

# GFDRR Project

## Reducing the Risk of Disasters and Climate Variability in the Pacific Islands

THE WORLD BANK / REGIONAL STOCKTAKE / EAST ASIA AND THE PACIFIC REGION



## Acronyms and Abbreviations

<b>AOSIS</b>	Alliance of Small Island States
<b>AusAID</b>	Australian Agency for International Development
<b>CBDRM</b>	Community-based disaster risk management
<b>CCA</b>	Climate change adaptation
<b>CCAIRR</b>	Climate Change Adaptation through Integrated Risk Reduction (Framework)
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organization (Australia)
<b>CLP</b>	Community Lifelines Program, SOPAC
<b>CRP</b>	Community Risk Program, SOPAC
<b>DRM</b>	Disaster risk management
<b>DRR</b>	Disaster risk reduction
<b>EU</b>	European Union
<b>FAO</b>	Food and Agricultural Organisation
<b>FSPI</b>	Foundation of the People of the South Pacific International
<b>GCM</b>	General Circulation Model
<b>ICSU</b>	International Council of Scientific Unions
<b>IDNDR</b>	International Decade for Natural Disaster Reduction
<b>INC</b>	Initial National Communication on Climate Change
<b>ISDR</b>	International Strategy for Disaster Reduction, United Nations
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>JICA</b>	Japan International Cooperation Agency
<b>M&amp;E</b>	Monitoring and evaluation
<b>NAP</b>	National Action Plan (for DRM)
<b>NAPA</b>	National Adaptation Plan of Action (for CCA)
<b>NCSP</b>	National Communications Support Program for Climate Change
<b>NGO</b>	Nongovernmental organization
<b>NIWA</b>	National Institute of Water and Atmospheric Research
<b>NZAID</b>	New Zealand Agency for International Development
<b>O&amp;IP</b>	Oceans and Islands Program, SOPAC
<b>PACC</b>	Pacific Adaptation to Climate Change Program
<b>PICCAP</b>	Pacific Islands Climate Change Assistance Program
<b>SOPAC</b>	Secretariat of the Pacific Islands Applied Geoscience Commission
<b>SPC</b>	Secretariat of the Pacific Community
<b>SPREP</b>	Secretariat for the Pacific Regional Environment Program
<b>UNDP</b>	United Nations Development Program
<b>UNEP</b>	United Nations Environment Program
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>USP</b>	University of the South Pacific
<b>WMO</b>	World Meteorological Organization

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## Introduction

This **Regional Stocktake** highlights arrangements for supporting hazard and climate change risk management leading to disaster risk reduction (DRR) and climate change adaptation (CCA) measures in Pacific island countries. Specifically the report identifies country and regional needs for supporting risk reduction programs, the primary players who are supporting such programs, gaps in delivering support and possible synergies, and comparative advantages among agencies active in this activity.

The focus of the Regional Stocktake is on risk reduction (as opposed to disaster management measures to prepare for, respond to, and recover from disaster events when they occur). The report reviews regional mechanisms supporting in-country government arrangements and activities and identifies potential improvement measures. While several specific sector activities are addressed as they were encountered, the report does not provide a comprehensive summary of sector-by-sector activities. Other reports have done that and are appropriately referenced.

The synthesis report **Preparedness, Planning, and Prevention: Assessment of National and Regional Efforts to Reduce Natural Disaster and Climate Change Risks in the Pacific** (World Bank, 2009a) presents profiles of the DRR/CCA systems in the seven countries reviewed in this Regional Stocktake. From these profiles as well as the other works cited in the synthesis report, it is clear that both a national and regional perspective are needed among all stakeholders in order to have a comprehensive operational framework. At the same time, given several factors (distance, size, socioeconomic linkages, cultural, institutional and other characteristics), it should be acknowledged that in the early phase the potential for regional DRR and CCA initiatives among the Pacific islands is not as promising as it is for individual country initiatives.

In the seven country assessment reports, the focus on in-country government arrangements arises from clear

evidence of systemic difficulties from many Pacific island countries in establishing an enabling environment and cross-sector focus for DRR and CCA activities despite clear leadership commitment at the national and regional levels. In many countries it is becoming clear that, in spite of several promising starts, sustainable and systematic risk reduction (i.e., on other than an ad hoc basis) will not occur without stronger government commitment and efforts at the policy and regulatory levels. Among the priorities of the *Hyogo Framework for Action* (HFA), one factor is to promote in-country government arrangements demanding risk reduction considerations across all sectors and promoting community-based, risk reduction initiatives through provincial and local government and through civil society and all stakeholder groups. As discussed below, while there is increasing interest in dealing with many common issues and challenges from a regional perspective, much more nurturing is still needed.

This report is a companion to the seven country assessment reports that assess the extent to which risk reduction activities (including the enabling environment) have progressed in seven Pacific island countries—Fiji, Kiribati, Marshall Islands, Papua New Guinea, Solomon Islands, Timor-Leste, and Vanuatu. The reports were prepared under the auspices of the World Bank's Reducing the Risk of Disasters and Climate Variability in the Pacific Islands. The team of project consultants met with representatives of key regional agencies and visited the seven island countries in carrying out the assessments during the period February to July 2008. The reports identify possible initiatives for improving the outcomes of in-country DRR/CCA activities. These are commented on further in the Business Plan Commentary (World Bank, 2008), which is intended as a basis for discussion between countries and stakeholders for decisions on funding of particular initiatives. As discussed in this report, the initiatives might support better arrangements for understanding hazard-related information (to inform DRR and CCA activities), or strengthening the enabling environment (to improve risk reduction focus and activ-

ity within or among countries) and “on-the-ground” activities (to actually reduce risk).

The structure of the Regional Stocktake starts with the historical and emerging perspectives of climate change adaptation and disaster risk reduction (Chapter 1) and setting a framework for analysis (Chapter II). It follows with the key findings from the regional stocktaking of the country and regional needs and gaps for supporting in-country activity (Chapter III) and leads to an

assessment of regional proposals for enhancing the support available to countries (Chapter IV). Appendix A expands the framework used in each of the country assessments. A similar framework was used for the Regional Stocktake. Appendix B contains a summary of detailed issues from the regional stocktaking. Appendix C provides a status of in-country arrangements of risk reduction as published in three other regional reports. And Appendix D lists the project team and the people consulted in the preparation of this report. ❖

## I. Perspectives on CCA and DRR Issues

In the case of *climate change adaptation*, climatologists and atmospheric scientists in the first instance were the driving force behind the coalescing international concerns about anthropogenic climate change in the 1980s. And the International Decade for Natural Disaster Reduction 1990-99 caused international focus on disaster management to turn its attention to the issue of *disaster risk reduction*. Following is a perspective on each.

### Climate change adaptation

From the perspective of the climatologists and atmospheric scientists, the problem was most easily characterized as a slow, gradual change in climatic means (e.g., global-mean temperature or global sea-level change). This was because issues of detection and attribution of past changes based on observations, as well as projections of future changes based on modeling, were most easily addressed through analyses of climate variables averaged at a global scale.

This perspective had a “bounce-on” consequence to those in the scientific community concerned with climate change impact and adaptation analyses. During the 1980s and 1990s, the preponderance of such analyses involved overlaying scenarios of average changes in climate and sea level on various sectoral concerns such as agriculture, water, and ecosystems in order to ascertain impacts (for example, on average crop yields, water supply, or biome changes) and to suggest adaptation options. This “top-down” way of formulating the problem became imbedded in the three working group structure of the Intergovernmental Panel on Climate Change (IPCC), in which the Working Group I (Science of Climate Change) created scenarios of future climate change and passed them down to Working Group II (Impacts, Adaptation, and Vulnerability) for their impact and adaptation assessments and to Working Group III on Mitigation of Climate Change.

Another major consequence of this perspective was that global climate change was earlier viewed primarily as an environmental problem. Thus, the first major international assessment of the “greenhouse effect” in the 1980s was carried out by the United Nations Environment Program (UNEP) along with the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU). The chapters of this study and the subsequent IPCC reports were initially organized around bio-physical impacts on natural ecosystems, managed ecosystems, the cryosphere, and hydrology. The international response followed similar environmental lines. The Climate Convention evolved from the 1992 Earth Summit. Filtering down to national governments, the mandate for climate change issues is typically assigned to environment ministries or departments.

As illustrated in Table 1, the conventional view of climate change adaptation is “top-down”, a process in which the challenge is to anticipate and adjust to gradual changes in average climate; this conventional view has given way to an emerging perspective that climate change adaptation involves a dynamic process of adjusting to *additional risks* posed by changes in climate and sea level over time. Today, it is increasingly evident that while the driving forces of climate change are global, adaptation is largely local. Moreover, at this scale, information about the average changes in climate is by itself not as important as how climate variability and extremes may change locally and thus contribute to the risks—from droughts, floods, cyclones—already faced by nations and communities.

From the “coal face”, it also becomes clear that adaptation goes beyond such overt actions as building a sea wall or changing farming practices. It is a complex, dynamic process that includes awareness raising, capacity building, mainstreaming into development plans, acquiring knowledge and data, and assessing risk at all levels.

**Table 1. Two Perspectives of Climate Change Adaptation**

	The threat	The response	The promotion
Adaptation involves... <b>Conventional perspective</b>	...adjusting to slow, gradual changes in average climate and sea level by...	...adopting discrete measures to reduce impacts (e.g. change crop type) by...	...providing external assessments of impacts and “shopping lists” of options for reducing them.
Adaptation involves... <b>Recent perspective</b>	...reducing the <b>additional risks</b> from climatic hazards (e.g., cyclones, droughts, floods) due to climate and sea-level change through...	...a <b>dynamic process</b> that includes awareness raising, capacity building, mainstreaming into policies and plans, monitoring, risk assessment and knowledge acquisition by...	...internalizing adaptation within communities, governments, and development agencies (e.g., ADB, World Bank) in order to <b>“climate-proof” development projects</b> over time

There are clear signs of this perspective shift in the IPCC (2001) Third Assessment Report and again in its Fourth Assessment Report (IPCC, 2007). There is also evidence that the international CCA funding mechanisms and the related programs of development agencies and regional organizations are moving in this direction (e.g., World Bank, 2006; ADB, 2005). These issues are reflected in the *Pacific Islands Framework for Action on Climate Change 2006–2015* approved in June 2005 and endorsed by the Pacific Forum Leaders in October 2005.

### Disaster risk reduction

Despite scientific advances, and improved data collection and analytical skills, the traditional focus on preparedness and response has clearly not been sufficient to deal with the increasing losses and impacts of disasters. Especially for developing countries, disaster losses that exceed 10 percent of gross domestic product (GDP) were having serious adverse impact on already fragile development programs, most particularly in small island developing states. Comparatively, disaster losses seldom approach 1 percent of GDP in industrialized countries.

The 1994 the Yokohama Strategy and Plan of Action is a product of the International Decade for Natural Disaster Reduction (IDNDR). It identified disaster prevention and preparedness as integral aspects of de-

velopment policy and planning and prompted several disaster preparedness activities. A decade later, the understanding and literature appear to have outpaced commensurate action on disaster risk reduction.

The Hyogo Framework for Action 2005–2015 identified key areas—governance, hazard and risk understanding, early warning, knowledge, and education—as being necessary to reducing underlying risk and strengthening preparedness. These issues are reflected in *An Investment for Sustainable Development in the Pacific Island Countries Disaster Risk Reduction and Disaster Management—A Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters* (SOPAC 2005) adopted by the Pacific Islands Forum in October 2005.

In 2006 The World Bank Policy Note “Not If, But When” identified perverse incentives, poor institutional arrangements, and lack of instruments as major constraints limiting the adoption of natural hazard risk management in the Pacific Islands Region.

While there is evidence of policy development and planning in most Pacific island countries, in-country capacity, institutional arrangements, and information remain major constraints, and risk reduction action on the ground remains elusive despite major efforts by donor and stakeholder institutions at both the national as well as regional levels. ❖

## II. Framework for Analysis

From the DRR and CCA perspectives, it is evident that the two pathways are converging in relation to climate hazards. As shown in Figure 1, the desired outcome of both is *risk reduction*. In the context of the Pacific Islands Region and elsewhere, the ultimate outcome is *sustainable development*. The prevalent understanding is that a significant impediment to sustainable development is risk from diverse hazards; and the area of common concern with regard to disaster risk reduction and climate change adaptation is climate-related hazards.

Viewed in this way, the difference lies only in timescale: disaster risk reduction is concerned primarily with risks from *present* climate variability, geographical and related extremes; whereas climate change adaptation is primarily more focused upon the increasing extremes of climate events and the *future* changes in those risks that should be taken into account in development programs. Conceptually, they share a lot in common.

### Preconditions for risk-reduction

The processes of risk reduction, particularly related to meeting the *preconditions* for DRR/CCA-related actions, are very similar. Figure 1 illustrates the five

major components, or preconditions, that are necessary to provide the enabling environment which allows sustainable, “on-the-ground” reductions in risk. These components are:

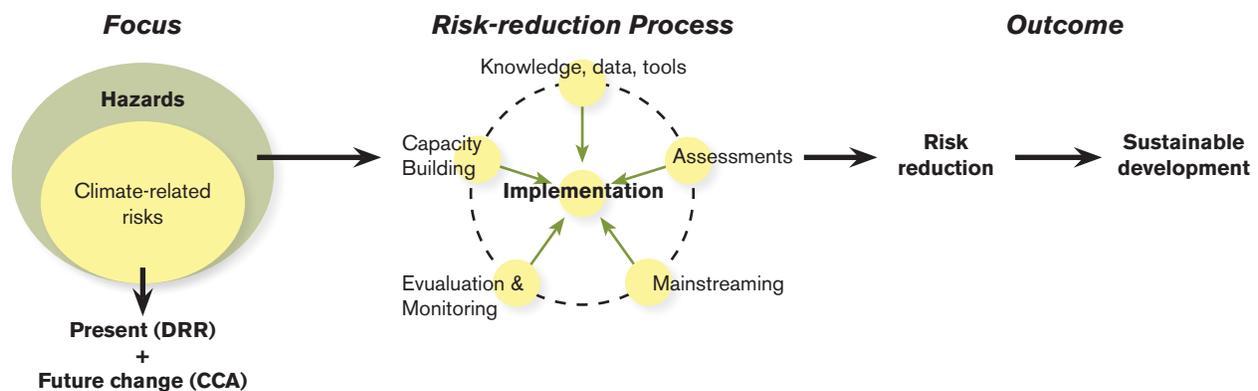
- Knowledge, data and tools;
- Risk and vulnerability assessments;
- Mainstreaming into plans, policy, legislation, regulations;
- Monitoring and evaluation; and
- Awareness raising and capacity building.

To the degree that these do not exist or are deficient, they could be targeted by governments, donors, NGOs, and international and regional organizations for investment and action to encourage risk reduction.

In addition, there are structural, institutional, or *process issues* that are necessary to provide for and promote sustainable risk reduction. These processes are:

- Governance and decisionmaking,
- Coordination among government agencies,
- Coordination among donors and key stakeholders, and
- Planning and budgetary processes.

**Figure 1. Areas of common concern and process in reducing risks for sustainable development**



These components and processes served as a framework for data collection and analysis for each of the seven country assessments and informed this regional stocktake. Appendix A elaborates on the framework, which has many elements in common with the two 2005 frameworks for action on climate change and disaster risk reduction outlined in the previous section. Both of these latter documents recognize existing limitations and capacity constraints faced by most of these countries and the need for ‘mainstreaming’ DRR/CCA measures into national policies and planning processes.

## Mainstreaming

The term *mainstreaming* is widely used and often interpreted to include any initiative bringing risk reduction activity to the community level. In the policy note “Not If, But When,” the World Bank (2006) makes the point that risk management of natural hazards can only become effective on a national scale once it is reflected in key economic and social planning instruments.<sup>1</sup> It defines mainstreaming of risk management as the inclusion of natural hazards (including climate change) ramifications when considering the following:

- National development plans and strategies;
- Sectoral and spatial (including community level) plans—with budget commitment;
- Policies, regulations, and codes of practice—with enforcement; and
- Programs and projects for sectors, infrastructure, civil society, and donors with appropriate hazard assessment and design.

It identifies prerequisites in the form of:

- Strengthened national enabling environment through:

- ❖ accountable performance budgeting,
  - ❖ participatory planning and inter-sectoral coordination mechanisms,
  - ❖ available financing and appropriate institutional set-ups,
  - ❖ staff capacity and national champions, and
  - ❖ enforceable legislation, standards and codes.
- Support to decisionmaking with:
    - ❖ public awareness to support initiatives;
    - ❖ context specific information targeted at decisionmakers;
    - ❖ relevant analysis, mapping, and risk evaluation instruments; and
    - ❖ implementation support tools.

What has become clear from the seven country assessments is that, while some countries have developed policies and others are developing a National Action Plan (NAP) for Disaster Risk Reduction and/or a National Adaptation Plan for Action (NAPA) for Climate Change Adaptation, in all cases the institutional frameworks and in-country capacity for supporting mainstreaming are in need of substantial development assistance. This is true even for Kiribati where a substantial commitment to assist in the implementation of its Kiribati Adaptation Project over several years is reportedly having some difficulty in achieving targets due to weak institutional arrangements and lack of capacity. In other countries, as implementation commences, attention to these issues will be important. More positive experience with infrastructure projects in Samoa and Cook Islands appear to be more successful because of in-country government commitment and sustained institutional support for engagement with communities. These are necessary ingredients. ❖

<sup>1</sup> In-country evidence supports this view. The lack of cohesion between structures set up to address the external frameworks and the internal national planning and budget structures was stark. In Vanuatu steps were being promoted at the Ministry Directors-General level to begin addressing this, and it should be supported.

### III. The Regional Stocktake

The synthesis report, *Preparedness, Planning, and Prevention: Assessment of National and Regional Efforts to Reduce Natural Disaster and Climate Change Risks in the Pacific* (World Bank, 2009a), a companion to the 7 country assessments (World Bank, 2009b), calls attention to areas of progress in each country and on barriers and impediments to sustainable risk reduction. In the fundamental areas of the institutional arrangements and in-country capacity to support mainstreaming, the country assessments reach similar conclusions discussed in “Not If But When” (World Bank, 2006); GEF-Pacific Alliance for Sustainability Program Framework (GEF, 2008), and Integrated Water Resources Management in Pacific Island Countries: A Synopsis (SOPAC, 2007). Details from these 3 reports are found in Appendix C.

It is clear from these three regionwide reports that the issues are understood across a number of sectors. They are fundamental issues, and efforts over the past 10 years to address them have apparently had little impact on the outcome so far. In several initial national communications for climate change prepared earlier in this decade, many of these issues were identified as opportunities for development. In the country assessments, it is noted that the capacity in some areas (particularly in hazard monitoring and assessment) seems to have diminished rather than increased, over that time.

There is concern that with increasing hazard risks due to land use and population pressures and the actual and potential increase in climate extremes, progress in these critical areas remains elusive. This is difficult, crosscutting work, and both in-country commitment and sustained support from all stakeholders will be necessary if the risks to the many vulnerable Pacific communities are to be addressed.

This Stocktake reviews many of the main regional supporting mechanisms for country activities in the Region. While there are many positive initiatives

underway, it is clear that current regional and donor-support arrangements are not working as well as they should be. Collaborative discussions needed to find solutions can take place once this is acknowledged and the possible reasons reviewed and assessed.

#### Engaging in the process

At the regional level, three groups are responsible for regional stocktaking of DRR/CCA activities. For hazard risk, the mandated agency is the Secretariat of the Pacific Islands Applied Geoscience Commission (SOPAC), which manages its Community Risk Program and other related activities in the Community Lifelines and Oceans and Islands programs. The Secretariat for the Pacific Regional Environment Program (SPREP) is the mandated agency for climate change, which includes climate risk and adaptation activities.

The second group comprises the key donors funding regional initiatives through SOPAC, SPREP, and other stakeholders or direct funding of bi-lateral in-country initiatives. The third group, the stakeholders, are active in the Region and in-country and include sector agencies and NGOs that can play critical roles in supporting implementation of programs and engaging at the community level.

The Regional Stocktake team visited SPREP and SOPAC in February 2008 prior to its visits in the 7 countries in connection with the assessments. This Regional Stocktake has been informed by the country assessments. Donors and stakeholders were met by the project team in association with the regional meetings with SPREP in Apia and SOPAC in Fiji. In-country counterparts were met as appropriate during the country visits. The people and agencies met in connection with the reporting of the Stocktake are listed in Appendix D.

## Key findings at country and regional levels

This section addresses the key findings from the regional stocktake as they relate to country needs and to broader regional needs. They principally address the fundamental issues of capacity and coordination, institutional strengthening and hazard data. For more detailed commentary of these and wider issues refer to Appendix B.

**Country needs and gaps.** The major common impediments to achieving sustainable hazard and climate risk reduction appear to be lack of in-country capacity, weak institutional arrangements for mainstreaming and poor understanding of explicit hazard risk needed to assist in the decisionmaking process. To assist in these, the following areas are identified for greater regional assistance:

- (1) ***Integration of the demands for CCA and DRR.*** Climate change adaptation and disaster risk reduction are elements of hazard risk management that requires similar information systems, skills, and institutional arrangements. Countries with separate strategic and planning frameworks embedded in separate departments, which prepare and implement both NAP for DRR and NAPA for CCA, could streamline their response and avoid costly duplication of scarce resources. Integrating in-country systems and making these compatible with regional country-support arrangements will require concerted local, national, regional leadership and support.
- (2) ***Support for the development of appropriate institutional arrangements for mainstreaming hazard risk management.*** Given the importance of this issue and the capacity and resource constraints in many Pacific island countries, they will need help in establishing, operating, and maintaining appropriate structures and mechanisms commensurate with their level of development. Neither

SPREP nor SOPAC, as the mandated regional agencies, appears to have the focus or resources to provide for these tasks. This is a crosscutting area for national development planning which should also address such issues as accountable performance budgeting, participatory planning, and inter-sectoral coordination.

- (3) ***Support for the development of in-country capacity.*** This has been a major focus of external resources over the past decade with mixed results so far. Consequently, new approaches are needed. Many past activities are perceived to have been supply driven and project based with not enough attention being given to the underlying national, sector, and related policy framework. The Vanuatu-sought approach for sustained support that addresses country priorities is showing some promise. Resources currently available to SPREP and SOPAC appear insufficient to provide this type of support to all their member countries, and so more assistance in this area will be needed.
- (4) ***Support for hazard monitoring, analysis tools, information systems, and codes or guidelines for practice.*** Available evidence shows a deterioration of the information system and analytical tools in most Pacific island countries over the past 10-15 years. Since they are part of the institutional requirements for mainstreaming and risk assessment for planning and decisionmaking, an appropriate support package is needed. Instead of simply trying to continue past approaches and practices, given the technological improvements made over past decades, such support should include studies of alternative ways of data collection and analysis (e.g., through regional and/or third parties) and providing the relevant information required by the countries in their planning, budgeting, investment, and maintenance activities. Past and current support arrangements with Australia and New Zealand could be the basis of a new focus and strengthened support.

- (5) *Donor coordination and in-country program funding.* To the degree that hazard risk reduction also has a regional dimension despite donors' reluctance to bi-laterally fund NAP and NAPA implementation, there is a need at both the country and regional levels for addressing the issue and examining program-funding options for sustained support.
- (6) *Monitoring and evaluation.* Given the need for sustained support for the country initiatives that have so far shown minimum commitment, there is need to identify the main reasons for this, perhaps using improved basic monitoring and evaluation mechanisms to assist all parties to better understand the issues and address them.
- (7) *Regional needs and gaps.* The existing country support arrangements for CCA and DRR initiatives through SPREP and SOPAC have been effective in developing plans, creating awareness, and maintaining reporting systems needed to fulfill international obligations. They have also been effective for individual project delivery in several countries—despite resources being spread thinly over these countries. The Stocktake review indicates that the existing regional CCA/DRR support mechanisms are unfortunately not very effective in the critical areas of helping to develop and support institutional capacity for mainstreaming climate change adaptation and disaster risk reduction and for supporting downstream tasks.

The primary needs and gaps identified at the regional level follow:

- (1) *Integration or coordination of regional CCA and DRR activities.* This need, which runs parallel with the first above-listed country need, is an issue as much for donors and international agencies as it is for the regional agencies. Regional leadership is needed to acknowledge and then address the issue to ensure the available synergies are obtained

to benefit the member countries. While improved coordination among all stakeholders could be a good initial step, integrating and mainstreaming of DRR and CCA initiatives into the national and regional systems is needed for sustained maximum benefits. Any momentum should not be lost in the comparative advantage of SOPAC as a science-based agency actively engaged in supporting in-country projects.

- (2) *Stronger regional governance to support progress of hazard risk management programs.* Current indications are that the regional mandated agencies are weak with limited cooperation and minimal coordination between them, as well as among clients. To promote institutional frameworks at the country level, stronger strategic and operational planning is needed. Currently neither SPREP nor SOPAC appears to have performance budgeting with meaningful measurable outcomes (although the SOPAC Community Risk Program has internal assessment measures). Program support arrangements to countries tend to be passive and reactive. For example, the SPREP-prepared *2005 Action Plan for the Implementation of the Pacific Islands Framework for Action on Climate Change 2006-2015* remains in draft version 12 with no measures and no commitments to action in the current year's budget. There is a need to strengthen the coordination mechanism of the Council of the Regional Organizations in the Pacific and provide for monitoring of progress and achievement of expected outcomes along with appropriate feedback loops to facilitate any required corrective measures.

Current requirements from the Pacific Islands Forum call for arrangements to be developed to split SOPAC between SPREP and the Secretariat of the Pacific Community (SPC). This could be an opportune juncture for addressing the overall requirements of the reconstituted organizations, in-

cluding the integration of disaster risk reduction and climate change adaptation in a more streamlined process as noted above.

- (3) *Provision of leadership for the coordination of the regional support for country CCA and DRR activities, including donors and international agencies.* In order to address country as well as regional needs, an appropriate regional leadership mechanism is necessary to provide guidance to regional agencies and the countries in addressing the issues of critical hazard risk management. Such a mechanism could also include an overview system for regional needs and co-funding for implementation of regional CCA/DRR programs.

Available evidence indicates that the SOPAC-sponsored Pacific Disaster Risk Management Partnership Network and the SPREP-sponsored Round Table for Climate Change Adaptation may not be considered appropriate for this integrated approach leadership role. These are just 2 of 14 such regional groupings comprising donors, stakeholders, and countries trying to foster greater cooperation and information sharing, but they still appear to maintain general silo structures and are answerable to the respective sponsoring agency.

- (4) *Development of common programs, information systems, and codes of practice.* Common systems or programs can be efficiently developed at a regional level and adapted for individual country uses. However, neither SPREP nor SOPAC appears to be appropriately resourced to provide for such needs.
- (5) *Regional support for the critical meteorological and hydrological networks in the member countries.* As noted in each of the 7 country assessment reports, the availability of analyzed data to facilitate local climate hazard assessments, infrastructure design,

and land use decisions is woefully lacking. This is a fundamental issue for risk reduction initiatives in the Region—without data there can be no full understanding of changing risks. Given the general degradation of these networks over the past decade, a regional overview is needed to assess if the individual country-operated facilities and systems in their present form are still relevant in light of recent technological advances; or there is also the possibility of third parties helping to provide most of the data that the countries need as input for their respective plans. While SPREP has a role to support in-country meteorological services, it is severely under-resourced and does not appear to be able to appropriately respond to client needs. It will therefore need assistance in order to help client countries.

- (6) *Development of regional and local climate projections, taking account of topographic/orographic effects, to inform local potential effects of climate change.* For the larger hilly nations of Fiji, Papua New Guinea, the Solomon Islands, and Vanuatu, the local climate models using General Circulation Model (GCM) projections cannot differentiate potential effects across different topographical parts of the country. Development of a long-term regional model is needed to better inform local understanding of potential changes to climate extremes, including the incidence of droughts and extreme rainfall. While this is recognized as a major exercise, the practicalities of building on Australian and New Zealand models through the Commonwealth Scientific and Industrial Research Organization (CSIRO) and the National Institute of Water and Atmospheric Research (NIWA), respectively, should be addressed to help improve knowledge of such factors. ❖

## IV. Opportunities for Investment

**A**mong the country and regional needs in the previous chapter, several require further discussion at the regional level to identify the way forward while others can be implemented within country agencies. Further discussion should center on those needs regarding CCA and DRR integration, strengthening of regional governance, regional leadership, and supporting institutional arrangements and capacity development. Discussions on these issues might identify opportunities for investment.

The following five potential opportunities for regional investment have been identified. Each with a practical application to meet a core need:

- (1) Review existing regional hydrological and meteorological service systems, assess how they are being used in formulation of NAP and NAPA and identify any gaps for sustainable operation to meet priority needs for Pacific island countries;
- (2) Develop a sustainable regional program funding mechanism for NAP and risk implementation in Pacific island countries;

- (3) Progressively develop regional and local climate projections within the larger topographically diverse countries;
- (4) Develop, disseminate, implement, and monitor regionally consistent technical guidelines and codes for infrastructure and buildings, incorporating key DRR/CCA elements that facilitate later mainstreaming; and
- (5) Develop collaborative regional institutional arrangements with DRR/CCA focus in professional development and knowledge adoption.

In the following matrices, each of these opportunities is expanded to provide preliminary information on indicative costs, first-order actions and tasks, and timeframes. This information is a preliminary step toward the development of more detailed proposals and terms of reference should any stakeholder wish to pursue any of these opportunities for investment. ❖

<b>R1 Review existing regional hydrological and meteorological service systems and needs for Pacific Islands</b>					
<b>Regional: Hazards monitoring and advice</b>					
<b>Goal and purpose: Strengthen hazards monitoring and advice capacity to inform CCA and DRR issues</b>					
<b>Lead agencies: WMO, SPREP, SOPAC, BOM/NIWA/NZ Meteorological Service</b>					
<b>Cost and duration: US\$250 000 over 6 months</b>					
<b>Hazards targeted</b>	<b>Actions to reduce risks</b>	<b>Key gaps/barriers</b>	<b>Tasks</b>	<b>Cost US\$k</b>	<b>Time-frame</b>
<p>Cyclone</p> <p>Storms</p> <p>Flooding</p> <p>Tsunami</p> <p>Earthquakes</p> <p>Volcanic eruptions</p> <p>Wave surge</p> <p>Coastal inundation</p> <p>Drought</p> <p>– including climate change effects for all these hazards</p>	<p>Improve monitoring network for weather, rivers and climate change</p> <p>Improve capacity for hazard advice</p> <p>Improve arrangements for managing the services</p>	<p>Inadequate monitoring networks to provide credible data</p> <p>Inadequate institutional arrangements to support a credible service</p> <p>Insufficient capacity and resources to manage the networks</p> <p>Insufficient capacity to develop advice to inform DRR/CCA issues</p>	<p>Review the state of meteorological and hydrological monitoring networks across the region and:</p> <ul style="list-style-type: none"> <li>• identify minimum requirements on a regional scale to inform weather, hazard management and climate change needs</li> <li>• identify minimum requirements broadly at a country level to inform country assessments</li> </ul>	250	December 2008

*Continues*

<b>Proposal:</b>		<b>R1 Review existing regional hydrological and meteorological service systems and needs for Pacific Islands</b>			
<b>Sector:</b>		<b>Regional: Hazards monitoring and advice</b>			
<b>Goal and purpose:</b>		<b>Strengthen hazards monitoring and advice capacity to inform CCA and DRR issues</b>			
<b>Lead agencies:</b>		<b>WMO, SPREP, SOPAC, BOM/NIWA/NZ Meteorological Service</b>			
<b>Cost and duration:</b>		<b>US\$250 000 over 6 months</b>			
<b>Hazards targeted</b>	<b>Actions to reduce risks</b>	<b>Key gaps/barriers</b>	<b>Tasks</b>	<b>Cost US\$k</b>	<b>Time-frame</b>
Cyclone Storms Flooding Tsunami Earthquakes Volcanic eruptions Wave surge Coastal inundation Drought – including climate change effects for all these hazards	Improve monitoring network for weather, rivers and climate change Improve capacity for hazard advice Improve arrangements for managing the services	Inadequate monitoring networks to provide credible data Inadequate institutional arrangements to support a credible service Insufficient capacity and resources to manage the networks Insufficient capacity to develop advice to inform DRR/CCA issues	Review the state of meteorological and hydrological monitoring networks across the region and: <ul style="list-style-type: none"> <li>• identify minimum requirements on a regional scale to inform weather, hazard management and climate change needs</li> <li>• identify minimum requirements broadly at a country level to inform country assessments</li> </ul>	250	December 2008

*Continues*

<b>Proposal:</b>	R2 Develop a sustainable regional program funding mechanism for NAP and risk reduction implementation in Pacific island countries			
<b>Sector:</b>	Regional: Hazards, Climate Change			
<b>Goal and purpose:</b>	To facilitate the implementation of National Action Plans for DRM (including DRR) through establishing a multi-donor programmatic funding arrangement			
<b>Lead agencies:</b>	World Bank, Donors			
<b>Cost and duration:</b>	US\$0,000 over 6 months			
<b>Hazards targeted</b>	All hazards	<b>Actions to reduce risks</b>	Overcome sustainable funding mechanism constraints for program funding for implementing NAPs	<b>Key gaps/barriers</b>
			Difficulty in getting bi-lateral funding in-country for DRM activity With 2 NAPs completed and 4 being prepared, funding arrangements for implementation are inadequate Credibility of the NAP development process is at risk while adequate funding arrangements for implementation are not in place	<b>Tasks</b>
				Review and set out the funding issues from a country and regional perspective Develop possible funding mechanisms in consultation with donors and countries Identify a preferred option, obtain donor buy-in and implement
				<b>Cost US\$k</b>
				80
				<b>Time-frame</b>
				3 <sup>rd</sup> Qtr 2008

*Continues*

<b>Provisional Proposal:</b>	<b>R3 Progressively develop regional and local climate projections within the larger topographically diverse countries</b>			
<b>Sector:</b>	<b>Regional: Climate modeling</b>			
<b>Goal and purpose:</b>	<b>Better understand local climate projections of climate variability through progressively extending New Zealand and Australian regional modeling to address orographic influences in the larger island states.</b>			
<b>Lead agencies:</b>	<b>Regional and local</b>			
<b>Cost and duration:</b>	<b>NIWA, CSIRO</b>			
<b>Proposal:</b>	<b>US\$1.5 million over 3 years (Suggested expansion of the NZ/Australian Climate Change Modeling)</b>			
<b>Hazards targeted</b>	<b>Actions to reduce risks</b>	<b>Key gaps/barriers</b>	<b>Tasks</b>	<b>Cost US\$K</b> <b>Time-frame</b>
Cyclone Storms Flooding Tsunami Wave surge Coastal inundation Drought – including climate change effects for all these hazards	Improve understanding of changing climate variability within larger island states Addressing adaptation measures with better focus Reducing potential for having “regrets” about adaptation measures missed through lack of understanding	Regional climate models not developed to address local orographic influences in large island states Sparse local data to populate regional and local projections Lack of capacity in-country to address local projections of climate variability	Establish a regional agreement for collaboration on this work Extend New Zealand and Australian regional models progressively to include orographic influences of Papua New Guinea, Vanuatu, Solomon Islands, and Fiji Populate the models with available historical country data and progressively with new data Establish a mentoring or “buddy” arrangement in-country with New Zealand and Australian climate scientists to enhance in-country capacity for climate variability projections	December 2008

*Continues*

<b>Provisional Proposal:</b>	<b>R4 Develop, disseminate, implement, and monitor regionally-consistent technical guidelines and codes for infrastructure and buildings</b>				
<b>Sector:</b>	<b>Infrastructure, Building and Public Works</b>				
<b>Goal and purpose:</b>	<b>Sustainable infrastructure and built environments, by providing regionally consistent technical guidance for reducing risks to infrastructure and buildings</b>				
<b>Lead agencies:</b>					
<b>Cost and duration:</b>					
<b>Proposal:</b>	<b>US\$400,000 over 2 years</b>				
<b>Hazards targeted</b>	<b>Actions to reduce risks</b>	<b>Key gaps/barriers</b>	<b>Tasks</b>	<b>Cost US\$k</b>	<b>Time-frame</b>
Geotechnical (earthquakes, land-slips, tsunami) Extreme weather events High winds Storm surge Flooding Fire	Provide regionally consistent technical guidelines for roads, bridges and other related infrastructure works and building codes Build public and private sector capacity to ensure DRR/CCA mainstreaming	Technical manuals, guidelines and building codes are out of date Poor utilization of existing guidelines and codes within governmental bodies and by consultants and contractors Lack of mainstreaming technical standards to reduce risks	Review status of existing documents in terms of: institutional origins, date of preparation; source of original materials; authorship for preparation Assess departmental and sectoral requirements for up-to-date technical guidelines and building codes that embed DRR, and climate proofing Redraft guidelines/codes and associated regulatory supporting documents Establish collaborative arrangements with governmental bodies, consultants and contractors to optimize utilization of revised documentation Promulgate schedules for roll-out and take up of generically developed guidelines, codes and supporting regulations and enforceable processes and procedures	50 50 160 110 30	1st half 2009 1st half 2009 2nd half 2009 Ongoing 2009-2010 Last quarter 2010

*Continues*



## Annex A. Model and Framework for the Country Assessments

In order to carry out the Regional Stocktake and country assessments, a common framework was required that was sufficiently comprehensive to capture the major factors and processes involved in decisions to reduce risk, whether from present hazards (DRR) or from future climate change (CCA). For these purposes, the project selected a modified version of the Climate Change Adaptation through Integrated Risk Reduction (CCAIRR) Framework (Warrick, 2000; 2006). This framework was originally proposed at the 2nd Alliance of Small Island States (AOSIS) meeting in 2000 in Apia, Samoa. The CCAIRR Framework was subsequently tested and applied successfully in case studies of risk reduction in the Federated States of Micronesia and the Cook Islands in which issues of present climate variability and future climate change were effectively integrated (ADB, 2005). It was also used as an organizing assessment framework in the recent Intergovernmental Panel on Climate Change (IPCC) on Australia and New Zealand (Hennessy and others, 2007).

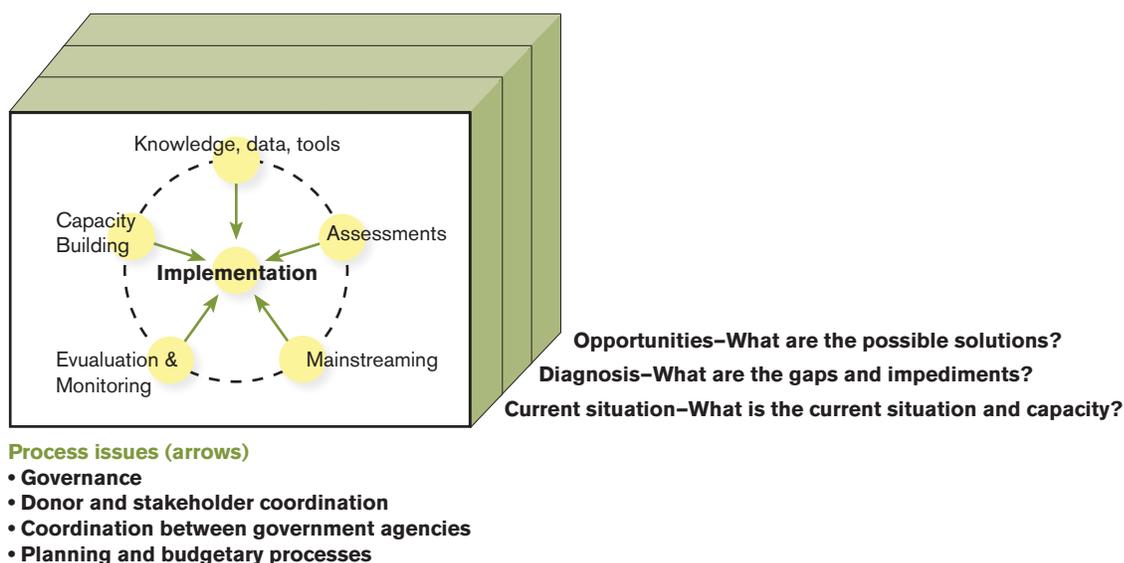
The processes of risk reduction for both disaster risk reduction and climate change adaptation are similar as illustrated in the resulting framework shown in Figure A1.

From Figure A1 there are five major *components*, or pre-conditions, that are necessary to provide the enabling environment that allows sustainable, “on-the-ground” reductions in risk. Insofar as these components need to be adjusted, they can be targeted by governments, donors, NGOs, international and regional organizations for investment and action to encourage risk reduction. These components are:

- Knowledge, data and tools;
- Risk and vulnerability assessments;
- Mainstreaming into plans, policy, legislation, regulations;
- Monitoring and evaluation; and
- Awareness raising and capacity building.

In addition, there are structural, institutional, or *process issues* that are necessary to provide for and promote

**Figure A1. Framework and approach to the country assessments**



sustainable risk reduction. These processes are the institutional frameworks for:

- Governance and decisionmaking,
- Coordination among government agencies and levels of government,
- Coordination among donors and key stakeholders, and
- Planning and budgetary processes.

These components and processes served as a framework for data collection and analysis for each of the 7 country assessments and informed this Regional Stocktake; each component and process evoked indicative questions, as follows.

## Components

**Knowledge, data and tools.** This component comprises the basic ingredients needed to understand hazards and historical events to provide for the assessment of vulnerability and risk. It includes monitoring and the scientific understanding of hazards and their effects, observational data, and models, as well as traditional knowledge.

- *What are the key hazards of the country? Is there adequate monitoring of these hazards to inform vulnerability and risk assessments?*
- *Is there an adequate understanding of the hazard profile across the country including hazard mapping?*
- *Is historical disaster information readily available?*
- *Are models and tools available to answer key questions?*
- *Is access to information and technical advice readily available?*
- *Can information be readily promulgated across sectors to inform decisions?*
- *Can information be readily promulgated to the*

*community level to provide information and for warnings?*

**Vulnerability and risk assessments.** This component comprises the ingredients needed to assess vulnerabilities and risks and identify risk-reducing measures. Using the existing knowledge, data, and tools, such assessments are designed to portray what is known about the hazards and risks in a fashion relevant to issues related to policy and decisionmaking.

- *What are the key risks and vulnerability of the country? Are there adequate assessments of who is at risk, and where?*
- *Is there an adequate understanding and risk profile on these issues?*
- *What risk data are available? What kind would be needed to better understand the situation? (for example financial/economic losses; socio-economic; human; assets at risk etc)*
- *Which institutions are involved in providing technical data needed for DRR/CCA? (list various types of information needed, including weather/climate/other hazards; forecasting, observations, modeling/interpreting international data, risk mapping).*
- *What are the estimated average annual losses attributable to natural hazards?*
- *Who is carrying out the required analyses?*

## Mainstreaming into policies, plans, legislation, and regulations.

Mainstreaming involves the incorporation of DRR and CCA into policies, plans, legislation, and regulations in order to help provide an enabling environment in which decisions and action regarding risk reduction can be made.

- *Do DRR/CCA feature in national and sectoral development plans?*

- *Does the government have a policy on DRR/CCA?*
- *If so, is it being implemented? At all levels? Which levels are not yet including these aspects and what is needed to make them participate—what are the key impediments?*
- *Are there adequate legal provisions? Are they appropriate? [i.e., not too old as to preclude risk reduction; clear enough to be interpreted by all needing to use them; clear guidance on roles responsibilities and accountability; inclusive of key ministries and community implementation]*
- *Have land-use regulations, building codes and risk-design standards taken account of DRR/CCA? If not, what are the impediments?*
- *Are they enforced?*

**Monitoring and evaluation.** In this context, monitoring and evaluation (M&E) seeks to determine the extent to which the outcomes (i.e., risk reduction) are being achieved (as opposed to, say, monitoring for data collection, like sea-level monitoring, or project or program auditing). It thus serves to provide feedback for adjusting programs and risk reduction activities over time.

- *Are hazards and impacts systematically monitored? By whom? Where does the information reside? Who monitors during and post disasters?*
- *Who carries out damage assessment and, if they get assistance, from whom?*
- *Are impacts of risk reduction efforts systematically monitored?*

**Awareness raising and capacity building,** including stakeholder engagement. The capacity, awareness, and engagement of the various stakeholders and decision-makers is vital to ensuring that other preconditions (such as risk assessments) are met and risk-reducing measures are enacted.

- *Does the government systematically inform the public on DRR/CCA? Is this information enhanced periodically? What mechanisms are used to carry out public awareness?*
- *Which agencies are engaged in this awareness raising?*
- *Does it systematically include all key groups in society (geographically and socially)?*
- *Does it include outreach to the private sector?*
- *Does it engage civil society?*
- *Does it include the education sector? And any others?*
- *What is the level of attention given to training and capacity building?*
- *What is the retention rate and sustainability of capacity built?*

### Process issues

There are various coordination or process issues that can act as barriers or impediments to effective implementation of risk reduction measures.

**Governance and decisionmaking.** Given that DRR/CCA are development issues requiring mainstreaming of action, clear governance and institutional arrangements assigning functions, accountabilities, and decision processes across sectors and levels of government are necessary to set support an enabling environment.

- *Is there clear government policy for DRR/CCA setting functions and accountabilities across sectors?*
- *Is there a decision-making body across the relevant sectors and is it effective?*
- *Is there a sound institutional and planning structure for addressing DRR/CCA across sectors at the national, provincial and local levels?*

**Coordination among government agencies.** Given the multi-hazard, multi-sectoral dimensions of DRR/CCA, coordination between government agencies is necessary for effective implementation.

- *Which key government agencies are currently engaged in DRR/CAA? When there is more than one, do they coordinate and how (especially between the disaster risk and climate change entry points)?*
- *Is there a coordination forum? How are other parts of the government involved/participate before/during and post disaster event?*
- *What are the mandates of the various levels of government in DRR-CCA implementation and are they supported by appropriate legislation and policies?*
- *If there are recommendations for improving policies/legislation, how would you describe these?*
- *Do these agencies have a structure to engage at lower levels of government and with nongovernmental actors (including participatory planning down to the community-level)?*
- *Do these agencies have appropriately skilled human resources?*

**Coordination—donors and key stakeholders.** Donors, and international and regional organization play key roles in the Pacific island countries and territories in facilitating DRR and CCA.

- *Who are the key donors, international and regional organizations engaged in/investing in disaster risk reduction and adaptation?*
- *What are their current programs? Do they focus on institutional aspects, policy, data, early warning systems, and investments? What is the monetary value of support, if available? Under which sectors/themes?*

**Planning and budgetary process.** The extent to which plans are formulated and implemented depends heavily on budgetary allocation.

- *How is DRR/CCA budgeted – separately and recognizable or are there provisions for the recipients to allocate to these activities if and when needed? And if so, do they do so?*
- *What is the average yearly budget for DRR/CCA? Is there a difference in event years from non-event years?*
- *Do planning and budget complement each other? [Infer from who proposes budget and how final budget is then approved—discuss with finance and planning ministries]*

**Implementation.** The above components and processes provide the preconditions, or the enabling environment necessary for sustainable risk reduction. The ultimate goal is to promote the process of *implementation* of actual risk-reducing measures. These could include, for example, changes in land use, engineering protection structures, strengthened buildings, “climate-proofed” infrastructure, warning systems and effective behavioral response to them, and avoidance of settlement in high-risk zones. As part of the country assessments, therefore, attempts were made to judge the extent to which implementation of risk-reducing measures is, or is not, happening; and, to the extent that implementation is not happening, to relate it back to the components and processes of the enabling environment that may be acting as impediments. Indicative questions, in this regard, include:

- *Do line agencies (e.g. Public Works, Agriculture, Fisheries, Health, etc) engage in DRR/CCA? What structures do they have for implementation at national/regional and community levels?*
- *What investments are they making?*

- *Do they have the right information and human resources for effective DRR/CCA?*
- *Do they have adequate budget to response to disasters but also importantly to mitigate for and prevent disasters?*
- *Do they make systematic use of risk information? If yes, what type of risk information is available to them? Given the country's vulnerability, what type of information should they have access to?*
- *Do these agencies have appropriately skilled human resources? If not, what skills are lacking?*
- *Are there programs and activities that focus directly on risk-reduction implementation, and, if so, how extensive and effective are they?*
- *Do they adequately bridge the gaps among region, national and community action?*
- *What provisions exist for early warning—systems at the national and lower levels? What are they? If not adequate what else is needed?*

## Approach

The components and processes, along with their guiding questions, served as the framework—a simple three-part, crosscutting approach to the country assessments. For each of the components and processes described above, the following questions were asked:

- *Current situation: What is the current situation and capacity?*
- *Diagnosis: What are the gaps, barriers or impediments to effective risk reduction?*
- *Opportunities for investment: What are the possible opportunities for investment to overcome the barriers and fill the gaps?*

Overall, this approach leads to the development of a set of investment opportunities to implement activities to encourage risk reduction. ❖

## Annex A. Regional Stocktake Issues

Process issues, and then content issues are discussed with regard to the structures, and procedures that can facilitate or impede risk reduction at a Pacific regional perspective.

### Process issues

*The key programs and activities of the mandated agencies involved in DRR and CCA, once quite separate, are tending to merge conceptually, with risk reduction serving as the common theme and intended outcome.* This is reflected in:

- Two Frameworks for Action that are nearly identical in content and direction;
- A large overlap in content and approach of their respective plans of action (as reflected, for example, in similarities between NAP for DRR and NAPA for CCA);
- An emerging commonality of language between the agencies concerned with DRR and CCA;
- An expressed recognition on the part of key players in these organizations of their common interests.

*While converging in concept and planning, operationally the DRR and CCA agencies remain quite separate.*

There are significant regional governance issues around expectations on the regional agencies, their roles and accountabilities and a plethora of passive coordination mechanisms. This is evidenced by:

- Two separate regional agencies having the respective mandates for DRR and CCA and driving their own separate programs and activities, albeit often to the same end (risk reduction) for the same expressed outcome (sustainable development).
- Little evidence of substantive collaboration and coordination between the mandated regional agencies that would be expected given the similarities of objectives.

- When activities are “down-loaded” to the national level, a similar “silo effect” is the rule, with DRR concerns housed in a separate ministry or line agency from that of CCA, with little communication or understanding between them.

This situation is producing the potential for duplication and lost opportunities for synergies that otherwise could be gained through outcome-driven, rather than mandate-driven, regional agencies.

*There are many international agencies and NGOs in the Pacific Region that are now beginning to integrate climate change into their programs and activities.* This is reflected in:

- The WHO regional offices in Samoa and Fiji are cognizance of the mandate expressed by WHO at the global level and are becoming actively involved in CCA initiatives.
- The FAO, which has had a long-term concern with DRR, is now taking on CCA, both from directives from global headquarters and regionally from Heads of Agriculture and Forestry from each country.
- UNESCO, with its new strategic plan, addresses climatic change adaptation.

*Especially in the case of CCA, there is a “disconnect” between the primary mandated regional agency and the growing number of other UN agencies, regional organizations, and NGOs that are incorporating climate change into their activities.* This growing lack of coordination and cooperation between the two groups of agencies appears to be outpacing the attempts to inject coordination and commonality of purpose through regional partnerships and networks.

*With respect to the mandated agencies for DRR and CCA, the proportion of project funding in relation to program funding is relatively large and increasing, with the potential to stifle pro-active, innovative work for the Re-*

*gion.* The increasing emphasis on re-active, short-term projects, while providing direct service at the request of Pacific island countries, makes it more difficult to maintain capacity and to introduce new and innovative programs to the Region. There is some danger that this situation may overly increase the service provider function of the regional organization at the expense of their leadership and mentor roles. At worst, it could put the sustainability of the regional programs at risk.

### Content issues

*In terms of basic knowledge, data, and models, one of the major gaps is lack of data collection and systematic understanding of hazards and information regarding how climate changes will affect the risks posed by climatic hazards.* This situation reflects the gap that has separated the DRR and CCA agencies in the Pacific Region. This is evidenced by:

- The lack of concrete, quantitative information about the *additional* risks posed by climate change in the national communications and NAPAs from Pacific island countries;
- The absence of climate change issues in the NAPAs of Pacific island countries;
- The absence of substantive, quantitative information about climate change risks in the work of the regional agency mandated with jurisdiction of DRR, other than general advice to countries;
- The failure of the regional agency mandated with jurisdiction of CCA to build systematically upon the large and substantive foundation of knowledge about climatic hazards as a starting point for its consideration of climate change;
- Lack of access to regional hazard profiles and their development at the country level is seriously lacking.

*In terms of assessments to support decisionmaking, one of the major gaps for both DRR and CCA is the lack of*

*meaningful assessments and hazard maps necessary to implement risk-reducing measures.* One of the biggest regionwide constraints is the lack of high-resolution elevation data (for both near-shore and land) necessary to identify hazard zones at a scale appropriate for implementing risk-reducing measures, for both present climate variability and long-term change. In particular, this situation is crucial for assessment of:

- Coastal hazards, including erosion and storm surge risks, which pervade the Pacific Island Region; and
- Flooding risks, which concern nearly all high islands of the Region.

The opportunity exists for supporting a regionwide program to identify key “hot-spots” that are high-priority for hazard mapping, and to provide the support for the development of high-resolution digital elevation maps that are prerequisite to hazard mapping, risk assessments, and promotion of risk-reducing measures.

*In terms of DRR/CCA mainstreaming into development policies, planning, and projects, there are signs that, at a regional level, the needs for mainstreaming are clearly being recognized and action has begun.* This is evidence by:

- The assistance with elements of governance provided to Pacific island countries and territories by both mandated agencies for DRR and CCA;
- The inclusion of mainstreaming in the pilot climate-proofing projects of ADB and generally through mainstreaming CCA into its own development policies and projects;
- The World Bank adaptation work in-country, particularly in the Kiribati Adaptation Program.

Nonetheless, at a country level where implementation of risk-reducing measures takes place, the overall uptake by countries in the region still remains low. There is now opportunity to move from individual one-off pilot cases to a concerted regional program designed to

accelerate CRR and CCA mainstreaming—preferably in an integrated fashion rather than separately—at the national level.

*In terms of monitoring and evaluation, it is clear that large gaps exist.* Monitoring and evaluation (M&E), if it exists, is designed for programmatic and project processes, procedures, and auditing. There is little in the way of internal, consistent on-going M&E of outcomes to verify whether risk-reducing measures are being adopted and risks reduced. In other words, there is no systematic way of determining the large expenditures in DRR and CCA are producing on-the-ground benefits. This is evidenced by:

- The lack of M&E information in all agencies contacted during the stocktaking;
- The admission by those key individuals interviewed in the regional organizations and agencies;
- The gaps identified by the PIFS.

*In terms of awareness raising and capacity building, both the mandated regional organizations, and nearly all the other UN, regional organizations, and NGOs interviewed, are actively involved through programs and projects.* This is evidenced by:

- The programs of both the mandated regional organizations for DRR and CCA, as responding to their respective Frameworks for Action for which they are responsible;
- The inherent function of the University of the South Pacific as a tertiary education institution with a programmatic focus on oceans and islands as well as earth sciences;
- The projects undertaken by the burgeoning number of UN agencies and NGOs in the Region.

However, despite the widespread attention to awareness raising and capacity building, much activity is rather ad

hoc, either as a one-off component of a project or a narrowly focused sectoral activity. The gaps are four-fold: (a) there is a general lack of overall coordination of awareness-raising and capacity-building activities; (b) there is a lack of connection between DRR and CCA in these activities; perhaps most importantly, (c) there is the lack of sustainable capacity and (d) lack of behavioral change at the institutional level and also at the community level. There is lack of incentive for those whose capacity is built up to remain on the job. A recurrent theme throughout the Region is the ephemeral nature of capacity built; once trained, people often seek better positions elsewhere. This situation has to be resolved if sustainable capacity building is to be achieved. A major effort is required to determine what measures have to be taken to retain (or re-engage) the skilled human resources, and then to take positive steps to implement them. Otherwise, the benefits of the present, large expenditures on capacity building will come to naught.

*In terms of implementation of risk-reducing measures, the large, top-down flow of resources into the Region, and thence to countries, has had relatively minor effect at the local and community level where risk-reduction occurs.*

For many countries there is a large gulf between the village or community level and the provincial or national level at which scientific knowledge, mainstreaming, and capacity building are usually directed. This gap has been identified and some effort is underway to fill it, as reflected in:

- An emerging emphasis on “community-based adaptation” for CCA, as pursued by the Red Cross;
- The community-based resource management and risk-reducing work carried out by the University of the South Pacific (USP);
- The increasing number of NGOs, like the Foundation of the People of the South Pacific International (FSPI), whose entry point for engagement is the community level;

- World Bank and ADB have a CBDRM input into their projects.

One of the major reasons for this state of affairs is the lack of institutional arrangements and capacity at the national and local level, or the lack of opportunity

or incentive to engage the capacity. Often it is the manner or form in which information or assistance is provided, which is inappropriate to the cultural or organizational context. A major effort is required to integrate across scales in order to bridge the gulf noted above. ❖

*NOTES:* DRR and CCA are at different stages of establishment in the Pacific Region. DRR has been around longer and has more firmly established frameworks and pathways to risk-reduction, as compared to CCA. So, despite its constraints, DRR has steps which lead to implementation. In contrast, CCA is still constrained by the Stage 2 lid on funding via the GEF main funds, and still has difficulty identifying exactly what constitutes climate change adaptation.

The opportunity, one would think, is for CCA to piggyback onto DRR in order to get adaptation on the ground. This requires both conceptual understanding of the commonality of interests in terms of risk reduction and additional risks posed by climate change, as well as a re-shuffle of regional organizations along outcome-driven instead of their current mandate-driven (i.e., DRR vs. CCA) lines.

## Annex C. Status of In-Country Arrangements for Risk Reduction

The following status of in-country arrangements for risk reduction derives from three recent regional reports—the World Bank (2006) policy note, “Not If, But When”, GEF (2008) “Pacific Alliance for Sustainability Program Framework”, and “Integrated Water Resources Management in Pacific Island Countries: A Synopsis” (SOPAC 2007). All raise similar issues.

### Not If, But When

The background to the terms of reference for this Regional Stocktake paraphrases the World Bank policy note “Not If, But When”. It notes adaptation to climate change and risk management of natural hazards is a core development issue for Pacific island countries. The CCA and DRR activities are differentiated from development activities by the fact that they seek to reduce a recognized actual or developing risk associated with a known hazard or expected impact of climate change.

It notes the regional work on climate change builds on work under the Pacific Islands Climate Change Assistance Program (PICCAP) from around 1998. The two 2005 frameworks—*Pacific Islands Framework for Action on Climate Change 2006–2015 and Disaster Risk Reduction and Disaster Management Framework for Action 2005–2015: An Investment for Sustainable Development in the Pacific Island Countries*—reflect the strong overlaps and common challenges between risk management of climate change adaptation and natural hazards.

While at a national level, many countries are developing national strategies on risk reduction (through the NAP for disaster risk and/or the NAPA for climate change), few have begun to implement their national strategies on risk reduction. What is missing are practical measures that countries can take to inform their national development policies and strengthen their programs against the risk of natural hazards, including climate change. Also missing, according to the policy note, is a concrete regional collaborative mechanism.

Additional constraints identified include inadequate enabling environment in many institutions in the Pacific and the absence of essential top-down and bottom-up approaches. The mainstreaming of risk management is not afforded the highest priority, and donor development assistance does not encourage risk reduction behavior.

At the country level, the institutional arrangements are crucial, and potential overlaps exist between coordination on climate change adaptation (led by environment ministries) and on disaster risk management (led by National Disaster Management Offices). It notes that proactive disaster risk mitigation has attracted limited funding and that the problems are compounded by limited capacity to implement risk management activities.

Furthermore, experience has shown that stand-alone climate and disaster risk programs or strategies are often undermined by unfavorable national policies or investments. To be effective, climate and disaster risk management need to be incorporated into the national processes that are crucial to decisionmaking. Mainstreaming processes also need to be linked to investments on the ground.

The policy note concludes by pointing out that climate and disaster risk management requires an enabling national environment under which key players—communities, government, and private sector—can implement risk-reduction behavior. It points out there are three aspects that might need to be in place before risk management can be effective: (a) accountable performance budgeting; (b) participatory planning; and (c) pre-existing inter-sectoral coordination mechanisms.

### GEF Pacific Alliance for Sustainability Program Framework

The 2008 GEF-Pacific Alliance for Sustainability report on future investment programs contains a number of observations and lessons learned from the past 15 years of

activity in the Pacific Region. It notes interventions have achieved limited impact even as global and linked national environment problems in these countries remain unresolved. Among the many lessons learned, the following have been drawn from the report:

- It is often difficult to fulfill international obligations related to the Conventions and deliver global environmental benefits while also addressing national priorities.
- Many national efforts designed to improve environmental performance and to contribute to sustainable development have been undermined because they are located in junior or weak ministries.
- Initial emphasis should be placed on ensuring adequate in-country capacity; “country teams” can often play fundamental and crucial roles; preference should be given to the use of national and regional experts who have received the advanced training that allows them to play critical roles.
- More importance should be placed on establishing and using fully functional and comprehensive information bases, including their use in building understanding of the priority issues and appropriate responses.
- Resources made available by Governments to develop and maintain management and research capabilities are often inadequate. Instead there is a tendency to rely extensively on external assistance program. Such a reliance on external funding is untenable in the long term.
- A weak project design will usually necessitate significant subsequent changes.
- A robust project design, based on regional coordination and cooperation with national implementation, can often be more effective and efficient.
- Five-years timeframe is considered too short for a medium-size project that requires major knowledge

by communities and government. The report summarizes barriers that have had to be addressed to meet both national aspirations and GEF requirements. These include:

- Balancing community-focused actions, country drive, regional coordination, and delivery of global benefits;
- Programmatic versus project-based approach;
- National versus regional projects;
- Planning versus action;
- Increased absorptive capacity;
- Limited co-financing;
- Sharing expertise; and
- Sharing information.

### **Integrated Water Resources Management in Pacific Island Countries—A Synopsis**

This 2007 SOPAC report prepared with UNDP, UNEP, and GEF on the progress of the 2002 Pacific Regional Action Plan on Sustainable Water Management notes several barriers to integrated water resources management in the Pacific, including:

- 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;
- Insufficient political and public awareness of the critical role of water;
- Fragmented national water governance due to little formal communication and coordination among government departments;
- Conflicts between national versus traditional rights;
- Weak linkages to other stakeholders, within the water sector but particularly to other economic sectors, public health, and the environment.

The report also identifies the following solutions related to integrated water resources management: building upon existing activities and improving the coordinating, and integrating of planning and management. It

also notes that a much greater political and financial commitment was required at both the country level and internationally. ❖

## Annex D. Project Team and People Consulted

### *Regional Stocktake Project Team*

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<i>Supported by:</i>	
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