

CLIMATE INVESTMENT FUNDS

July 31, 2009

**PROPOSAL PREPARED BY ASIAN DEVELOPMENT BANK AND WORLD BANK GROUP
FOR PPCR REGIONAL PROGRAM FOR THE PACIFIC ISLAND COUNTRIES**

I. Adaptation Concerns in the Pacific and Emerging Support

1. With growing awareness of the causes and consequences of global warming, considerable attention is being given to the plight of the Pacific Island Countries (PICs)¹. While these countries have made a insignificant contribution to the build up of greenhouse gases in the atmosphere, they are expected to suffer disproportionately from the impacts of climate change. Numerous and diverse potential impacts of great economic, ecological, social and cultural significant have been identified, though currently the spatial and temporal uncertainties are often larger than is desirable for policy and planning purposes. Some impacts have adverse synergistic effects. The main changes anticipated and their potential consequences include:

- (a) ***Increased variability and extremes in rainfall*** – though there is a need for more refined climatic modeling, it is generally anticipated that wet areas will become wetter, and dry areas dryer, leading to greater risks of drought and flooding. Such changes would have serious adverse effects on agricultural systems and human habitat. The integrity of coastal ecosystems would be threatened by changes in the salt water – fresh water balance and by increased sedimentation from extreme flooding events.
- (b) ***Greater frequency and intensity of tropical cyclones*** – The number and strength of cyclones, and potentially the area of the Pacific subject to cyclone risks, are expected to increase, leading to increased damage to coastal ecosystems and infrastructure (from storm surges, wave action and high winds) as well as flooding. There would be obvious adverse economic impacts from disruption to coastal economic activity (fisheries, transport, tourism) and the costs of replacing damaged structures.
- (c) ***Increases in sea level, acidity and temperature*** – All three of these changes would affect the growth and health of corals and other organisms that make up coastal and marine ecosystems, especially those in estuaries and other nursery grounds, and potentially affecting fisheries. Rising acidity of ocean water will inhibit the formation of calcium-based structures such as coral reefs, sea shells, and even the minute structures of many zooplankton, as well as the tolerances of phytoplankton. Rising ocean temperatures can likewise stress coastal and marine organisms, leading to "coral bleaching", among other impacts. Sea-level rise stresses coastal ecosystems and can lead to salt-water intrusion in freshwater aquifers (especially the fragile freshwater lens formations of atolls), while further exacerbating coastal erosion and damage to coastal assets from tropical cyclones.

2. When the most vulnerable Pacific islands are no longer able to safely sustain human populations, due to climate change impacting adversely on economic, natural and social systems, it is anticipated that "climate migrants" will need to move to higher or more productive ground – in some cases moving from one country to another.

3. Given the likely significant impacts of climate change on PIC economies and societies, considerable adaptation assistance already has begun to flow to the region (see Appendix 1).

¹ For the purpose this proposal these are: Cook Islands, Fiji Islands, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu.

4. Though assistance will ultimately have to be provided to all PICs, early attention of external partners has been focused on addressing the plight of low-lying island states since these are considered to be at greatest risk from the combined effects of the likely impacts described above.

II. Potential Role of Pacific PPCR, and Country Selection Criteria

5. Given this situation, and the goals of the PPCR, there is a clear opportunity for a set of transformative interventions to help the most vulnerable PICs improve their understanding of the consequences of climate change, enhance their adaptive capacity and make high priority investments in adaptation that will reduce if not avoid the most serious impacts of climate change.

6. The PPCR Sub-Committee provided the following *guidance to MDBs* for the selection of target countries within the Pacific Region:

- (a) place emphasis on relatively poorer states;
- (b) concentrate the bulk of resources in a limited number of countries (preferably not more than three);
- (c) maximize synergies between activities in individual countries, including where appropriate through thematic approaches; and
- (d) work with, and strengthen, regional institutions, particularly with a view to promoting cross-learning.

7. In addition, *five criteria* are proposed for selecting the PICs which will become eligible for PPCR support. These are:

- (a) The PIC should be highly vulnerable to a range of climate change impacts and thus face the need for an integrated set of responses – these include threats to economic systems resulting from stresses on coastal and marine ecosystems, concerns over impacts on the agriculture, water and possibly energy sectors, as well as pressures on terrestrial ecosystems.
- (b) The transformative interventions proposed under the PPCR should be consistent with and strongly supported by national policies and programs for addressing climate change impacts.
- (c) The PIC should possess sufficient capacity in terms of human resources and institutions to ensure cost-effective use of PPCR resources.
- (d) Governance systems in the PIC should be stable and capable of delivering appropriate oversight and accountability for the PPCR investment.

- (e) There should be opportunities to leverage and otherwise tie into planned government investments, including those supported by the MDBs and other development partners (incl. bilateral, UN, and others), so that adaptation approaches may be demonstrated in ways that provide the basis for replication.

III. Proposed Country Coverage and Principal Areas of Support

8. Application of the Sub-Committee guidance together with these criteria led to a process of considering all Pacific developing countries' eligibility. While no country was found to meet all five criteria comprehensively, a number sufficed most criteria (albeit in different combinations). Particular consideration was given to low-lying atoll island states such as Tuvalu and Kiribati given the severe threat of climate change to these countries. However, in light of ongoing international donor assistance being provided and less direct demonstration of the required selection criteria, these countries were not selected in the final analysis. Furthermore, Vanuatu was considered but was found to have both considerable ongoing assistance from other donor programs combined with significant capacity constraints. Notwithstanding these countries' omissions from the individual country selection, it is proposed that they will benefit from and be included in targeted activities within the regional component (see below²). Three countries were identified as most promising for participation under the proposed Pacific Regional PPCR. It should be noted that the regional approach will not be a multi-country one per se, but rather one focused on individual country activities with a regional overlay for extracting lessons learned for replication to the broader Pacific region

9. As shown in Appendix 2 and elaborated in Appendix 3, of the fourteen eligible PICs, Tonga, Samoa and Papua New Guinea were identified as the most eligible individual countries. They meet all five of the above criteria, in that they face a wide range of interacting climate change risks, acknowledge and act on climate-related risks in their national policies, institutions and infrastructure investment plans, have stable and capable governance systems at national level and have the potential to deliver strong returns from PPCR funded investments in adaptation. Further, these three countries together demonstrate a diverse set of capacity-building challenges and approaches to capacity building, a key concern across the Pacific. In addition, Papua New Guinea is a member country of the Pacific Coral Triangle Initiative (CTI). The CTI is an important regional program of action to improve coastal and marine resources management in the zone of greatest marine life abundance in the world.³ The CTI program of action specifically includes an effort to scale up attention to climate change adaptation in the coastal zones of these countries. The CTI also provides an institutional structure that can absorb and allocate external resources. Under the CTI, PNG will rationalize its coastal and marine protected areas network. PPCR resources could be used to ensure that climate change adaptation measures are built into the national implementation strategy for ensuring adequate protection of the designated coastal and marine areas.

² Furthermore, the Global Support Program of the PPCR has been requested by the PPCR-SC to give consideration to how best to promote interregional sharing of lessons among small island states.

³ Three PICs are founding members, Papua New Guinea (PNG), Solomon Islands and Timor Leste, with Vanuatu and Fiji serving as observers. The other founding members are Indonesia, Malaysia and Philippines.

10. In line with the Sub-Committee's recommendation of adopting thematic approaches it is proposed, on an indicative basis only pending consultation with countries, that the Pacific Regional PPCR could focus on urban and coastal development, water supply and sanitation, as well as agriculture in order to maximize interventions' transformational impacts. Since both Tonga and Samoa are in the process of making long term infrastructure investments in these areas, while Samoa and PNG are developing important agriculture programs, the proposed Pacific Regional PPCR presents an opportunity to support the consideration of climate resilience in the relevant sectoral strategies and planning processes in the participating PICs and at the same time provide the needed resources to ensure that investments in these sectors are climate resilient.⁴

IV. Summary Information on the Three Countries Proposed for PPCR Investment

Tonga

11. The high vulnerability to climate change and natural disasters, especially in the outer islands, is in part due to population changes and development, but weather patterns and extremes are also changing. The need to address these challenges is addressed in the National Climate Change Framework and Policy which was approved by the Government in 2006. The Framework and Policy were prepared by the National Committee for Climate Change and by the Climate Change Technical Working Group, in close collaboration with the National Environment Coordinating Committee and with extensive consultation. The Framework and Policy will be reflected in the next National Sustainable Development Plan (SDP 9).

12. The National Environment Coordination Committee was established by Cabinet order in 2005. It replaced all the existing committees that coordinated donor funded projects executed by the Department of Environment (DoE) and now has the responsibility to coordinate all existing and future donor funded projects approved by Cabinet and executed by the Department of the Environment

13. Emergency management legislation was passed in 2007 and in 2008 a National Plan for Disaster Risk Reduction was approved. This is overseen by the Working Group for Disaster Risk Reduction. Disaster management has recently been added to the responsibilities of district and village committees in Tonga. Extension of early warning systems to the outer islands is a major challenge. Tonga has established an emergency insurance fund.

14. In terms of making effective use of PPCR resources, the plans for redevelopment of the Nuku'alofa urban center and port offer an important opportunity to showcase climate risk

⁴ Todate, ADB projects along this portfolio related to water supply and sanitation include i) the Tonga Urban Development project (TA-7082 TON: Urban Planning and Management System, Subsector -Water Supply, Sanitation & Waste Management) (ii) Samoa rural water supply project (TA-7301 SAM: Water Supply, Sanitation and Drainage Project and) (iii) Papua New Guinea - Lae Port Livelihood and Social Improvement Project (Loan-2398/2399 PNG: Lae Port Development Project). In Samoa, the World Bank is implementing the Second Infrastructure Asset Management Project and preparation work has just began for the Agriculture Competitiveness Enhancement Project; and in PNG preparation is advanced for the Productive Partnerships in Agriculture Project.

reduction in urban and coastal infrastructure development, in the context of a broader national strategy for climate change adaptation.

Samoa

15. Adaptation actions identified in Samoa's Climate Change Policy include the overall implementation of adaptation measures to protect Samoa from the impacts of climate change. Other adaptation measures highlighted include implementation of the NAPA, adaptation actions in sectors (Water, Agriculture, Forestry, Fisheries, Human Health, Coastal Zones, Infrastructure and Natural Ecosystems), promote technology transfer, mainstreaming of climate change into national planning and environmental impact assessment, implementation of the Coastal Infrastructure Management Plan, implementation of the Samoan component of the Regional Pacific Adaptation to Climate Change Project and mobilization of funding, expertise and other resources to support adaptation actions.

16. Samoa already has in place the appropriate national planning framework that could support PPCR investments and the integration of climate resilience measures into key development activities. The Strategy for the Development of Samoa 2008-2012" includes environmental sustainability and disaster risk reduction among its main goals and identifies vulnerabilities to natural disasters and climate change as one of the significant challenges facing the country. Samoa has also prepared a NAPA which has identified the country's immediate adaptation needs and a project to implement the program is being developed with assistance from UNDP (under the GEF-PAS). The PPCR provides the opportunity to build on the NAPA process and to scale up some of the relevant adaptation initiatives to be implemented.

17. In terms of capacity Samoa has built up strong capability for implementing a number of environmental management functions. For example, a sound system of Environmental Impact Assessment (EIA) is in place. Samoa is also the only Pacific Island Country to have completed Coastal Infrastructure Management Plans (CIMP) for each village, putting in place a vision and a framework for agreeing on priorities. Work on the NAPA helped to strengthen capacity for undertaking vulnerability assessments.

18. The Strategy for the Development of Samoa includes significant investments in coastal and urban infrastructure as well as in the health sector investments; all these can benefit from the use of PPCR resources to allow "climate proofing" in the context of the country's wider climate change adaptation plan.

Papua New Guinea

19. Papua New Guinea has already been greatly affected by extreme weather and climate events in the past, such as the prolonged drought during the 1997-1998 El Niño and damaging high waves associated with the extreme weather events in 2005. These greatly demonstrated the vulnerability of PNG's agricultural crops, water resources and human health to the impacts of climate variability and changes, which are expected to be more frequent and more intense in the future. Among the observed impacts include bleached coral reefs that affect fisheries resources; atoll-based communities affected by high waves; and increased vector borne diseases creeping

up to the highlands. The terrestrial and marine ecosystems are particularly diverse and complex and climate change impacts are not well understood.

20. The ability of PNG to adapt to climate change is improving but still uncertain as this is a function of a range of institutional, technological and cultural factors which will need a fundamental shift in terms of sound management practices and mainstreaming of environmental considerations at planning and policy levels. Special efforts need to be initiated and sustained along this line of activities. In this regard, relevant institutional changes have taken place in 2008 with the establishment of the Office of Climate Change and Environmental Sustainability (OCCES) which is directly under the Office of the Prime Minister (albeit there are some remaining operationalization issues that need to be addressed). At present, the World Bank is providing assistance to the OCCES in the preparation of a national climate change framework strategy. The National Strategic Plan for 2010 – 2050 has included Climate Change as one of the country's major area of concern (NSP-FA6).

V. Complementary Regional Support

21. Whilst the three country-specific components of the regional pilot program in the Pacific will yield important lessons on building climate resiliency in the Pacific, there are additional activities which will be undertaken taken at the regional level due to economies of scale and greater efficiency and effectiveness. A regional platform will also be effective in promoting replication, up-scaling and leveraging of other investments as well as for monitoring and developing integrated lessons learned and examples of good practice. The major common barriers to achieving sustainable development and climate risk reduction at national level in the Pacific Islands Region are limited in-country capacity, weak institutional arrangements for mainstreaming, and poor understanding of explicit hazard risk to inform decision-making. As a result, regional activities supported by the PPCR could focus on:

- (a) Development of regional climate scenarios and their use in raising awareness of climate risk reduction issues and responses, particularly among decision-makers.
- (b) Development of toolkits and other resources that can be used across countries, including codes of practice for climate proofing, vulnerability, risk and adaptation assessments and hazard mapping.
- (c) Training in the application of toolkits and other resources and in monitoring, evaluation and reporting.
- (d) Exchanges of lessons learnt and good practice guidelines, especially inter-country exchanges between PPCR countries and non-PPCR countries, to foster and strengthen cross-country collaboration.

22. Implementation would be through existing regional institutions. The most appropriate regional institution(s) with whom to partner in implementing these activities will be determined during the joint PPCR programming mission. ADB, as a regional organization, with several

offices in the Pacific region, is in a position to closely work with the regional agencies, and other partners, including the private sector, that will co-implement the regional activities.

23. One candidate to support the implementation of the regional activities would be the Pacific Islands Forum. With 16 member countries, including Australia and New Zealand, it is the region's premier political and economic policy organization and should be consulted in this process. Under the auspices of the Forum Secretariat (based in Suva, Fiji), Pacific Leaders meet annually to develop collective responses to regional issues – including in recent years the threats from climate change. Ministerial-level post-Forum Dialogues are also held with key Dialogue Partners: Canada, People's Republic of China, European Union, France, India, Indonesia, Italy, Japan, Republic of Korea, Malaysia, Philippines, Thailand, United Kingdom and the United States.

24. The Forum's Secretary General is also permanent Chair of the Council of Regional Organizations in the Pacific (CROP agencies) that brings together eleven main regional organizations, including the Secretariat of the Pacific Regional Environment Program (SPREP) and the Pacific Islands Applied Geoscience Commission (SOPAC, which may soon be merged with SPREP).

25. Furthermore, the possible merger of SOPAC and SPREP climate change and disaster risk reduction programs, provided this merger eventuates in the ongoing CROP agencies rationalization exercise, could provide an improved institutional platform for implementing regional activities supported by PPCR. Links also should be formed to ongoing efforts to assist the region in reducing natural hazard risks.

26. A teleconference consultation was conducted between ADB and SPREP on 20 July 2009 on the approach proposed for the regional PPCR program in the Pacific. The basic proposal -- including country selection and areas of attention -- was explained to SPREP together with the programming process, including plans for further detailed consultations during upcoming joint programming missions. SPREP appreciated the information, agreed to the general proposed approach and welcomed the additional adaptation support for the region. It was also noted that SPREP is initiating a program of support to Pacific countries on mainstreaming climate change considerations into national and sectoral development strategies and budgeting processes, which would provide a platform for coordination, cooperation and possible collaboration.

27. The PPCR regional activities should also be coordinated closely with the regional UNDP/GEF Pacific Adaptation to Climate Change Project, which will be jointly implemented by UNDP and SPREP. Although the project focuses on national execution, regional activities will consist of technical backstopping to enhance national implementation in the form of advice and information, training, regional monitoring, coordination of regional workshops, the facilitation of the sharing of lessons among the PIC participants and project management oversight. These activities provide an excellent opportunity to exchange lessons learnt and good practice guidelines between PPCR countries and non-PPCR countries and to foster replication, up-scaling and the leveraging of other investments.

Appendix 1

Multi-country Adaptation Projects in the Pacific

1. Capacity Building for the Development of Adaptation Measures in Pacific Island Countries – funded by Canada and executed by SPREP between 2002 and 2005 in 16 communities in the Cook Islands, Fiji, Samoa and Vanuatu; the project was designed to (i) develop a community vulnerability and adaptation assessment and action approach to analyze actual adaptation processes so as to contribute to capacity building as the alternative to using the global and regional climate models; (ii) examine the conditions that give rise to vulnerability based on personal experiences and insights of local residents; and (iii) identify and implement adaptation measures through community participation;
2. Climate Change Adaptation Project for the Pacific (CLIMAP) – implemented by ADB at ADB-level and in Cook Islands and FSM; completed 2005; focused on demonstrating mainstreaming climate adaptation into development and planning in PDMCs and into ADB Pacific Department operations, on a pilot basis;
3. Mainstreaming Environmental Considerations in Economic and Development Planning – implemented since 2005 in FSM, Kiribati, Palau, PNG, RMI, Samoa, Solomon Islands, and Vanuatu; assesses environment-related constraints on, and opportunities for national sustainable development, including those relating to climate change;
4. Regional Partnerships for Climate Change Adaptation and Disaster Preparedness – planned to be implemented by ADB in Cook Islands, Fiji Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu; designed to improve availability of geophysical information that supports greater resilience to climate impacts and shocks through both government and development partner decision-making on hazard exposure and risk minimization; also includes an assessment of the feasibility of a regional pooled catastrophe insurance scheme and its subsequent development;
5. Pacific Islands Climate Prediction Project (PICPP) – funded by AusAID since 2005 and scheduled to close in 2009; implemented in PNG, Solomon Islands, Vanuatu, Kiribati, Tuvalu, Fiji, Tonga, Samoa, Niue, Cook Islands; designed to enhance the capacity of Pacific Island National Meteorological Services to understand and monitor climate variability and climate and generate useful seasonal predictions and disseminate these and other climate information to government and industry;
6. South Pacific Sea Level and Climate Monitoring Project – current phase runs to 2010; implemented in Cook Islands, FSM, Fiji, Kiribati, RMI, Nauru, PNG, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, with funding from AusAID; designed to generate an accurate long-term record of sea level for the South Pacific and to establish methods to make these data readily available and usable by Pacific Island countries;
7. Vulnerability and Adaptation Initiative – funded by AusAID from 2004 through to 2009; implemented in Fiji, Solomon Islands, Samoa, Tonga, Tuvalu and Vanuatu; through small grants programs in Fiji, Solomon Islands, Samoa, Tonga and Vanuatu and a water and sanitation project in Tuvalu the project provides practical adaptation assistance such as increased water storage, improved food security through crop diversification, and coastal stabilization through replanting of mangroves;
8. The AusAID-funded ‘Programme for Water Safety Plans in PDMCs’ is implemented by SOPAC and the World Health Organization and runs from 2008 to 2009; it promotes

- development and implementation of a ‘catchment to consumer’ risk-management approach to safe drinking water for both urban and rural Pacific communities;
9. National Action Plan Implementation Facility – implemented by SOPAC between 2008 and 2011, in the Cook Islands, Papua New Guinea, Samoa, Solomon Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Tonga and Tuvalu, with funding from AusAID; designed to enhance the sustainable development of Pacific countries through the implementation of measures identified in their National Action Plans to reduce underlying risks to disasters caused by both natural and human-induced hazards, and to improve preparedness and response to disasters caused by such hazards;
 10. CARITAS - Building Disaster Response and Preparedness of Caritas Partners in the Pacific – implemented by SOPAC from 2008 to 2011 in Fiji, Kiribati, Samoa, and Vanuatu, along with a regional component, with funding from AusAID; designed to build stronger organizational systems that incorporate international best practice into local disaster preparedness and response plans, increase technical capacity to enable effective implementation of disaster response and preparedness plans, and build/strengthen networks to ensure effective coordination between stakeholders;
 11. Strengthening Humanitarian Emergency Response Management for Children and Women in the Pacific – implemented between 2008 and 2001 by UNICEF with funding from AusAID; designed to strengthen the pre-positioning, management and distribution of humanitarian response supplies (especially health) for children and women, and enhance national and sub-national capacity in emergency management planning, disaster assessment and response monitoring for children and women;
 12. The Pacific Community Focused Integrated Disaster Risk Reduction Project – implemented in Fiji, Solomon Islands, Tonga and Vanuatu between 2008 and 2011 by the National Council of Churches in Australia, with funding from AusAID; designed to integrate community-focused disaster risk reduction programs with existing disaster risk reductions institutions and organized by faith-based networks;
 13. Development of Sustainable Agriculture in the Pacific – implemented since 2003 in 16 PDMCs with EU funding; the project promotes and implements sustainable agriculture that will improve food production, thereby enhancing food security and income generation in the Pacific;
 14. Integrated Water Resource Management – implemented by SOPAC in Cook Islands, FSM, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, PNG, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu, with EU funding; designed to improve the assessment and monitoring of water resources, reducing water pollution, improving access to technologies, strengthening institutional arrangements and leveraging additional financial resources in support of integrated water resources management;
 15. Impact Assessment Studies in PDMCs – implemented by SPREP from 1992 to 1996, with funding from Japan; studies were undertaken in Fiji, Samoa, Tonga and Tuvalu; the project was designed to identify the vulnerability and resilience of the coastal natural and socio-economic systems of each country;
 16. Sub-regional Community-based Disaster Management – this project is being formulated for Fiji, Tonga, Solomon Islands, and Vanuatu, with funding from Japan; it will support development/improvement of the preparedness for natural disasters (cyclone and flood) at a community level;

17. Promoting Climate Change Adaptation in Asia and the Pacific – with funding from Japan, technical assistance under this project is designed to strengthen adaptation responses in the Asia and Pacific region so that PDMCSs will be more resilient to climate change; the project commenced in 2007, with an expected duration of four years;
18. Pacific Regional Natural Resources and Disaster Management Programme – this project, funded by NZAID, will strengthen the capacity and capability of Pacific Island governments and communities to sustainably manage natural resources, prepare for and respond to natural disasters, and prepare for long term environmental changes; the project strategy was recently released for comment;
19. Support to GEF Pacific Small Grants Programme – funded by NZAID, this assistance includes climate change as a focal area;
20. Programme-level support – NZAID provided program level support to SOPAC, SPREP and SPC; activities include those related to climate change, disaster risk reduction and disaster management;
21. Water Quality Demand and Water Quality Management Initiatives – under this project NZAID provides project-level support to SOPAC for regional activities;
22. Emergency Management Support to the Pacific – NZAID provides funding through the NZ Ministry of Civil Defense and Emergency Management, the UN Office of the Coordination for Humanitarian Affairs and SOPAC;
23. Support to the UN Office of Coordination for Humanitarian Affairs (Pacific Office) – funding is provided by NZAID;
24. Cities, Seas and Storms: Managing Change in Pacific Island Economies – implemented by the World Bank between 1999 and 2000 in all PDMCSs, with a special focus on Fiji and Kiribati; the project was designed to quantifying the likely economic cost of doing nothing, by highlighting the exorbitant costs of protecting land, ecosystems, people and infrastructure under worst case scenarios, and by identifying the co-benefits and cost effectiveness of a proactive, “no regrets” approach to adaptation that favors only those measures for which benefits exceed costs, even in the absence of climate change;
25. Community Relocation as an Option for Adaptation to the Effects of Climate Change and Climate Variability in PDMCs - implemented between 2005 and 2006 in 14 PDMCs with funding from NZ and the United States via the Asia-Pacific Network for Global Change Research; the initiative was to support collaborative research between researcher in developed and developing countries;
26. Assessment of Impacts and Adaptation to Climate Change – implemented between 2004 and 2006 by UNEP and executed by START and TWAS, with funding from GEF and sub-projects in Fiji and the Cook Islands; the project was designed to: (i) enhance scientific understanding of climate change, physical and social vulnerabilities and adaptation options in developing countries; (ii) enhance the scientific capacity of developing countries to assess climate change vulnerability and adaptation; and (iii) generate and communicate information useful for adaptation planning and action.

Adaptation-related Multi-country Projects

1. AusAID has an MoU with SOPAC covering the period 2006-08, to support three of SOPAC's technical programs: Ocean and Islands, Community Lifelines and Community Risk;
2. Similarly, AusAID has an MoU with SPREP covering the period 2006-08, to support SPREP's member endorsed strategic programs;
3. Climate Data Rescue in the Pacific – with AusAID funding, Kiribati, Vanuatu, Solomon Islands, Fiji, Papua-New Guinea are being assisted to develop an inventory of digitized and un-digitized climate records, to recommend action for the preservation of the records, and where appropriate, to enact immediate action to secure important paper climate records at risk of loss; since then similar activities have also been undertaken in the Cook Islands, Niue, Tonga and Tuvalu to also ensure that their climate data is secure, accessible, and in a form capable of being utilized in the mitigation of the adverse impacts of climate change and variability;
4. Climate Change and the Southern Hemisphere Tropical Cyclones Project – funded by Australian Department of Climate Change and implemented in all PDMCs during 2007 and 2008; project is designed to conduct further analysis of the climatology of tropical cyclone variability and to develop a tropical cyclone forecasting scheme, linking with activities in PI-CPP;
5. Pacific Meteorological Services Needs Assessment Programme – implemented in 2000 and 2001, with AusAID funding; the project was designed to identify the assistance required by the Meteorological Services of 20 PDMCs, including needs for capacity building to meet growing public demand for the provision of improved weather and climate services and products;
6. Pacific RANET – a multi-donor funded feasibility project for all PDMCs, conducted in 2004 and 2005; the planned project was to increase the accessibility of weather, climate and hydro-meteorological related information through the use of radio, including information to assist remote and resource poor populations for their day-to-day resource decisions and preparations related to natural hazards;
7. Resource Book for Policy and Decision Makers, Educators and other Stakeholders – the book “Climate Variability and Change and Sea- Level Rise in the Pacific Islands Region”, co-authored by several Pacific and Japanese experts, was published in 2005 by SPREP, funded by Japan; the book was designed to provide knowledge regarding climate change and sea level rise, identify awareness gap among local people, clarify the needs for measures to overcome issues arising from climate change, and enhance international understanding and international cooperation to deal with climate change issues in PDMCs;
8. Training Programme for Meteorology – this course, funded by Japan, is designed for meteorology staff in Pacific Countries; around 10 participants are trained each year; in 2006 the course focused on Automatic Weather Station Network while in 2007 is focused on Operational Forecasting;
9. Island Climate Update and Seasonal Cyclone Forecasting – this project is funded by NZAID and implemented by NIWA and SOPAC;
10. Pacific Regional Meteorological Services – NZAID has committed funding for 2008-09;
11. Pacific Water Database and Quality Management – this project is funded by NZAID and implemented by the NZ Ministry of Health;

12. Pacific Islands Disaster and Emergency Communications System (PITA) – this project is funded by NZAID;
13. Pacific Island Global Climate Observing System (PI-GCOS) – project implemented by SPREP in 14 PDMCs, starting in 2004; designed to establish a robust and sustainable Pacific Islands climate observing system that meets long-term climate observation needs in the region and the world, in line with the PI-GCOS Action Plan and the PI-GCOS Implementation Plan;
14. Pacific Islands Global Ocean Observing System (PI-GOOS); implemented from 1998 by SOPAC in 14 PDMCs; designed to assist development of an online catalogue of marine environmental datasets and to disseminate oceanographic and marine data as useful information in response to the needs of governments, scientific research institutions and the public, so as to address marine issues;
15. Pacific Hydrological Cycle Observing System (Pacific HYCOS) – coordinated through SOPAC, with the involvement of NIWA; funded by the EU; operations since 2006; coordinated through SOPAC Community lifeline program, with involvement of NIWA; the project is designed to collect, archive, and analyse information necessary for water resource management, with equipment and technical support and to build capacity for water resources assessment and monitoring through training;
16. Review of Pacific Regional Meteorological Services – NZAID funded the review in 2008-09;
17. United States Country Studies Programme – implemented in Fiji, FSM, Kiribati, Marshall Is and Samoa, by SPREP during 1992 to 1997, with funding from the United States; the studies were undertaken as part of United States’ global initiative to contribute to the objectives of the UNFCCC by providing financial and technical assistance to assess the coastal vulnerability to sea-level rise and climate change in developing countries;
18. Training Institute on Climate and Extreme Events in the Pacific – implemented between 2003 and 2006 in 14 PDMCs with funding from the Asia-Pacific Network for Global Change Research; the training was designed to enhance the regional network of scientists, forecasters, disaster management officials and resource managers skilled in the development and use of climate information to increase the resilience of PDMCs in the face of climate-related extreme events;
19. Historical Reconstruction and Mapping of Pacific Island Coasts – implemented between 2008 and 2009 in 14 PDMCs with funding from Japan via the Asia-Pacific Network for Global Change Research; the initiative was to support collaborative research between researcher in developed and developing countries; and
20. Ethnographic perspectives on resilience to climate variability in PDMCs – implemented in 2001 in 14 PDMCs with funding from the Asia-Pacific Network for Global Change Research; the initiative was to support collaborative research between researcher in developed and developing countries.

Appendix 2

Additional Information in the Selection of Pacific Island Countries to Constitute a Group of Countries Representative of the Pacific Region for the Pilot Program on Climate Resilience (PPCR) Project

Countries according to ADB Proposal	Vulnerability to Climate Change	Country Preparedness (National policies and programs)	Institutional Capacities and Human Resources	Stable and Capable National Systems of Governance	Collaboration on climate sensitive dev't issues (Source: ADB's DPCC Matrix)
Tonga	<ol style="list-style-type: none"> 1. Increased threat to food security due to reductions in crop yields brought about by increasing soil salinity etc 2. Destruction of habitats / ecosystems of some marine species 3. Reduction in freshwater supply 4. Increased threats from disaster risks both for public safety and human health 5. Reduction in diversity of marine species in coral reefs 6. Threat to the survival of ecotourism and fisheries sectors 7. Land loss due to greater exposure of the shoreline to wave action 8. Prolonged dry periods will decrease water supply for uses in rural areas and outer islands 9. Reduction in recharge to groundwater means reduction in potable water supply for uses in rural areas and outer islands. 10. Extreme events can cause injuries and death, although the timing is highly uncertain 11. Increased problems of sanitation, hygiene, etc, including increased incidence of air, water and food borne diseases; malnutrition 12. Increase incidence of asthma & other diseases due to drier atmospheric conditions <p>(Source: First National Communications to UNFCCC, 2005)</p>	<p>The Tonga Government's vision is to achieve sustained, sustainable and equitable economic growth, to provide the population with education, health and other basic services in an effective and efficient manner, to achieve better governance and to address the special needs of the least well-off, the more vulnerable, marginalized and disadvantaged groups in society. These goals have been integrated into SDP-8, which was formulated after extensive consultation and approved by the Cabinet in May 2006. SDP-8 sets out the Government's development vision, its eight medium-term national development goals, and specific strategies for achieving these goals. Quantitative and qualitative targets were set for each of these goals, including a budget deficit less than 2% of GDP, inflation below 7%, GDP growth in the 3–4% range and a reduction in the poverty headcount index below 23%.</p> <p>Source: ADB, 2007: CPS-Tonga (2007-2012)</p>	<p>The Ministry of Lands, Survey, Natural Resources and Environment is the Government of Tonga Focal Point for the South Pacific Regional Environment Programme (SPREP) and South Pacific Applied Geoscience Commission (SOPAC). Due to the unique physical and biological state of small islands, each island countries share environmental problems in the Pacific regions. Therefore, regional cooperation in addressing issues is important to the regions development.</p> <p>The MLSNRE is also the operational focal point for the Global Environment Facility (GEF), the global mechanism that funds the implementation of the GEF focal areas such as climate change, biodiversity, international water and renewable energy. Complementary to this mandate, the Department of Environment & Resource Management of the Ministry provides the technical input to the Ministry of Foreign Affairs in environmental matters/issues that are addressed by relevant agency of the United Nation (i.e. UNDP, UNEP, UN Commission on Sustainable Development (CSD)) and regional inter-governmental organizations</p>	<p>Tongans, a Polynesian group with a very small mixture of Melanesian, represent more than 98% of the inhabitants. The rest are European, mixed European, other Pacific Islanders and Chinese. Everyday life is heavily influenced by Polynesian traditions and especially by the Christian faith.</p> <p>Tonga became a constitutional monarchy in 1875 and joined the Commonwealth of Nations in 1970. Tonga remains the only monarchy in the Pacific. Cabinet consists of 14 members, 10 appointed by the monarch for life; four appointed from among the elected members of the Legislative Assembly. A Privy Council consists of the monarch, the cabinet, and two governors.</p> <p>Primary education between ages 6 and 14 is compulsory and free in state schools. Higher education includes teacher training, nursing and medical training, a small private university, a women's business college, and a number of private agricultural schools. Most higher education is pursued overseas.</p> <p>An increasing number of Tongans have moved into the only urban and commercial center, Nuku'alofa, where European and indigenous cultural and living patterns have blended. However, village life and kinship ties continue to be important throughout the country.</p>	<ol style="list-style-type: none"> 1. Water supply projects under Grassroots program (JICA) 2. Development of Sustainable Agriculture in the Pacific (EU) 3. HYCOS -Hydrological Obs. System (EU) 4. Disaster Risk Reduction (EU) 5. Pacific Islands Climate Predictions Project (PICPP) - Phase 2 (AusAid) 6. South Pacific Sea Level & Climate Monitoring Project: Phase IV (AusAid) 7. Vulnerability and Adaptation Initiative (AusAid) 8. Vulnerability and Adaptation Initiative (AusAid) 9. National Action Plan (NAP) Implementation Facility (AusAid) 10. The Pacific Community Focused Integrated Disaster Risk Reduction Project (NCCA) 11. Climate Data Rescue (AusAid) 12. TA6496-REG: Regional Partnerships for Climate Change Adaptation and Disaster Preparedness (ADB) 13. Grant 0108-TON: Integrated Urban Development Sector Project, Phase II (ADB)

Countries according to ADB Proposal	Vulnerability to Climate Change	Country Preparedness (National policies and programs)	Institutional Capacities and Human Resources	Stable and Capable National Systems of Governance	Collaboration on climate sensitive dev't issues (Source: ADB's DPCC Matrix)
<p>Samoa</p>	<p>1. Inability of food production levels to meet higher demands 2. Adverse impacts on water quality and availability. 3. Loss of beaches, inundation and degradation of the coastal ecosystems. 4. Increased disaster risks of floods and droughts; human health impacts.</p> <p>(Sources: Samoa National Adaptation Plan of Action, 2005; Samoa National Policy on Climate Change, 2007)</p>	<p>Samoa became party to the Paris Declaration on Aid effectiveness in March 2008. Better aid means allocating resources to policy priorities and plans to promote justice, stimulate economic growth and improving social welfare of the citizens of a country. Samoa works in collaboration with its more than 25 development partners in financing close to 150 active projects and is on track to achieve the Millennium Development Goals.</p>	<p>Integrating risk management as an integral component of policies, plans, programs and projects is of the highest priority. The SDS 2008–2012 establishes environmental sustainability and disaster risk reduction as one of the seven national development goals and presents a range of associated strategies and performance indicators. The environment will feature prominently as a crosscutting consideration in all planning activities, including the formulation of sector plans and development projects. This is a major step towards incorporating environmental, climate change and disaster risk management-related concerns into government policies. ADB's 2006 Samoa Country Environmental Analysis had identified as a major policy constraint the "non explicit inclusion of environmental considerations in the SDS 2005–2007 and shortcomings in environmental legislation, compliance and enforcement."</p>	<p>Samoa was the first small island country in the South West Pacific to become independent. This occurred in 1962. It has a Head of State and a unicameral 49 member legislative assembly. Tenure for the legislative assembly is five years. The Prime Minister, chosen by the majority in the Legislative Assembly, can select up to 12 ministers to form a Cabinet. While all citizens over the age of 21 are eligible to vote, only those that hold chiefly or matai titles are entitled to stand for Parliament. Starting in the 1990s an extra-ordinary effort has been made to formulate, refine and implement national frameworks for guiding social and economic development, including the management of the environment and natural resources. A major approach underpinning the development of these frameworks was the multi-sector stakeholding process in which Governmental, non-governmental, private sector and community-based organizations undertook a collective stock-take and established the strategies for each framework. Over the last twenty years the Government of Samoa has enjoyed undisturbed political stability and a strong majority leadership by its ruling political party, the Human Rights Protection Party. In all the general elections during this period the ruling party consistently won a considerable majority margin over its opposition, and in the recent (April, 2006) election it won 80% of the parliamentary seats.</p>	<ol style="list-style-type: none"> 1. Development of Sustainable Agriculture in the Pacific (EU) 2. HYCOS -Hydrological Obs. System (EU) 3. Pacific Islands Climate Predictions Project (PICPP) - Phase 2 (AusAid) 4. South Pacific Sea Level & Climate Monitoring Project: Phase IV (AusAid) 5. Vulnerability and Adaptation Initiative (AusAid) 6. Vulnerability and Adaptation Initiative (AusAid) 7. - Building Disaster Response and Preparedness of Caritas partners in the Pacific (CARITAS) 8. Strengthening Humanitarian Emergency Response Management for Children & Women in the Pacific (UNICEF) 9. TA-7121 SAM: Preparing the Afu'ulilo Environmental Enhancement Project (ADB) 10. TA/Loan: Sanitation and Drainage Project, Phase II (ADB)

Countries according to ADB Proposal	Vulnerability to Climate Change	Country Preparedness (National policies and programs)	Institutional Capacities and Human Resources	Stable and Capable National Systems of Governance	Collaboration on climate sensitive dev't issues (Source: ADB's DPCC Matrix)
<p>Papua New Guinea</p>	<p>1.Reduced agricultural production 2. Loss of freshwater due to saltwater intrusion and sea level rise (SLR) 3. Increase in flood risks in low-lying areas (due to storms and extreme rain). 4. Health impacts due to increase vector borne diseases and disaster risks.</p> <p>(Source: First national Communications to UNFCCC, 2000)</p>	<p>Public expenditure review and rationalization (PERR) indicate ongoing reforms and successes to date.</p> <p>The new Medium Term Dev't Plans (2006-2010) provides an appropriate focus on priority investments and appears to be affordable.</p> <p>Source: ADB,2006: Country Strategy and Program, Papua New Guinea (2006 - 2010)</p>	<p>The principal national government in charge with climate change concerns is the Office of Climate Change and Carbon Trading. It has only 65 personnel, but it operates as a coordinating body with several member agencies. The OCCCT is directly under the Office of the Prime Minister. Foremost of these agencies is the Department of Environment and Conservation (DEC) which coordinates also with other natural resources agencies at the national level. It is complemented by about 145 staff. The DEC is still carrying out some climate change projects, such as the preparation of the Second National Communication.</p>	<p>The eastern half of the island of New Guinea - second largest in the world - was divided between Germany (north) and the UK (south) in 1885. The latter area was transferred to Australia in 1902, which occupied the northern portion during World War I and continued to administer the combined areas until independence in 1975. A nine-year secessionist revolt on the island of Bougainville ended in 1997, after claiming some 20,000 lives. The three official languages are English, Tok Pisin, and Motu; there are approximately 860 other languages.</p> <p>The indigenous population of Papua New Guinea is one of the most heterogeneous in the world; PNG has several thousand separate communities, most with only a few hundred people; divided by language, customs, and tradition, some of these communities have engaged in low-scale tribal conflict with their neighbors for millennia; the advent of modern weapons and modern migrants into urban areas has greatly magnified the impact of this lawlessness.</p> <p>The monarch is hereditary; the governor general is nominated by parliament and appointed by the chief of state; following legislative elections, usually the leader of the majority party or leader of the majority coalition is appointed prime minister by the governor general, acting in accordance with a decision of the parliament ,</p>	<ol style="list-style-type: none"> 1. Development of Sustainable Agriculture in the Pacific (EU) 2. HYCOS -Hydrological Obs. System (EU) 3. Disaster Risk Reduction (EU) 4. Pacific Islands Climate Predictions Project (PICPP) - Phase 2 (AusAid) 5. South Pacific Sea Level & Climate Monitoring Project: Phase IV (AusAid) 6. National Action Plan (NAP) Implementation Facility (AusAid) 7. Climate Data Rescue (AusAid) 8. TA6496-REG: Regional Partnerships for Climate Change Adaptation and Disaster Preparedness (ADB) 9. TA6471-REG: Strengthening Coastal and Marine Resources in the Coral Triangle of the Pacific (ADB)

Appendix 3

Additional Information on the Proposed Countries, in Relation to the Five Selection Criteria

Tonga

1. The country is experiencing increased vulnerability to climate change and natural disasters, especially in the outer islands. This is in part due to population changes and development, but weather patterns and extremes are also changing. For example, there is rapid population growth in coastal areas of the outer islands as people are leaving inland areas and moving to areas where farming and gardening can be practiced. Development projects often fail to consider climate and natural disaster risks, so these may increase exposure. Increased and accelerating shoreline erosion is a major problem for Tonga, including on the capital island as well as in the outer islands. Other climate-related issues of growing seriousness are drought which threatens water security in both urban and rural areas, including for food production. Weather patterns are also changing – for example, in the past the rainy season was from September through to April, but now the rains occur throughout the year. Extension of early warning systems to the outer islands is a major challenge.
2. Through National Environment Week and other initiatives Tonga has very active climate change awareness programs. These include school visits, drama and other competitions, and radio and television programs

Samoa

3. “The Strategy for the Development of Samoa 2008-2012” includes environmental sustainability and disaster risk reduction among its main goals (Goal 7). The Strategy identifies vulnerabilities to natural disasters and climate change as one of the significant challenges facing the country. To address these issues one of the key activities would be the implementation of the Disaster Management Act (2007), which is a major piece of legislation. The Strategy proposes that resilience to climate change be addressed through continuation of work on coastal management and adaptation programs for vulnerable villages and other locations and through other activities such as promotion of energy efficient building design.
4. In addition to coastal areas the Strategy also proposes significant investments in urban infrastructure as well as in the agriculture and health sectors. The economic infrastructure in these areas, for example, tourism facilities, water supply systems, health centers and clinics are particularly vulnerable to climate variability and change and would benefit from "climate proofing". To address these issues one of the key activities would be the implementation of the Disaster Management Act (2007), which is a major piece of legislation. The Strategy proposes that resilience to climate change be addressed through continuation of work on coastal management and adaptation programs for vulnerable villages and other locations and through other activities such as promotion of energy efficient building design.
5. In addition to coastal areas the Strategy also proposes significant investments in urban infrastructure as well as in the agriculture and health sectors. The economic infrastructure in

these areas, for example, tourism facilities, water supply systems, health centers and clinics are particularly vulnerable to climate variability and change and would benefit from "climate proofing".

6. The Regional Pacific Adaptation to Climate Change Project, recently approved by the GEF with funding from the Special Climate Change Fund, is to be implemented by UNDP and SPREP in 13 Pacific Island Countries. In Samoa, the focus would be on coastal management activities.

7. The MDBs are already actively involved in several relevant sectors thus offering the opportunity to build on these existing sector interventions. The World Bank is implementing the Second Infrastructure Asset Management Project which includes inter alia: improving airport infrastructure; rehabilitating and upgrading the road network; strengthening capacity in the Ministry of Natural Resources and Environment and among stakeholders in environmental management, natural risk management and emergency management; and revising land administration regulations. Preparation is underway for the **Agriculture Competitiveness Enhancement Project**.

8. The ADP has identified three proposed projects:

- (a) Sanitation and Drainage Project II to improve and rehabilitate existing drainage and sanitation systems to reduce flooding;
- (b) Regional Partnerships for Climate Change Adaptation and Disaster Preparedness which will provide technical assistance to strengthen financial resilience of participating Pacific islands to the effects of natural disasters, including those exacerbated by human-induced climate change; and
- (c) Regional Mainstreaming Environmental Considerations in Economic and Development Planning, which will provide technical assistance for Country Environmental Analysis

Papua New Guinea

9. The National Strategic Plan (NSP) was created by the Parliamentary National Executive Council (NEC) in 2007 and is set to replace the Medium-term Development Strategy (MTDS), running since 2005 and which is set to expire in 2010.

10. The six focus areas of the NSP:

- (a) Strategic Planning: To have a sound, clear, achievable and progressive long term direction in policies & programs/outcome based on smart strategies for developing PNG in the period 2010-2050.
- (b) Institutions, Systems Strengthening & Alignment: To develop appropriate political & service delivery systems that are efficient, effective and dynamic following robust business models, service/product & process innovations.

- (c) Human Development & People Empowerment: To ensure PNG is well trained and well utilised, well paid, fairly treated & are contributing positively and productively to national development.
- (d) Wealth Creation: To ensure a strong, dynamic & competitive national economy by 2050.
- (e) Security & International Relations: To ensure PNG is a well secured, peaceful & united country for our children by 2050.
- (f) *Climate Change & Environmental Sustainability*: To ensure PNG's natural resources & environment is conserved & used for the collective benefit for all.

11. Specific actions to scale up attention to climate change in vulnerable coastal and marine areas are also proposed under PNG's National CTI Plan of Action (draft, May 2009) including:

- (a) Assessment and mapping of the vulnerability of PNG marine and coastal environments for climate change impacts (storm surge, sea level rise, seawater temperature rises, threats to corals etc.); and
- (b) Preparation of adaptation plans for the most vulnerable marine and coastal habitats.

12. A national climate change framework strategy is being prepared by the OCCES with assistance from the World Bank.

13. Through linkage with these actions, PPCR resources could be used to ensure that consideration of coastal climate change vulnerability and adaptation needs are linked and integrated with development planning frameworks. Furthermore – and most importantly – additional resources could support investments to strengthen the resiliency of coastal infrastructure in vulnerable areas.