and the ability to work efficiently with 14 separate countries. Only applicants with demonstrable financial management experience of large projects will be considered.

Further information on the project and National Demonstration Project Proposals to be implemented under the Pacific IWRM project can be found on: http://www.sopac.org/IWRM+Outputs

Duty Station: SOPAC
Duration: An initial fixed-term contract of three years

5. Project Officer [co-financed position]

The Project Officer will be contracted to SOPAC and will support the Project Coordination Unit in the implementation of the GEF funded Pacific IWRM Project.

Specifically the Project Officer will:

- Provide general support to and report to the Regional Project Coordination Unit staff on a daily basis;
- Assist in the organisation of and provide administrative support to meetings, notably for the Regional Project Steering Committee, Technical Advisory Meetings, the National Inter-sectoral Committees (where appropriate), Implementing Agency/Executing Agency briefing meetings;
- Assist in the preparation of contracts and sub-contract requests, Letters of Agreement, including all supporting documentation, in accordance with SOPAC rules and regulations;
- Assist in the preparation of requests for transfers of funds to Demonstration Projects in-country, contracting firms and consultants;
- Assist in the preparation of the financial records for the project including contributing to quarterly financial reports;
- Assist in the preparation of internal monthly reports on achievement of activities, outputs and impacts of project for consolidation as needed for formal project reporting requirements;
- Assist with the external reporting of activities to the Implementing Agencies (UNEP, UNDP) and the GEF and to the Project Steering Committee and fulfil Implementing Agencies Administrative and Financial Reporting requirements;
- Assist with communications to and from the different bodies created under the Project;
- Organise and manage a comprehensive and robust hard copy and e-copy archive filing system for the Pacific IWRM project within SOPAC;
- Organise and manage a country resource library for each of the project countries in hard and e-copy;
- Assist in the preparation of information for project communications, including website development, newsletters and other communications material as required;
- Other work activities as may be assigned from time to time, including wider liaison with SOPAC Water under the Community Lifelines Programme.

Qualifications

- The selected candidate will have a good working knowledge of administrative and financial processes;
- A degree (or equivalent) preferably in administration or a closely related field;
- At least 2 years relevant work experience;
- Excellent working knowledge of both written and spoken English. Familiarity and knowledge of participating countries and their languages would be an advantage;
- Be fully computer literate with Microsoft Office programmes;
- Previous work experience of regional/multi-country projects, as well as experience with funding organizations such as the GEF and UN Agencies, and CROP Agencies will be an advantage;
- Demonstrated initiative in carrying out his/her duties and ability to work independently to tight deadlines;
- A flexible approach and a willingness to assist with a variety of other tasks within the Secretariat and a willingness to work outside normal hours.

Further information on the project and National Demonstration Project Proposals to be implemented under the Pacific IWRM project can be found on: http://www.sopac.org/IWRM+Outputs

Duty Station: SOPAC
Duration: An initial fixed-term contract of one year.

National Level Delivery

National IWRM APEX Bodies

Capacity at a national level to coordinate and administer activities to implement the project will be critical. **National IWRM APEX Bodies** exist in each country, established either through national government processes or earlier donor projects (EU Programme for Water Governance, the PDF B phase of this project, or NZ AID funded Water Safety Planning). The **National IWRM APEX**

Bodies will assist in securing the necessary level of cooperation from their respective country, including the securing of country-specific information and resources necessary for project successful activities as the national Steering Committee.

The nature and composition of the National IWRM APEX Body will vary from country to country, and will be established in such a way as to maximize efficiency and benefits to the project at the national level. The EU water Facility programme will assist in this.

The National IWRM APEX Body shall, in its role as the Steering Committee for the National Demonstration Project:

- Be chaired and formed by a governmental official;
- Be inter-ministerial in nature (following IWRM principles), involve, where suitable, GEF National Focal Points, and serve as the official link to all elements of project implementation within each participating country;
- Serve as the principal source of information concerning available country resources for all aspects of project implementation;
- Be informed of Regional Steering Committee meetings and other meetings relevant to overall regional project implementation, including regional activities conducted through the Regional Project Coordination Unit;
- Provide input to the Regional Steering Committee for strategic policy guidance for the implementation of the project, as well as guidance to implement national components of the demonstration projects;
- Facilitate national policy and institutional changes necessary to engender success in project activities.

National Project Managers

National Project Managers will be contracted by SOPAC for the delivery of national Demonstration Project activities and also relevant activities for the regional components of the project. National Project Managers will be an integral part of the Memorandum of Understanding between SOPAC and participating governments. They will coordinate the activities of the project at the national level and promote the implementation of the Pacific RAP. Each National Project Manager (NPM) will be recruited by the relevant focal Ministry identified during the PDF-B phase with National APEX Body (IWRM Water Committee) input. Project Manager progress will be reviewed bi-annually against an agreed workplan by the National APEX Body and the Executing Agency. The National Project Manager will be accountable to the relevant focal Ministry and to the Director of SOPAC through the Regional Project Coordination Unit Project Manager.

The National Project Manager will have the following specific responsibilities and duties:

- To prepare, in consultation with the PCU and National APEX Body, the work plan, schedule and budget for national project activities, and to submit the same to the relevant national Ministry and the PCU;
- To report regularly to the PCU Project Manager regarding the progress of national activities and to account for budget expenditures. This will include regular monitoring reporting to determine project progress, and maintenance of project information and contacts;
- To secure appropriate permits/documentation to support implementation of Demonstration activities where required;
- To draft and submit the terms of reference for work to be contracted nationally, to monitor and manage all work contracted to national experts, to submit the work produced by national experts to the National APEX Body and certify that it meets the terms of reference for such work;
- To ensure that the work contracted out to national experts is coordinated and integrated at a national level so that it contributes effectively to the implementation of the Pacific IWRM Project;
- In association with the Regional PCU, to draft and submit the terms of reference for work to be contracted internationally, to monitor and manage all work contracted to international experts, and to submit the work produced by international experts to the National APEX Body and certify that it meets the terms of reference for such work;

- To arrange for the administrative and logistical support required by the National APEX Body and related committees under the project;
- To facilitate the exchange of information, and meetings of the National APEX Body and other government mechanisms, including international donor organisations and NGOs;
- To lead, monitor, manage and conduct the organization and implementation of the national activities, including developing replication and sustainability options for the project and subsequent interventions (including securing seed funding to ensure community level initiatives, for example through the GEF Small Grants Program);
- To perform such other duties as may be required by the National APEX Body consistent with the objectives of the programme, including sourcing seed funding to ensure the sustainability of local initiatives started under the project.

The National Project Manager will be recruited by the relevant national focal Ministry, in accordance with the following considerations:

- That he or she should be in a position to work as full-time, nationally dedicated recruited project personnel for 60 months;
- That he or she will have at least five years relevant supervisory experience;
- That he or she has an advanced degree in a field relevant to IWRM and the specific requirements of each National Demonstration Project, including data collection and analysis;
- That he or she will be fully computer literate with at least Microsoft Office programmes;
- That he or she will be accountable for project delivery to the National Steering Committee and the Regional Project Coordination Unit;
- That he or she will be required, and will therefore need the necessary qualifications and experience to manage the project and to deliver on the activities. Approximately 10% of the post is expected to be spent on project management, with the remainder of the workload on technical implementation and delivery, communications and awareness raising.
- Experience with managing conflict situations and demonstrable negotiation skills will be a distinct advantage.

The national coordinator shall have the authority, in consultation with the national SC, to do the following:

- To request for the disbursement of project funds from the PCU, in accordance with the budget and work plan; and,
- To request meetings with the IWRM Focal Point and the National APEX Body where required.

National Project Assistants

National Project Assistants will be contracted by SOPAC to support the National Project Manager in the delivery of the demonstration project activities and relevant activities for the regional component of the project.

The National Assistants (NPAs) will also be an integral part of the Memorandum of Understanding between SOPAC and participating governments. They will assist the National Project Manager in the activities of the project at the national level and promote the implementation of the Pacific RAP. The NPA will be recruited by the relevant focal Ministry identified during the PDF B phase with National APEX Body (IWRM Water Committee) input. National Assistant progress will be reviewed bi-annually against an agreed workplan by the focal ministry, the National APEX Body, and the Executing Agency. The National Assistant will be accountable to the relevant National Project Manager, focal Ministry and to the Director of SOPAC through the Regional Project Coordination Unit Project Manager.

The National Assistant will have the following specific responsibilities and duties:

- Assist in the preparation of the work plan, schedule and budget for the national activities in consultation with the PCU and National APEX Body, and submit these to the relevant national Ministry and the PCU;

- In association with the Regional PCU, assist in the preparation of terms of reference for work to be contracted internationally, and in the monitoring and management of work contracted to international experts;
- Assist in the regular reporting to the PCU Project Manager regarding the progress of the national activities and to account for budget expenditures;
- Assist in the preparation and submission of the terms of reference for work to be contracted nationally, assist the national coordinator in the monitoring and management of contracted work to national experts, assist in the submission of the work produced by national experts to the National APEX Body and certify that it meets the terms of reference for such work;
- Assist in the arrangement of the administrative and logistical support required by the National APEX Body and related committees under the project;
- To perform such other duties as may be required by the national coordinator and National APEX Body to be consistent with the objectives of the programme.

The National Assistant will be recruited by the relevant national focal Ministry, in accordance with the following considerations:

- That he or she should be in a position to work as full-time, nationally dedicated recruited project personnel for 60 months;
- That he or she will have at least five years project assistant level experience;
- That he or she will have a relevant qualification in a field relevant to IWRM and the specific requirements of each National Demonstration Project. However, it is recognised that for this role relevant experience is more important than qualifications.
- That he or she will have some experience with at least Microsoft Office programmes;
- That he or she will be accountable for project delivery to the National Project Management and National APEX Body.

The National Assistant shall have the delegated authority by the National Project Manager, to do the following:

- To request for the disbursement of project funds from the PCU, in accordance with the budget and work plan.
- To request meetings with the IWRM Focal Point and the National APEX Body where required.

Pacific IWRM Focal Points

The Pacific IWRM Focal Points were identified during the Project Design Facility (PDF) B phase by the Executing Agency (SOPAC) National representatives for each of the 14 participating project countries. These Focal Points were closely involved in the design activities of Component 1 of the project which focuses on Demonstration Projects in each of the countries to demonstrate IWRM approaches. The Pacific IWRM Focal Points were also involved in providing design input to other components of the project including project staffing and capacity building needs.

Given their central role the design of the Pacific IWRM Project, the Pacific IWRM Focal Point will continue to have the following responsibilities and duties:

- Act in the role of the Regional Steering Committee Member for the respective Pacific Island Country and in this capacity:
    - Provide technical assistance, policy guidance and political support in order to facilitate and catalyse implementation of the project;
    - Annually review programme progress and make recommendations as appropriate;
    - Engage higher level national partners (co-financers, Steering Committee Members, GEF Operational Focal Points) in national steering committee meetings, where appropriate; and,
    - Serve as liaison to and involve the GEF Implementing Agencies and project Executing Agency, in consultation with SOPAC, as appropriate;
- Provide project oversight to the Pacific IWRM project in their respective country on, but not limited to, technical, logistical and administrative delivery of the demonstration projects;

- Facilitate the requirements and provide the role of coordination of information and appropriate linkages between the GEF Pacific IWRM Project and the EU water Facility IWRM National Planning Programme;
- In their role as a member of the National IWRM APEX Body, assist with the selection and recruitment of both the National Project Managers and National Project Assistants in their countries;
- Select two IWRM Focal Point from the 14 PICs to sit on the recruitment panel for members of the Regional Project Coordination Unit.

The name and government position of the Pacific IWRM Focal Points who served during the project design phase is included as Annex 10.

Annex 10: Pacific IWRM National Focal Points

	FOCAL POINT	CONTACT DETAILS
1. Cook Islands	**Mr. Ben Parakoti** Director Department of Water Works Ministry of Works P O Box 102 Rarotonga Cook Islands	Phone: +682 20 034 Fax: +682 21 134 E-mail: hydro@oyster.net.ck
2. FSM	**Mr. Leerenson Airens** General Manager Pohnpei Public Utilities Cooperation P.O. Box C Kolonia 96941 Pohnpei Federated States of Micronesia	Phone: +691 320 2374 Fax: +691 320 2422 E-mail: pucwater@mail.fm
3. Fiji	**Mr. Malakai Finau** Principal Hydrogeologist Mineral Resources Department Private Mail Bag GPO Suva Fiji	Phone: +679 3381 611 Fax: +679 3370 039 Email: mala@mrd.gov.fj
4. Kiribati	**Mr Mourongo Katatia** Ministry of Public Works & Utilities PO Box 498 Betio, Tarawa Kiribati	Phone: 686 26192 Fax: 686 26172 Email: mourongo.katatia@yahoo.com.sg
5. Marshall Islands	**Mr. John Bungitak** General Manager RMI Environmental Protection Authority Majuro Marshall Islands	Phone: + 692 625 3035 Fax: + 692 625 5202 Email: eparmi@ntamar.net
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	Mr. Filipo Taulima Director Public Works Department Private Mail Bag Tuvalu	Phone: +688 20 300 Fax: +688 20 301 Email: ftaulima@yahoo.co.uk
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SIGNATURE PAGE

Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

UNDAF Outcomes and Indicators
Outcome:
Indicators:

Expected Outcomes and Indicators
Outcome: Improved water resources management and water use efficiency in Pacific Island Countries in order to balance overuse and conflicting uses of scarce freshwater resources through policy and legislative reform and implementation of applicable and effective Integrated Water Resources Management (IWRM) and Water Use Efficiency (WUE) plans.

Indicator: By end of year 5, there is 1. Overarching improvement in water resource management, quality and availability through appropriate national Demonstration Project execution and concurrent reforms in policy, legislation and institutional arrangements leading to global environmental benefits; 2 Actual change in institutional and societal behaviour

Expected Output(s) and Indicator(s)
Outputs:
Indicators: i.) 14 National IWRM and Water Use Efficiency Strategies in place, with institutional ownership secured; ii.) Best IWRM and WUE approaches mainstreamed into national and regional planning frameworks by end of project facilitated iii.) Environmental stress reduction in 14 Pacific SIDS

Implementing Partner: Pacific Islands Applied Geoscience Commission (SOPAC)

Other partners: Governments of The Cook Islands, Federated States of Micronesia , Fiji, Kiribati, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, CROP agencies, UN agencies, private sector and civil society entities

Programme Period: 2008-2013
Programme Component: Sustainable Environment Management
Project Title: Sustainable Integrated Water Resources and Wastewater Management in Pacific Island Countries
Award / Project IDs: 00051446/00064064
Project Code: 3311
Project Duration: 5 years
Management Arrangements: NEX

Total budget:	US$	7,836,091
Allocated resources:		
GEF:		
FSP (C 1)	US$	6,727,891
Support Costs	US$	
Subtotal GEF	**US$**	**6,727,891**
PDF CO-Financing		
GEF Agencies	US$	81,500
SOPAC		
National Contribution	US$	549,900
Others	US$	476,800
Subtotal Co-Financing	**US$**	**1,108,200**

Agreed by:	**Signature**	**Date**	**Name/Title**
SOPAC:	_____	_____	_____
UNDP:	_____	_____	_____

Agreed by:	Signature	Date	Name/Title
Government of Cook Islands			
Government of Federated States of Micronesia			
Government of Fiji			
Government of Marshall Islands			
Government of Nauru			
Government of Niue			
Government of Papua New Guinea			
Government of Samoa			
Government of Solomon Islands			
Government of Tonga			
Government of Tuvalu			
Government of Vanuatu			
SOPAC			
UNDP Principle Project Representative, UNDP Fiji			
UNDP Samoa			
UNDP PNG			