

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



REPUBLIC OF VANUATU COUNTRY ASSESSMENT



THE WORLD BANK

SOPAC

Acronyms and Abbreviations

AusAID	Australian Agency for International Development
CBDAMPIC	Capacity Building for the Development of Adaptation Measures for Pacific Island Countries
CCA	Climate change adaptation
DRR	Disaster risk reduction
GDP	Gross domestic product
GEF	Global Environment Facility
HFA	Hyogo Framework for Action
LDC	Least developed country
M&E	Monitoring and evaluation
MLNR	Ministry of Lands and Natural Resources
NACCC	National Advisory Committee for Climate Change
NAP	National Action Plan
NAPA	National Adaptation Program for Action
NDMO	National Disaster Management Office
NZAID	New Zealand Agency for International Development
PICCAP	Pacific Island Climate Change Assistance Program
SOPAC	South Pacific Applied Geoscience Commission
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
VUV	Vanuatu Vatu (currency)
UNFCCC	United Nations Framework Convention on Climate Change

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Introduction

The impact of natural disasters and their potential to increase as a result of climate change have received greater attention in recent years. With an onset of strategies, action plans and frameworks have been put in place internationally. At a regional level, the strategies address this growing concern about the risks of disasters and the uncertain hazards from climate change. In 2005, the *Hyogo Framework for Action (HFA) 2005–2015* identified the following 5 priorities for action:

- (1) Ensure risk reduction is a national and a local priority with a strong institutional basis for implementation;
- (2) Identify, assess, and monitor disaster risks and enhance early warning;
- (3) Use knowledge and innovation to build a culture of safety and resilience;
- (4) Reduce underlying risk factors; and
- (5) Strengthen disaster preparedness for effective response at all levels.

Building on the HFA priorities for action, the Pacific Island Forum in 2005 adopted the *Disaster Risk Reduction and Disaster Management Framework for Action 2005–2015: An Investment for Sustainable Development in the Pacific Island Countries*. Consistent with HFA, the Forum-adopted Framework for Action reflects increasing national and regional commitment to disaster risk reduction (DRR) and disaster management, in support of sustainable development.

The 2006 World Bank policy note, “Not If, But When,” highlights the vulnerabilities to natural disasters in the Pacific Region, and describes the human and monetary costs of disasters over the past 50 years. The policy note advocates for a merger or closer interaction of climate change adaptation (CCA) and disaster risk management (DRM), as well as integration of these issues into economic and operational planning processes.

At the national level, a number of countries embarked on strategic planning activities to address DRR and CCA. Vanuatu is the only Pacific island country to have completed both a National Plan of Action (NAP) for DRR and a National Adaptation Program of Action (NAPA) for CCA.

This assessment draws on these past analyses and assesses the extent to which DRR and CCA activities have progressed in Vanuatu. It identifies the gaps or impediments to risk reduction, taking account of the HFA principles as a basis for identifying opportunities for progressing risk-reduction initiatives. The assessment also takes into account other existing frameworks such as the *Pacific Plan* and the Pacific Forum-adopted *Framework for Action 2005–2015*. The assessment focus is on risk reduction (as opposed to disaster management measures to prepare for, respond to, and recover from disaster events when they occur). The initiatives can be in the areas of better understanding hazard information (to inform DRR and CCA activities), strengthening the enabling environment (to improve risk reduction focus and activity in-country) or on-the-ground activities (to actually reduce risk).

The assessment covers how disaster risk reduction and climate change adaptation have been managed in Vanuatu with a view to identifying measures for improvement. Specific sector activities are addressed as they were encountered, but the assessment does not set out to provide a comprehensive summary of sector-by-sector activities. Other reports have done that and are referenced as appropriate.

This assessment highlights aspects such as the current country status, gaps, opportunities and barriers related to (a) national policies, strategies, plans, and activities to manage natural hazards; (b) the enabling environment for a comprehensive risk management approach to natural hazards; and (c) the capacity to undertake such a comprehensive approach, including institu-

tional arrangements, human resources, public awareness, information, and national budget allocations. It also reviews and identifies the need for informed policy choices, improved decisionmaking processes, strengthened regulations, and legislative and policy changes required to support proposed country-level activities.

The focus on government arrangements arises from clear evidence of systemic difficulties through many Pacific island countries in establishing an enabling environment and cross-sector focus for DRR and CCA activities. The evidence is compelling that sustainable and systematic risk reduction activity (i.e., on other than an ad hoc and externally driven basis) will not occur without government commitment at least at a policy and regulatory level. This principle is expressed in HFA priority (1), though in Vanuatu's case the Government has demonstrated its commitment. It is

also clear that governance frameworks have been neglected in efforts to date and that the preconditions for mainstreaming identified by the World Bank's "Not If, but When" are largely missing.

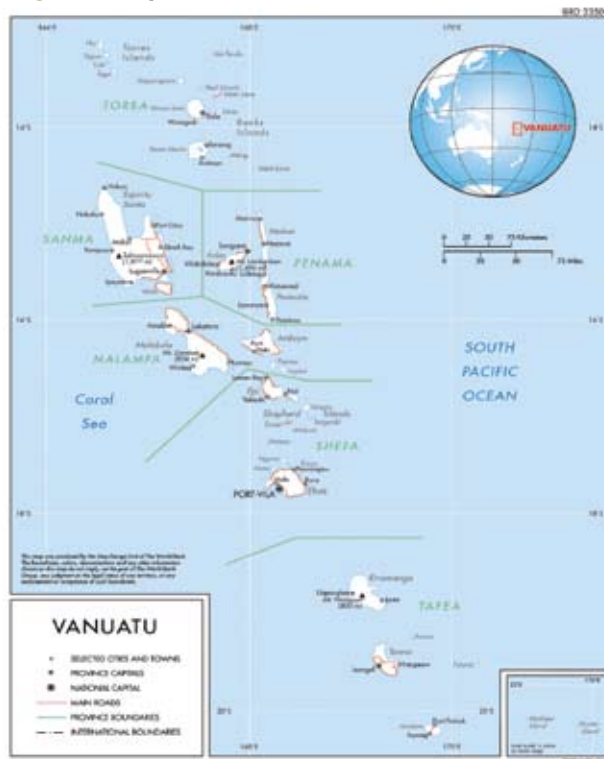
The Vanuatu assessment begins by explaining the context of the country in relation to DRR and CCA impact. It follows with sections on key country findings and detailed country assessments that focus on some components relevant to achievement of the HFA: governance and mainstreaming, planning and budgetary processes, data and knowledge, risk and vulnerability assessments, monitoring and evaluation, awareness raising and capacity building, and coordination. From this assessment, possible opportunities for addressing the identified gaps and impediments within the HFA are presented in the final section. The proposals for future support are presented in Annex A. ❖

Country Context

Vanuatu comprises around 80 islands with a total land area of 12,300 square kilometers spread over some 1,300 kilometers in a north to south direction, between latitudes 12° to 23° south and longitudes 166° to 173° east (Figure 1). The current population is estimated to be 215,000, of which 80 percent live in rural villages on the 7 islands of Efate, Espiritu Santo, Tanna, Malekula, Pentecost, Ambae, and Ambrym.

Vanuatu faces a full range of geologic and climatic hazards. The islands are located in a seismically and volcanically active region and have high exposure to geologic hazards, including volcanic eruptions, earthquakes, tsunamis, and landslides. Recent disasters include the November 1999 Penama earthquake and tsunami that affected about 23,000 people and the 2002 Port Vila earthquake that caused structural and infrastructure damage.

Figure 1. Republic of Vanuatu



Source: Asian Development Bank.

Vanuatu is also subject to climatic variability and extremes. Vanuatu's latitude places it in the path of tropical cyclones, making it subject to cycles of El Niño and La Niña, which increase the risks, respectively, of droughts and floods. Future climate change and sea-level rise threaten to exacerbate the risks posed from tropical cyclones, coastal and river flooding, coastal erosion, heavy rainfall events, and droughts. Recent climate-related disasters include Cyclone Prema in 1993, which caused damages estimated at US\$60 million.

Overall, the country is extremely vulnerable to natural disasters. According to the Commonwealth Vulnerability Index—based on (a) the impact of external shocks over which an affected country has little or no control and (b) the resilience of a country to withstand and recover from such shocks—Vanuatu ranks as the world's most vulnerable country out of 111 developing countries assessed. Due to this high vulnerability, Vanuatu is still accorded UN-listed least developed country (LDC) status despite a per capita GDP above the LDC threshold.

Adding to Vanuatu's physical characteristics, other conditions contribute to the country's vulnerability:

- **A narrow economic base and a weakly developed economy.** While small-scale agriculture provides a living for 65 percent of the population, 65 percent of GDP is generated by the service sector. Agriculture and a small industry sector accounts for about 25 percent and 10 percent of GDP, respectively. The local market is small. The growing tourism sector, with 60,000 visitors (in 2005) mainly around Port Vila, is the main foreign exchange earner. This narrow economic base makes the cash economy particularly vulnerable to disruption by natural disasters.
- **Weak inter- and intra-island communication and transport networks.** Many areas lack national radio reception. Well-developed road transport exists only near population centers (just 111 kilometers of roads

are sealed), mostly on the larger islands. While air service is daily to the main islands, there are only 5 airports with sealed runways (out of 29 in total).

- *Wide dispersal of land over island country.* The 80 islands that comprise Vanuatu are spread over a maritime exclusive economic zone of 680,000 square kilometers. Many areas of the country are isolated and therefore extremely vulnerable in the event of disaster.

In recent years Vanuatu has embarked upon a comprehensive reform program to strengthen its national and provincial governance arrangements and in 2005 adopted a Priority Action Agenda for cross-sector reforms. These reform initiatives have resulted in a willingness to address issues across sectors and on a sectorwide basis. While substantial capacity issues exist, planning is progressing on this basis.

Vanuatu completed a National Action Plan (for DRR) in 2006 and a National Adaptation Plan of Ac-

tion (for CCA) in 2007. The NAP is approved by the Council of Ministers (with a budget approval but no budget appropriation) and awaits donor support for implementation of the Provisional Indicative Implementation Program at US\$3.77 million). The NAPA contains 5 priority projects. Activities from 3 of them are included in the NAPA implementation project to be co-financed by the Least Developed Country Fund and the European Commission.

The NAP and NAPA can be considered foundation blocks for this country assessment. This assessment can be distinguished from other efforts by being focused squarely on risk reduction in the context of current hazards and future climate change, particularly as regards the synergies between them. The main intent is to identify a set of opportunities for short-term investment (e.g., less than or equal to 3 years, in first instance) that will fill critical gaps and that promise to make headway in reducing risks. The key findings of the Vanuatu country assessment are presented in the following section. ❖

Key Country Findings

In a general comparison to most Pacific island countries, the Vanuatu Government has a heightened level of awareness and appreciation of the constraints to sustainable development posed by its particularly high level of exposure to geological, hydrological, and climatic risks. This is evident across a range of ministries and departments. As a consequence, there appears to be a willingness to work across sectors to address areas of common interests in risk reduction. It is also reflected in the fact that Vanuatu has taken up the challenge of producing the Pacific Region's first NAP and NAPA and has established a National Task Force and National Advisory Committee for Climate Change (NACCC), relatively strong advisory teams for driving the national agenda. It has also demonstrated some readiness to adjust governance structures and planning arrangements in order to enhance the chances of successful implementation of DRR and CCA actions. Overall, Vanuatu has shown demonstrable actions:

- Expressed commitment to follow through with DRR and CCA planning and strategies;
- Well-coordinated, cross-sector planning, especially as fostered by NACCC in the CCA context, which has prompted sector strategies and 5-year plans being developed by sector agencies;
- Good appreciation of the synergies between DRR and CCA commonalities;
- Softening of the “silo effect” at national government level, with a willingness of members to work within the NACCC and National Task Force in a coordinated, cross-sectoral fashion;
- Reasonable understanding of some hazards (e.g., volcanic hazards);
- Evidence of elements of mainstreaming, especially with regard to CCA implementation, into national policies, plans, and strategies of government agencies.

Despite consistency with HFA priority (1), especially through the commitment shown by the Government to support DRR and CCA inclusion, these positive attributes are tempered by severe limitations, especially with regard to the disconnection among national, provincial, and community levels of governance; and an absence of departmental follow-through to commit sector plans for DRR and CCA inclusion in national planning documents, budget appropriations, and donor support. This assessment identified 2 additional gaps that are also related to HFA priorities (2) and (3): lack of technical knowledge and hazard data and risk and vulnerability assessments and the capacity to perform them.

There are several gaps in the implementation of risk-reducing activities—HFA priority (4)—although appropriate interventions have been identified in the NAP and NAPA. The expected funding for the NAP has not materialized, setting back its implementation. On the other hand, selected priorities from the NAPA are to be implemented with resources from the Least Developed Country Fund and European Commission.

This assessment has identified 4 priority areas where investment could prove effective in overcoming some of these constraints in order to strengthen disaster risk reduction and climate change adaptation. They seek to provide targeted added value for implementing the actions set out in the NAP and NAPA and elsewhere, and include:

- Risk mapping to support town planning and village development,
- Support to the NAP implementation and the potential to integrate with CCA arrangements,
- Promote DRR and CCA in the tourism sector for Vanuatu,
- Support for Ministry of Lands and Natural Resources in reforming land-use policy and regulation.

These 4 opportunities for investment are selective, not comprehensive. They are derived from a combination

of priorities identified from the NAP and NAPA and through consultations with the National Task Force, the NACCC, and various agencies of the Government of Vanuatu. The 4 items were finally selected having met specific criteria: (a) directly involve risk reduction; (b) are likely to produce tangible results within 3 years; (c) are likely to have sustainable, longer-term benefits;

and (d) have an identified in-country commitment, champion, and/or effective arrangement for implementation. As well, they mainly address the issues associated with HFA priorities (1), (2), and (4). A summary of the country situation and the gaps or impediments to effective risk reduction, which justify the selection of these opportunities, is presented in Table 1.

Table 1. Summary of Situation, Gaps and Opportunities for investment in DRR and CCA for Vanuatu

Situation	Gap or Impediment	Opportunities
Expansion of towns and villages is occurring without regard to geologic and climatic risks.	Methods and capacity for risk mapping are not integrated into town planning and village developments.	Risk mapping to support town planning and village development , a demonstration project for sustainable hazard risk-reduction (including CCA), involving identification of vulnerable areas and providing essential capacity building in risk mapping to guide land-use zoning for urban and rural environments.
The NAP has been approved and the Provisional Indicative Implementation Program developed, but has not started due to a lack of funding commitment.	Capacity and resources are required to establish the Program Management Unit for implementing the first 3 years of the NAP.	Support to the NAP implementation , especially by establishing an integrated program management unit and through capacity building.
Few initiatives are underway to ensure that development is undertaken in a sustainable manner regarding disaster and climate risks. Tourism is seen as a pilot.	Lack of development of risk assessments and guidelines for tourism development and siting.	Promote DRR and CCA in the tourism sector for Vanuatu , including the development of risk profiles (including both DDR and CCA) and guidelines for sustainable development of the tourism sector and their pilot application.
Vanuatu has weak land use regulations and little control over land use that exacerbate disaster risks. Ministry of Lands and Natural Resources is reforming policy and developing strategic plans.	Lack of capacity with the Ministry of Lands and Natural Resources to mainstream DDR and CCA into policies, plans, and regulations. Requires external assistance to build that capacity.	Support for Ministry of Lands and Natural Resources in reforming land-use policy and regulation , especially in building capacity for mainstreaming DDR and CCA into land-use policies, strategic plans and regulations.

Refer to the final section and Annex A for more details on these opportunities for investment in Vanuatu.

A follow-up workshop in Vanuatu to discuss an earlier draft of this assessment was hosted by the NACCC on February 25, 2009. The general conclusion from these consultations was that, based on the recommendations in the NAP and NAPA, a long-term

program (about 10 years) to address DRR and CCA issues would be appropriate for Vanuatu but should be implemented in phases given the country's capacity constraints. The first phase could address important cross-cutting issues not included in the NAPA implementation project, such as strengthening the policy, legal, and institutional DRR and CCA frameworks; mainstreaming disaster and climate risk at different

levels of government; and strengthening analytical, monitoring, and communications capabilities.

The consultations also identified a second set of more immediate on-the ground risk reduction activities

from the NAP and other sources, which could be supported if additional resources become available and adequate local capacity exists. These opportunities address the HFA priorities (4) and (5) and are summarized below. ❖

HFA priority	Opportunities
(4) Reduce underlying risk factors	Prepare country wide hazard risk maps. Identify key infrastructure for strengthening (roads, bridges, buildings, water storage facilities, etc.). Establish and enforce appropriate building codes. Develop a renewable energy strategy to reduce energy risk.
(5) Strengthen disaster preparedness for effective response at all levels	Develop early warning system. Strengthen the disaster response mechanism including links to provincial levels.

Detailed Country Assessment

Governance and decisionmaking

CCA legislation. The most relevant CCA legislation is the Environmental Management and Conservation Act 2002. It addresses biosecurity, conservation, and development. While providing for formal environmental impact assessments for development, the Act is non-specific in terms of climate change adaptation. The Environment Unit with 2 staff within the Ministry of Lands and Natural Resources (MLNR) administered the Act. It is intended that the Environment Unit become a Department with a director and 6 staff.

CCA national policies and structures. There is a draft Climate Change Policy from 8-10 years ago, which led to the development of the NAPA. Adopted by the Government in June 2007, the Policy is awaiting endorsement from the United Nations Framework Convention on Climate Change (UNFCCC).

The NAPA identifies four sectors—Agriculture and Food Security, Sustainable Tourism Development, Community-based Marine Resource Management, and Sustainable Forestry Management—to receive some support through the Least Developed Country Fund. Other funding will depend on sector ministries promoting budget requests through the Government budget process or from new sources of external funding.

Work on climate change is coordinated through the NACCC. The NACCC comprises department heads, is chaired by the Director of the Meteorological Service (as the focal point), and reports to the Council of Ministers. The Director-General of the Ministry of Land, Mines, and Energy is also a major champion of the NACCC initiatives.

A core team of technical officers drawn from the member departments gives support to the NACCC. In its role, the NACCC coordinates activities among departments, reports to the Council of Ministers, and addresses international reporting obligations. It allo-

cates and promotes activity through responsible departments that are expected, through their respective ministries, to obtain budget and donor support. To date, sector activity is still at the planning stage, and any budget commitment for implementation will follow with project development.

Up to about a year ago, there had been a reactive approach to issues and an absence of cross-agency coordination and mainstreaming. The NACCC has recently promoted the development of some long-term sector strategic policies with a follow-up of 5-year action plans. An example of this is the MLNR-developed Draft National Water Strategy of January 2008. This draft strategy takes a sectorwide approach. It creates a new focus on sector stewardship and regulation, including devolved roles to the provinces, and provides for water resource management for the first time. It includes establishing an expanded network through the Hydrological Cycle Observing System (HYCOS) and development of a Geographic Information System database. Implementation will depend on funding, and capacity will be a constant constraint.

The MLNR has also developed a long-term strategy for energy and planned for a strategic land reform policy. This would be followed with a 5-year action plan to link land use regulation across all islands and develop land use zoning maps and vulnerable area mapping. The focus would be on countrywide programs that are practical and achievable, moving toward risk reduction. The programs had cross-sector support at the Director-General level, and work was required to get agreement on how the programs should be done. Significant funding and resource support would be required, but their emphasis was on assistance that could work with in-country resources to develop capacity.

Complementing this renewed commitment to coordination and pro-active planning is a focus on developing functions, roles, and capacity at the provincial

level to support community initiatives. Such functions do not exist at the provincial level. Activities, which have been undertaken, are ad hoc rather than part of a mainstreaming focus.

CCA summary. The CCA governance arrangements are relatively well developed. There is a recent change toward pro-active planning across departments, reaching ultimately into provincial government. There is a high degree of commitment across departments to this strategic-level cooperative planning, but there is a significant challenge in carrying it through to the development of sector plans and budgets and to implementing arrangements. There are opportunities for supporting this commitment, but it is essential to build on the growing sense of in-country self determination and capacity building.

DRR legislation. The National Disaster Act 2000 is the relevant DRR legislation focused on preparedness and response arrangements for disasters. While the Act includes a definition of prevention, it is non-specific about requirements and powers for addressing prevention measures. The Ministry of Internal Affairs through the National Disaster Management Office (NDMO) administers the legislation. The National Disaster Management Office has a staff of 3; its function is to implement the strategies and policies of the National Disaster Committee, which may include prevention measures. However, the National Disaster Management Office has no powers to require other agencies to act on any identified prevention measures. The governance arrangements for disaster management are being reviewed at the national level and should include explicit structures, accountabilities, and connections for cross-sector arrangements. Provisions should extend to the provincial and local levels.

DRR national policies and structures. The National Disaster Plan 2004 is the primary policy document derived from the National Disaster Act 2000. The Plan

endeavors to establish a governmentwide prevention framework, but is too mired with confusing accountabilities and unworkable structures to accomplish this. The 2006 NAP addresses these issues in a 10-year action plan to give effect to all aspects of disaster risk reduction and disaster management across government agencies and across all levels of government.

The policies and actions were incorporated in 2006 into the Vanuatu national medium-term planning framework as a Supplementary Priority Action Agenda for disaster risk reduction and disaster management. In early 2007 the Government also adopted a disaster management framework and flowchart that offered the basis for developing new legislation, a new disaster management plan, and new government organizational arrangements. The NAP is the mechanism giving effect to the implementation of all relevant DRR policies.

In August 2007 the Government adopted a 3-year Provisional Indicative Implementation Program (2008-2010) as the means to implement the NAP. The Government committed VUV25million (US\$250,000) toward its implementation subject to discussions with donors on supporting full implementation of the Provisional Indicative Implementation Program at a cost of US\$3.3 million. Full funding is still awaiting agreement between the Government and donors. In place within the Program is a steering committee and program management unit to assist in the NAP implementation.

The Ministry of Internal Affairs supports a National Task Force for disaster management and disaster risk reduction. The National Task Force comprises representatives of departments with a role in disaster management and disaster risk reduction and is co-chaired by the Directors of the Meteorological Service and the National Disaster Management Office. The Task Force reports to the Reference Group comprising all

director-generals of ministries and chaired by the Director-General of the Prime Minister's Office.

Discussions with the assessment team and the Director-General of the Prime Minister's Office confirmed the Government commitment to the policies. The Director-General was keen to identify means for progressing the implementation and felt the Government had made the necessary commitments. Concerned that mechanisms for donor discussions had not progressed, the Director-General noted the cross-cutting nature of the initiative and recognized that donors may find it difficult to engage on a co-funding basis. The Director-General did believe that co-funding was appropriate given National Action Plans were to be implemented across the region.

DRR summary. The current legislative, policy, and organizational structures for disaster risk reduction are weak. There are new Government-adopted policy initiatives in the form of the Supplementary Priority Action Agenda, the NAP, and the Provisional Indicative Implementation Program, all of which are currently unfunded. Despite this, there is enthusiasm across sectors for the National Task Force, and some sector activity is being undertaken arising from the still unfunded NAP. While the National Task Force is temporarily in abeyance, there is a mechanism available for coordination across departments.

The intention exists to review the National Disaster Act, the National Disaster Plan, and the organizational arrangements of the National Disaster Management Office to strengthen disaster management arrangements and to provide explicitly for addressing disaster risk reduction as a mainstream activity. Work on the SOPAC-supported national arrangements for disaster risk management has been undertaken and draft arrangements are being considered. The opportunity exists to extend this to the provincial and local arrangements and to integrate CCA arrangements

Impediments

- ***Lack of funding for the on-going NAP implementation.*** Reasons for this include uncertainty around the process for obtaining funding commitment, a passive stance from the Government in seeking funding both at the regional level and in-country through donor discussions, and the absence of a sustainable regional funding mechanism.
- ***Absence of budget commitment from the Government for initiating the NAP implementation plan.*** Donors do not see the Government giving this priority and do not see risk reduction as an in-country priority but rather as a regional issue. There is a need for discussion at the country, donor, and regional level to resolve a way forward.

Planning and budgetary processes

Planning and budgets are formulated at the department level and promoted through the budget process by their respective ministry. For cross-sector activities, the lead department is expected to promote the overall initiative, but individual departments need to budget for their separate components. Except for times of disaster when appropriations are made on a needs basis, there is little experience of cross-sector budget initiatives. In future, ministerial-level promotion will be important to move DRR and CCA initiatives into the national budget stream.

Cabinet decisions do not automatically lead to budget appropriation since priorities change. There is little monitoring of the budget process. When donor funding is required, the process becomes even more difficult unless the initiative is in an area supported by both the Government and the donor. Regarding DRR and CCA support, donors are indicating that their allocations will be made from a regional perspective. Mechanisms for co-funding initiatives from a regional perspective do not exist at the present time.

Impediments

- Lack of championing by the lead ministry and by Government;
- Regional perspective of donors for DRR and CCA support;
- Absence of a co-funding mechanism at the regional level for in-country initiatives.

Mainstreaming into plans, policy, legislation, regulations

There is a strong cooperative mechanism for climate change adaptation through the NACCC, which is promoting the development of coordinated national and sector policies. This has developed as a result of championing of the issues by the Director of Meteorology and the MLNR Director-General. This resulted in the cross-sectoral NAPA being adopted in June 2007, and sector action plans being initiated. However, departments and ministries have not yet promoted these action plans for Government budget appropriation.

The national DRR coordination mechanism is the DRM National Task Force, which prepared the NAP in 2006. The NAP provides for the development of policies and legislation that will create the enabling environment for mainstreaming through a 10-year program. The National Task Force is in abeyance waiting for funding from the national budget and through donor contribution. Because of lack of sponsorship, a Council of Ministers' commitment of VUV25 million to initiate the NAP Program Management Unit did not reach the appropriation commitment and so did not reach donors for consideration of the broader package. For their part, in-country donors said they would not have considered it a priority for bilateral funding but were aware of it as a regional issue.

The National Planning Office in the Department of Social and Economic Planning did have a role of

monitoring budget development with regard to Government decisions. The Planning Office did have DRR and CCA items on their monitoring checklist but did see it as a departmental responsibility to promote. The monitoring function was transferred to the Prime Minister's Office. Given the Council of Ministers' commitment of funds, the Director-General of the Prime Minister's Office was disappointed at the general lack of interest in the issue at the department and donor level and also at the regional level.

There was no addressing of DRR or CCA items at the provincial-level planning. This issue is recognized in the CCA policies being developed and is contained in the DRR-focused National Action Plan.

On the positive side, there is significant opportunity for DRR and CCA alignment through the common membership of the National Task Force and the NACCC, including the Director-General of the Ministry of Meteorological Services, who chairs both coordinating bodies.

Gaps

- Departments not championing risk reduction programs for budget appropriation;
- Absence of monitoring of Government decisions in relation to the planning and budget process; and
- Government not placing priority on DRR/CCA areas in discussions with donors, and donors seeing these issues as regional and not a priority for in-country funding.

Knowledge, data, tools

Generally, there is an appreciation of the constraints to development posed by geophysical and climatic risks across sectors. However, there is a severe paucity of data, tools, and capacity to quantify those risks and to interpret them in a manner that allows risk reduction

to be integrated explicitly into development planning and decisionmaking.

For water resources and water-related risks, such as floods and droughts, for example, there are currently only 6 hydrological monitoring stations that are operational, 2 on Efate and 4 on Santo. These were established for water supply and hydro-power purposes and in support of mining developments and not for long-term monitoring for risk assessment (2 stations were removed after they were no longer needed for immediate development purposes). Yet, flooding is recognized as a major hazard, particularly in peri-urban Vila (Mele and Teuma) and Luganville (Sarakata R), and the risks are increasing with the growing population. Long-term hydrological data to underpin risk reduction in such areas do not exist. Moreover, the hydrological (and other) data, both digital and paper, were destroyed by fire in 2007. Efforts are underway to retrieve data from SOPAC and other regional and national databanks, but the retrieval will only be partial.

The variability and extremes of rainfall are central to understanding the flood, drought, and water supply risks facing the country. There is limited availability of rainfall intensity data and analyses of extreme rain events. Nonetheless, there are few rainfall stations in Vanuatu. The monitoring network, once quite extensive prior to the country's independence, has dwindled. There is only 1 automated weather station and 8 manual rain gauges, with 3-hourly readings and reporting of daily rainfall. There is a proposal for 60 manual stations (for 10 provinces), which would need VUV3 million (US\$30,000) for installation and VUV5 million (US\$50,000) annually for operations.

In terms of volcanic hazards, there are 9 active volcanoes, which are characterized as low-probability, high-impact hazards. However, there is only 1 permanent volcano monitoring station (on Tanna). There is limited water sampling of crater lakes at Ambae,

Ambrym, and Tanna and no ability to provide 24/7 warning. There is a proposed NZAID-funded project (NZ\$1 million over 10 years but not yet approved) to establish a volcanic monitoring network on 9 volcanoes with 20 automated/telemetered stations providing real-time data. Vanuatu's Institute for Research and Development has a volcano research project (Euro 2 million). Use is being made of internationally available monitoring data for volcanoes and earthquakes, but the data have limited scope for country-specific application.

Earthquakes are recognized as posing significant risks across the islands of Vanuatu. There is a reasonable understanding of the broad seismic hazard from past studies. However, there is lesser-detailed understanding that depends on data. There is a seismic hazard map available for greater Vila area but not for other population centers such as Luganville. In terms of seismic earthquake monitoring, there was a 3-station network on Efate, but it is dysfunctional due to the fire in 2007 (one accelerometer was also lost).

There is an historically, well-recognized, extensive tsunami risk for coastal communities throughout Vanuatu. The data on tsunami occurrence is sparse. There is a proposal for a paleo-tsunami study and collection of oral histories, but funding can only be made available for a small pilot project.

Cyclone tracking data are available to calculate frequencies but fall short of full risk estimation and evaluation due to lack of additional data and capability. Sea-level monitoring is carried out in Port Vila and Luganville as part of SEAFRAME, but the observational record is still quite short.

Overall, only minimal monitoring or data analysis is being conducted, and ongoing data collection is not happening. There is little hydrological work supporting hazard management, making future risk as-

assessments severely limited. This will be an issue for projects underway, such as the Millennium Challenge Account projects, which intend to climate-proof infrastructural developments.

Gaps

- *Paucity of historical time-series data for risk assessments.* This is due both to loss of data records and to degradation of data monitoring and collection systems throughout the country. This insufficiency of data inhibits analyses of frequency and magnitude of extreme events and applies across the board to climatological, hydrological, and geophysical systems.
- *Lack of spatially distributed data sufficient to construct hazard maps at scales appropriate for planning and risk reduction.* For climatic data, especially rainfall, the network of station data is too sparse for useful spatial interpolation. The lack of spatially interpolated baseline climatologies limits the ability to apply scenarios of climate change for purposes of impact and adaptation assessments.
- *Absence of adequate data monitoring networks to meet future needs for vulnerability and risk assessments.* Across the range of geophysical, hydrological, and climatic hazards, the absence of data collection will have repeated complications in future DRR and CCA projects unless concerted efforts are made to upgrade the networks.
- *No procedures or capacity for systematic, consistent collection of damaged and loss data following disasters.* The consequence of the lack of impact data is a constraint to economic analyses of DRR and CCA benefits and to evaluation of benefits and costs of risk reduction and subsequent investments in DRR and CCA programs by government and donors.

Vulnerability and risk assessments

More than most other Pacific island countries, Vanuatu faces a wide range of hazards, including earthquakes,

landslides, tsunamis, volcanoes, coastal erosion, tropical cyclones, floods, and droughts. The latter four are likely to be affected in future by climate and sea-level changes and by an increasing population and development in urban and coastal locations (which largely coincide).

Despite these risks and the fact that there is a moderately high level of awareness and commitment at the national level for risk reduction, the understanding and assessments available are only rudimentary with regard to the degrees of risk, who is at risk, and where is the risk. Preliminary scoping of climate change vulnerabilities and adaptation options on a province-by-province basis has been carried out as part of the NAPA process. For example, there are no tsunami hazard maps available other than a single scenario inundation map for the Greater Vila area. While there is some information on areas prone to flooding based on past events, there are no detailed flood maps that could underpin the development of flood risk and land-use zoning. For most volcanoes, there are volcanic hazard maps, largely derived from general understanding of specific volcanic hazards. A National Water Strategy Plan has been prepared proposing risk assessments and vulnerability mapping. This work has not commenced, and there is very little capacity to undertake it.

As noted, the biggest impediment to development of risk and vulnerability assessments and maps is the lack of climatic, hydrological, and geophysical data. Digital elevation models are also essential for some hazards (e.g., for coastal and river flooding, tsunamis); this need is clearly recognized and steps are underway to supplement existing coarse resolution maps with high-resolution digital elevation models for vulnerable areas of the country. In addition, socio-economic information on at-risk populations, land use, and infrastructure is patchy and not systematically geo-referenced and digitized for spatial analyses of hazard risks.

Responsibility for various aspects of vulnerability and risk assessments is spread across several sectors and their associated ministries and departments. The Ministry of Meteorological Services has primary responsibility for climate-related data and analyses and sees the expansion of climate data monitoring as a high priority. The Ministry of Lands and Natural Resources has clearly recognized the paramount importance of introducing a pro-active strategic and programmatic approach to land, water, and energy planning, which includes incorporating risk reduction. The Land Reform Policy under development will lead to a 5-year action plan that will include land-use zoning maps and vulnerable area mapping, addressing both DRR and CCA issues. Considerable efforts in basic data collection will be essential to underpin these efforts.

Gaps

- **General absence of vulnerability and risk assessments and maps required to plan and implement DRR and CCA activities.** Filling this gap is a fundamental requirement for advancing concerted actions for risk reduction in the country.
- **No sense of identified priorities for vulnerability and risk assessments and mapping.** With a few exceptions, Vanuatu is starting from “square one” with regards to vulnerability and risk assessments. While sector priorities were identified in the NAPA, there now needs to be a systematic scoping and prioritization of hazards in relation to at-risk populations, infrastructure, and areas—*hotspots*—as a basis for developing vulnerability and risk assessments in support of town planning and rural development.
- **Unavailability of models and tools for analyzing and interpreting data for purposes of vulnerability and risk assessments, risk profiles, and mapping.** Even for the use of available data, there is a lack of tools (and human capacity) to convert them into information required for DRR and CCA impact.

To a considerable extent, these three related gaps are acknowledged and addressed in the NAP and NAPA. With the country’s keen interest to pursue, the NAPA has sector-based CCA projects that all include vulnerability and risk assessments.

Monitoring and evaluation

In general, there is no systematic monitoring and evaluation (M&E) of risk reduction efforts in Vanuatu. There are efforts to assess damages in post-disaster situations, but these are largely ad hoc and are not harmonized across hazards or carried out in such a way that would allow systematic post-audit evaluation of long-term DRR programs or projects. In accordance with the Madang Pacific Regional Framework for Action 2005–2015, the NAP recognizes the need for M&E for such purposes.

The NAP has incorporated it as an integral component of the Provisional Indicative Implementation Program for the first 3 years of the 10-year national action program. The NAPA for Vanuatu does not incorporate M&E as an element of any of its 5 priority projects. It is expected that M&E will be included with any implementation plan for the NAPA.

Gaps

- Absence of M&E reporting mechanisms with feedbacks to promote improvement; and
- Undeveloped evaluative criteria and indicators appropriate for M&E at national, sectoral, provincial, and community levels.

Filling these gaps is fundamental for ensuring that the risk reduction is a self-adjusting, dynamic, and sustainable process, as applied to both disaster risk reduction and climate change adaptation in a harmonized fashion. It would be important for reporting to ensure consistency with regional and international procedures and criteria.

Awareness raising and capacity building

The National Disaster Management Office has had a public hazard and preparedness awareness program for a number of years principally run as the annual National Disaster Day with support from the Meteorological Service and the Ministries of Education and Health. However resources are limited and provide for only one province to be covered each year through the schools and some communities.

One-day workshops are also run for government and provincial officers on cyclone season preparedness. The Geohazards Section within the Department of Geology, Mines, and Water Resources runs awareness programs across the country from time to time. Risk reduction and CCA awareness is being added to these programs, but guidance on practical application is limited.

Within the Ministry of Education there is an element of disaster risk reduction and management being discussed for potential inclusion in nationwide curriculum development, and there is potential support from UNESCO for treating Vanuatu as a pilot application. This focused project would not include climate change adaptation at this stage.

As with most Pacific island countries, Vanuatu has inadequate human resource capacity, generally across all sectors, and there are problems in retaining expertise once the capacity is adequate. For Vanuatu, these deficiencies are most acute in the technical areas of knowledge gathering, data analysis, and interpretation required for vulnerability and risk assessments. The limited capacity may prove to be a major constraint in plans to expand staff, partly to deal with DRR and CCA issues in certain ministries (e.g., the Ministry for Lands plans to expand from 2 to 7 staff).

Capacity building is a high priority of many ministries — a point echoed by the NACCC and the National

Task Force that deal with CCA and DRR issues, respectively. Capacity development is 1 of 8 major components in the NAP (representing 7 percent of the budget for the Provisional Indicative Implementation Program over the first 3 years) and an integral part of each of the 5 priority projects identified in the NAPA. One strategy is to use external consultants but not to do the tasks at hand; rather they would build the in-country capacity to carry out the work, thus ensuring retention of capacity for further applications.

Gaps

- *Insufficient sustained awareness-raising activities, especially those directed at provincial and community levels.* Applying to both DRR and CCA activities, filling this gap would be an important step in strengthening the linkages between national, provincial, and community levels of governance, which at present are rather disconnected.
- *A general shortage of capacity for DRR and CCA, especially in the areas dealing with technical data analysis and vulnerability and risk assessments.* Filling this gap is a fundamental requirement for advancing concerted actions for risk reduction in the country.

Because these gaps are well recognized and are built into the NAP and NAPA, donor funding and implementation of the NAP and the NAPA projects would presumably jumpstart the much-needed improvements in awareness raising and capacity building for Vanuatu.

Implementation of actual risk-reducing measures

There are some success stories with regards to risk reduction in Vanuatu. Under the CCA rubric, the following NACCC-overseen projects were successfully implemented:

- *Pacific Island Climate Change Assistance Program (PICCAP, 1997-2001).* Funded by UNDP-GEF,

this was a regional enabling activity designed to build capacity for national communications to the UNFCCC. Under PICCAP, the NACCC successfully engaged training in vulnerability and adaptation assessment and implemented countrywide awareness-raising activities.

- **Capacity Building for the Development of Adaptation Measures for Pacific Island Countries (CBDAMPIC, 2002-2006).** This CIDA-funded, SPREP-executed demonstration project aimed to mainstream adaptation into sustainable development at community and national levels. Vanuatu was one case study. Under the project, a village (Tegua) was relocated to avoid recurrent flooding and future sea-level rise, and rain-water harvesting was implemented (Paama). At the national level, activities included mainstreaming into national plans and environmental impact assessments; development of draft climate change policy; and establishment of the Climate Change Core Team, the technical arm of the NACCC.
- Development of the **National Adaptation Plan of Action (NAPA, 2004-2007).** Funded by the UNDP and GEF, the NAPA was endorsed by the Council of Ministers in 2007.

Projects that are currently in progress or in development include:

- **Vanuatu Climate Change Adaptation Project (VC-CAP),** funded by AusAID, takes the lessons and capacity developed under CBDAMPIC and replicates the process elsewhere.
- **Second National Communications to the UNFCCC (SNC)** is funded by UNDP and GEF.
- **Pacific Adaptation to Climate Change project (PACC),** funded by GEF, includes climate proofing of coastal infrastructure for Vanuatu.

The above projects all involve guidance and coordination under the NACCC. The Millennium Challenge

Account project, another CCA effort, is aimed at climate proofing infrastructure.

With regard to disaster risk reduction, the NAP was developed in 2006 as a 10-year plan to progressively develop capacity for disaster management arrangements and for DRR mainstreaming across sectors and throughout Government. A 3-year Provisional Indicative Implementation Program has not commenced due to lack of a funding mechanism. While some ad hoc initiatives are being undertaken (particularly in health), the NAP has effectively stalled. Within the Provisional Indicative Implementation Program is the establishment of a steering committee, a program management unit, and an organizational structure for a disaster management unit. These are prerequisites for on-going development of the Provisional Indicative Implementation Program and the NAP.

Gaps

For Vanuatu, the gaps leading to the eventual implementation of risk-reducing activities are embodied in the NAP and the NAPA, along with identified priority areas for funding. Vanuatu is the only country in the Pacific that has completed both a NAP and NAPA and, from the perspective of gap identification, is one step ahead of most countries.

Coordination among government agencies

The DRR coordination mechanism is the National Task Force for Disaster Risk Management, which has been inactive due to funding uncertainties. Coordination among agencies is not occurring and development of disaster risk management is stalled.

The CCA coordination mechanism is the NACCC, which has led to the preparation of the NAPA and the identification of initiatives within the Ministry of Lands and Natural Resources. With funding for the

NAPA implementation from the GEF Pacific Alliance for Sustainability, the coordination role of the NACCC will strengthen and should include M&E elements. The opportunity exists to integrate implementation of disaster risk management and the NAP, gaining strength from the NACCC arrangement.

Impediments

Stalled commitment to implementation of the NAP. If the activity for disaster risk management loses energy, it could get left behind. This would mean development of provincial and local arrangements would remain slow and would be unavailable for the development of local-level CCA initiatives. The opportunity exists to integrate DRR and CCA arrangements with advantages for both.

Coordination among donors and key stakeholders

The relatively little in-country bilateral donor support to either DRR or CCA initiatives was due on one hand because sector plans were evolving from the broader-based National Task Force and NACCC and on the other hand because the Government had not raised DRR and CCA issues as priorities for engagement with donors in-country. Donors felt the mechanisms for engagement with the National Task Force and the NACCC were weak, reflected in their lack of involvement in preparation of the NAP and the NAPA.

AusAID, NZAID, and the European Union are significant regional-level funders. These major donors see this as appropriate for the cross-sectoral and cross-cutting nature of both DRR and CCA issues. However, that makes in-country engagement and implementation problematic for programs that by their nature need funding for 10 years or more. Particularly since AusAID and NZAID in-country saw their focus as sectoral, the DRR and CCA issues did not register significantly in their decisionmaking.

The UNDP is engaged in a small pilot community-based program for creating resilient communities. Red Cross has an involvement on the NACCC and with the National Disaster Management Office and is looking to use its connections with communities and provinces to improve communications at the national level.

Impediments

- *Government is not raising these issues as priorities for engagement with donors in-country.* As noted previously, this is partly a result of a Government expectation of regional funding. Discussion is needed between the parties to address this.
- *Sector plans for CCA initiatives are not yet developed.* The basis for concrete discussion with donors and for coordination will come with the development of explicit sector plans. ❖

Opportunities for Investment

From the Vanuatu country assessment, it is evident from the gaps and impediments that many opportunities for investment leading to the improvement of risk reduction can be identified. The NAP and the NAPA alone identify a considerable array of priorities, strategies, and actions necessary for environmental improvement and hazard management, including risk reduction, for Vanuatu.

This assessment highlights country status, gaps, opportunities, and barriers related to national policies, strategies, plans, and activities with regards to the management of natural hazards. This focus extends to the enabling environment for a comprehensive risk management approach to natural hazards and the capacity to undertake such a comprehensive approach, including institutional arrangements, human resources, public awareness, information, and national budget allocations. In most discussions among key government officials and other stakeholders, investment programs are prioritized and selected based on expectations of several criteria (costs, available funding, efficiency, expected benefits, institutional, financial, legal, and related capacity).

Vanuatu and most of the Pacific island countries have established policies, institutions, systems, and related structures to address DRR/CCA challenges. The NAP, NAPA, and several other programs have been prepared and are ready to be enacted. However, there are significant gaps in the 5 key HFA priority areas. While some efforts have begun to address certain issues, those of funding, staffing, and related operational support persist without concrete plans. Several participants in the assessment process have identified high-yielding, short-term priority issues; but this selection requires more effort to fully categorize such needs and decide upon appropriate corresponding short-, medium-, and long-term programs.

Vanuatu policymakers, sector officials (in consultation with local stakeholders), and various donors and

financial institutions identified the list of priorities. The Government could choose to pursue any of these options with its own resources, with support from the international donor community, and/or international financial institutions such as the Asian Development Bank and the World Bank. Grant funding for Vanuatu is being mobilized from the Global Facility for Disaster Reduction and Recovery to support pilot programs, which could be leveraged to undertake some of the proposed investments, based on demand. Funding would be expected to support programs from 2009-11.

In narrowing the field of project opportunities, the assessment team applied two additional sets of filters or criteria. The first set requires the projects to meet the following filters:

- Address risk reduction directly;
- Produce tangible results within three years;
- Have longer-term sustainable benefits; and
- Have in-country commitment, champions, and/or institutional arrangements to promote implementation.

Screened by this first set of criteria and with additional consultation and expert judgment, five priorities for investment were identified. These five project opportunities follow, along with a summary of the rationale for each in relation to the above criteria and as linked to the assessment.

- (1) *Risk mapping to support town planning and village development.* This project entails developing hazard and risk mapping capabilities through facilitating piloted hazard and risk mapping exercises for the town of Luganville and for the Shefa provincial area of Port Vila, Mele, and Teouma. In the first instance, the benefits of this project would extend to issues of land-use planning and regulation and would therefore inform the land use policy

framework and strategic plans being developed by the Ministry of Lands, Water, and Energy. In the longer term, such capacities are required for sustainable development in rapidly growing regions of Vanuatu.

- (2) *Support to the integration of the NAPA and NAP implementation.* It is clear that, subject to funding, the Vanuatu Government is committed to moving forward with the NAP, has a reasonable understanding of the connections between DRR and CCA, and is being pro-active in integrating efforts across sectors. However, the success of NAP depends heavily on its management unit to act as both the champion and driver of the process. This is currently the weak link, and it lacks the resources and capacity to do so. With funding now committed to the implementation of the NAPA, the opportunity exists to integrate arrangements to manage the implementation of the NAP and the NAPA in a way that adds value to both areas—the NAP through development of a provincial and local arrangement and the NAPA through the strength of its coordination function for Government.
- (3) *Promoting DRR and CCA in the tourism sector for Vanuatu.* As explained in the NAPA, tourism developments are proliferating in Vanuatu, mostly in coastal locations with little regard for hazards and reducing risk and no regard for potential climate change effects. Sustainable tourism and coastal land use therefore depend, in large part, on the systematic reduction of those risks. The key elements of this potential project are contained within the tourism project outlined in the NAPA and therefore have been endorsed by the Council of Ministers. However, this proposed project is not as extensive as that contained in the NAPA. It is much more focused and is narrowed to a more manageable set of activities, which are considered “do-able” in a shorter timeframe, with a high chance of success. Nonetheless, it still contains a

focus on (a) the development of risk profiles and assessments of existing tourism facilities (with the potential for extension to other sectors by way of example); (b) the development of guidelines for future tourism developments; and (c) a component involving pilot applications to demonstrate DRR and CCA benefits for the industry as a whole.

- (4) *Awareness raising and education to foster links between national, provincial, and community governance, planning, and implementation.* There are large differences between the rural and urban Vanuatu. About 80 percent of the population lives in rural villages, largely on a subsistence basis with limited employment opportunities, while the cash economy is centered primarily in Port Vila and Luganville. The economic and social differences compound the large gaps or disconnections between national, provincial, and community levels of organizational arrangement. This is a major impediment to implementation of systematic risk reduction at local level. Programs of awareness raising and education have been identified during the NAP and NAPA processes as fundamental to bridging these gaps and fostering links between the organizational levels. A timely project would involve development of the content, approaches, and procedures for effectively and efficiently achieving this goal through pilot projects, in the first instance.
- (5) *Support for Ministry of Lands and Natural Resources in reforming land-use policy and regulation.* The Ministry of Lands and Natural Resources is undertaking a land reform program, including the development of a land use policy linking all the islands, followed by a set of strategic plans for implementing the policy. Land-use zoning will be a central tenet of the policy and strategy, and DRR and CCA components will be central aims of land-use zoning. However, the capacity is deficient in terms of both technical skills for hazard and risk mapping, as well as mainstreaming in

policy and plans. This proposed project provides technical support at a critical time to build the required capacity and to facilitate key components.

These 5 opportunities for investment were subjected to a second filter by asking the question, *Which of the opportunities are already, or are likely, to be supported by other donors and agencies?* The intent of applying this second filter was to determine where the World Bank could add value in a coordinated and harmonized manner in relation to other players in the region. One of the 5 opportunities fell into this category: Project (4), *Awareness raising and education*, which might be conducted by SOPAC. On this basis, the 4 remaining

priority projects can be viewed as complementary and therefore as opportunities for the World Bank to add value. Two of these activities have been included in the NAPA implementation project: (1) *Risk mapping* and (5) *Support for the Ministry of Lands and Natural Resources*.

In Annex A, each proposed opportunity is expanded to provide preliminary information on indicative costs, timeframes, and first-order actions and tasks. This information is intended to be sufficient for the development of detailed proposals and terms of reference should the World Bank wish to pursue these opportunities for further investment. ❖

Annex A. Proposals for Support to Vanuatu

Proposal	V1 Risk mapping to support town planning and village development			
Country/sector	VANUATU: Lands, Hydrology, Development planning			
Scope	Land-use planning in Luganville (Santo) and the Mele-Teouma Plains (Efate); demonstration			
Goal and purpose	Sustainable hazard risk-reduction as part of the land-use planning and zoning, through identifying vulnerable areas and providing essential capacity building in risk mapping to guide land-use zoning for urban and rural environments			
Lead agency	Ministry of Lands and Natural Resources with Geohazards, Rural Water Resources, Meteorological Service, Municipalities, French, Vanuatu, and Mele Red Cross Societies, Ports, SOPAC			
Cost and duration	US\$600,000 over 3 years			
Hazards targeted	Risk reduction measures	Key gaps/barriers	Actions and tasks	Cost US\$k Time-frame
Riverine flooding Storm surge/wave Tsunami Earthquake Flash flooding Polluted/high groundwater table	Appropriate risk-mapping methodologies developed for urban and rural areas Land-use practices and infrastructure improved to reduce risk High-risk zones avoided in communities Local capacity to manage disasters improved	Lack of basic climate and hazard data collection capabilities Lack of capacity to assess risks Lack of knowledge on land use management Risk mapping not integrated into planning process	Support a demonstration program for the communities of Luganville and the Mele-Teouma Plains to: <ul style="list-style-type: none"> Identify and map all hazards including potential changes in climate variability Assess vulnerabilities and engage with communities in assessing risks Establish development zones and other risk mitigation measures for community assets and infrastructure Develop disaster management arrangements and warning arrangements for flooding and storm surge Include measures in provincial and district plans Monitor and evaluate on-going effectiveness	320 160 120 Year 1 Year 2 Year 3

Continues

Annex A. Proposals for Support to Vanuatu *Continues*

Proposal	V2 Support to the NAP implementation and its integration with arrangements for CCA, the NAPA.		
Country/sector	Vanuatu: DRM/CCA Cross Sector		
Scope	Establishment of the DRM arrangements through the initial implementation of the NAP and integration with arrangements for CCA		
Goal and purpose	National		
Led agency	Dept of Internal Affairs, with National Task Force and NDMO, NACCC and Meteorological Service		
Cost and duration	\$300,000 over 2 years		
Hazards targeted	Risk reduction measures	Key gaps/barriers	Actions and tasks
All hazards	Establish structures for integrated DRM/CCA in Vanuatu Provincial and local structures will benefit CCA initiatives Implement the on-going elements of the NAP	Lack of capacity to manage initial set up and implementation of the NAP including the establishment of DRM arrangements	Address issues of integration of arrangements for DRM and CCA and establish a management structure for implementation of the NAPA and NAP Support the TA role over two years to facilitate the initial implementation. Address funding issues for the on-going implementation of the NAP
			Cost US\$k
			300
			Time-frame
			Years 1-3

Annex A. Proposals for Support to Vanuatu *Continues*

<i>Proposal</i>	V3 Promote DRR and CCA in the tourism sector for Vanuatu				
<i>Country/sector</i>	VANUATU: Tourism				
<i>Scope</i>	Sustainable tourism, through reducing risks to tourism facilities				
<i>Goal and purpose</i>	Coastal locations; demonstration				
<i>Lead agency</i>	National Tourism Development Office with NACCC, Meteorological Service				
<i>Cost and duration</i>	US\$475,000 over 3 years				
Hazards targeted	Risk reduction measures	Key gaps/barriers	Actions and tasks	Cost US\$K	Time-frame
Cyclonic wind and storm surge	Avoidance of high-risk zones within coastal areas	Limited knowledge concerning hazard/risk zones	Prepare hazard risk profiles for a range of existing tourism facilities for key areas, including exposure to climate change related risks in order to understand the extent of risk exposure.	75	Year 1 2.5 months
Flooding	Modify infrastructure design to reduce risks	Risk issues not mainstreamed into tourism and development policies, plans and regulations.	Develop a development guideline for future tourism developments to address this risk exposure (which has the potential to severely impact the industry nationwide). The guideline should address:	250	Year 2 8 months
Coastal erosion	Early warning and evacuation	Contingency/evacuation plans not developed, low awareness	<ul style="list-style-type: none"> Requirements for risk analysis and risk treatment for tourism developments including building code requirements, coastal zone management etc. 		
Drought/water supply	Coastal management to enhance natural resilience	Lack of knowledge and awareness to minimize coastal impacts	<ul style="list-style-type: none"> Contingency/evacuation plans for tourism developments and enhancing awareness. 		
Tsunami	Alternative energy and water supplies (e.g., rain-water harvesting). Water and waste-water management	Lack of awareness of benefits and costs of water management alternatives	<ul style="list-style-type: none"> Procedures and guidelines for beach management and conservation and for monitoring Alternatives for managing water supply and demand in variable and changing climate 	150	Year 3 4 months
			Promulgating application of the guidelines in order to demonstrate the benefits of DRR and CCA to tourism developments and to promote nation-wide application.		

Annex A. Proposals for Support to Vanuatu

V4 Support for Ministry of Lands and Natural Resources in reforming Land-Use Policy and Regulation					
VANUATU: Lands					
Land-use policy and regulation addressing risks arising from climate change and natural hazards					
National, land management					
Ministry of Lands and Natural Resources					
US\$480,000 over 3 years					
<i>Hazards targeted</i>	<i>Risk reduction measures</i>	<i>Key gaps/barriers</i>	<i>Actions and tasks</i>	<i>Cost US\$k</i>	<i>Time-frame</i>
Earthquake Landslide Tsunami Cyclonic wind Storm surge Storm wave Groundwater pollution Riverine flooding	Land use zoning	Lack of capacity within Ministry Lands in the development of land-use regulations Lack of regulatory mechanisms to address land-use in the face of natural hazards in a holistic manner Incomplete hazard risk mapping of Vanuatu Customary land tenure systems	Develop a strategic framework for a land-use regulatory regime related to risk, including provincial and community consultation Develop and implement an action plan to meet the needs of the project. Develop land-use policy framework and link all Vanuatu islands in a common regulatory regime. Championing, adoption and demonstration through a pilot zoning program on one island Carry out provincial and community awareness and implementation program	120 (5 months) 40 (2 months) 120 (6 months) 120 (6 months) 80 (4 months)	3 rd Quarter 2008 2009 2010 1 st Quarter 2011

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