

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



TIMOR-LESTE COUNTRY ASSESSMENT



THE WORLD BANK



## Acronyms and Abbreviations

|               |   |
|---------------|---|
| <b>AusAID</b> | Australian Agency for International Development             |
| <b>CCA</b>    | Climate change adaptation                                   |
| <b>DRM</b>    | Disaster risk management                                    |
| <b>DRR</b>    | Disaster risk reduction                                     |
| <b>EU</b>     | European Union  |
| <b>FAO</b>    | Food and Agriculture Organization                           |
| <b>GDP</b>    | Gross domestic product                                      |
| <b>GEF</b>    | Global Environment Facility                                 |
| <b>GFDRR</b>  | Global Facility for Disaster Reduction and Recovery         |
| <b>GIS</b>    | Geographic Information System                               |
| <b>HFA</b>    | Hyogo Framework for Action                                  |
| <b>ISDR</b>   | International Strategy for Disaster Reduction               |
| <b>NAP</b>    | National Action Plan (for DRM)                              |
| <b>NAPA</b>   | National Adaptation Plan of Action (for CCA)                |
| <b>NDES</b>   | National Directorate of Environmental Services              |
| <b>NDIEA</b>  | National Directorate of International Environmental Affairs |
| <b>NDMD</b>   | National Disaster Management Directorate                    |
| <b>NDRM</b>   | National Disaster Risk Management (Policy)                  |
| <b>NGO</b>    | Nongovernmental organization                                |
| <b>PPP</b>    | Purchasing power parity                                     |
| <b>TSA</b>    | Transitional Strategic Appeal – Reference UNDP 2008         |
| <b>UNDP</b>   | United Nations Development Program                          |
| <b>UNFCCC</b> | United Nations Framework Convention on Climate Change       |
| <b>USAID</b>  | United States Agency for International Development          |

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## Introduction

The World Bank policy note, “Not If, But When,” shows the Pacific island countries to be among the world’s most vulnerable to natural disasters. Since 1950, natural disasters have directly affected more than 3.4 million people and led to more than 1,700 reported deaths in the region (excluding Papua New Guinea). In the 1990s alone, reported natural disasters cost the Pacific Islands Region US\$2.8 billion (in real 2004 value). The traditional approach of “wait and mitigate” is a far worse strategy than proactively managing risks.

The Hyogo Framework for Action 2005-2015 (HFA) lists the following 5 key priority areas 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, innovation, and education to build a culture of safety and resilience at all levels;
- (4) Reduce underlying risk factors; and
- (5) Strengthen disaster preparedness for effective response at all levels.

This Timor-Leste assessment represents a stocktaking exercise to review the extent to which disaster risk reduction (DRR) and climate change adaptation (CCA) activities have progressed in the island country. The assessment goes on to identify gaps or impediments to achieving the HFA principles and identifies opportunities for future DRR/CCA investments that would be timely, cost-effective, and implementable within a three-year timeframe. The focus is on risk reduction, rather than post-disaster recovery and response. While some sector-specific activities are addressed in the assessment of national and local government policies and institutional arrangements, the report does not provide a comprehensive summary of sector-by-sector activities. Instead, it refers to other

reports that have done that and complements these with suggestions for taking the necessary steps.

The goal of the report is to deepen the understanding in the gaps, opportunities, and needs at the national level toward stronger operational disaster and climate risk management in the Pacific islands and to link closely to other ongoing and future efforts by other donors and stakeholders (such as the SOPAC regional initiatives following the Madang Framework and the National Action Plans) to ensure synergy and avoid duplication. The assessment focuses on practical, proactive measures that Timor-Leste can take to inform its national development policies and plans and to strengthen its capacity to reduce the adverse consequence of natural hazards and climate change, as it relates to risk reduction. The linkage of these two areas mainly includes managing the impacts of extreme weather events, variability in precipitation and storm surges, and sea-level rise.

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 institutional 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.

With respect to achievement of the first HFA priority, there is clear evidence of systemic difficulties among many Pacific island countries in establishing an enabling environment and promoting a cross-sector focus for DRR and CCA activities. Since the avail-

able evidence shows that ad hoc, externally driven approaches have not provided satisfactory results so far, the HFA emphasis upon a strong government commitment and action is one of the primary and early challenges to be surmounted in achieving the goals of the International Strategy for Disaster Reduction (ISDR).

World Bank experience in countries with similar challenges shows that while it is important to have a clear long-term vision, given the institutional, financial, and resource constraints, more modest “bottom up” approaches tend to have better results. Also, taking existing investment programs and incorporating simple key DRR/CCA elements demand relatively fewer efforts and resources and yield results that can lay the foundation for more complex, follow-up stages. Getting stakeholders to coordinate their activities in line with the 2005 Paris Declaration on Aid Effectiveness also appears to be relatively easier with such a modest starting point than with formal efforts aimed at comprehensive “top down” coordination.

This assessment begins by explaining the context of the country in relation to disaster risk reduction and

climate change adaptation. It follows with sections on Key Findings and a Detailed Country Assessment that focuses on some of the components relevant to HFA achievement: adopting and mainstreaming policies, data and knowledge, risk and vulnerability assessments, monitoring and evaluation, awareness raising and capacity building, planning and budgetary processes, and coordination. From this assessment, possible opportunities for addressing the identified gaps and needs in line with the HFA are presented in the final section. The proposals for future support are presented in Annex A.

Funding for this assessment was provided by the Global Facility for Disaster Reduction and Recovery (GFDRR), which is in partnership with the UN International Strategy for Disaster Reduction (ISDR) system to support the Hyogo Framework for Action. Other partners who support the GFDRR work to improve livelihoods and protect lives include Australia, Canada, Denmark, European Commission, Finland, France, Germany, Italy, Japan, Luxembourg, Norway, Spain, Sweden, Switzerland, United Kingdom, USAID Office of Foreign Disaster Assistance, and the World Bank. ❖



## Country Context

Timor-Leste lies in the Lesser Sunda Islands at the eastern end of the Indonesian archipelago. The 15,007 square kilometers of rugged terrain that constitutes Timor-Leste encompasses the eastern half of the island of Timor (Figure 1). Also included are the Oecussi (Ambeno) region on the northwest portion of the island of Timor and the islands of Pulau Atauro and Pulau Jaco. The western part of Timor (excluding the Timor-Leste enclave of Oecussi) is part of the Indonesian province of Nusa Tenggara Timur. Administratively, the country is divided into 13 districts with a highly centralized national government. The Government plans to develop capacity in the districts, but structures are weak and resources limited.

The 2004 national census estimated Timor-Leste's population at 925,000 (a 2008 ADB estimate is over 1 million). Dili, the largest city with a population of 51,000 in 2003, has experienced the influx of over 30,000 internally displaced people following the civil disturbances of 2006. In total, the crisis led to the displacement of 150,000 persons, with a number of the displacement camps sited on the vulnerable fore-shore of Dili.

**Figure 1. Map of the Timor-Leste**



Source: Asian Development Bank.

The recent history of Timor-Leste has a significant relation to its economic and hazard vulnerability. It is one of the world's newest post-conflict nations, recognized as an independent democratic state in 2002. After a period of civil and militia disturbance that required major international intervention, the withdrawal of Indonesian authority was accompanied by the destruction of about 90 percent of the new nation's physical infrastructure, and the lack of human capacity with the technical and administrative skills necessary to rebuild a fledgling nation. The rebuilding process in all areas of public and private endeavor is continuing and is being delivered with considerable national spirit and governmental and community skill, despite insurmountable capacity issues.

In 2007 the country's GDP/PPP was estimated at about US\$2,000 per capita, with unemployment estimated at about 50 percent. Agriculture, which accounts for about 80 percent of employment (with only 8.2 percent of arable land in the country), suffers from seed shortages, locust infestations, and poor weather conditions (UNDP 2008). Agricultural production, most of which is for local markets, is vulnerable to climatic variability, extreme weather events, insect and rodent infestations, and bacterial plant diseases

Timor-Leste possesses magnificent natural and cultural assets that contribute to the country's tourism growth. Ecotourism and diving-based tourist activities are making a significant contribution to the national and local economies. Tourism is seen as a potentially major area of economic development that could provide much needed employment. At the moment, due to the persistent challenges for Timor-Leste population and authorities, the country is affected by one of the highest levels of environmental degradation in the Asia Pacific Region.

Arguably, the economic viability of the country will be a key factor in assessing the nation's ability to respond

to disasters emanating from natural hazard and human conditions (food and water security, and public and personal health). The Asian Development Bank (ADB 2008) reports a deep systemic problem with food availability with 73 percent of households experiencing at least one month of low food consumption in 2008. Compounded by the effects of natural hazard disasters, socio-economic vulnerability is further challenged by low incomes in rural areas, high population growth rates, and pressures for rapid urbanization.

Timor-Leste is located in an area of high seismic activity and is exposed to earthquakes and tsunamis. Earthquakes are common and cause significant damage; where slopes are unstable, earthquakes can trigger extensive landslips with a negative impact on peoples' lives, livestock, roads, infrastructure, and property. Access roads and bridges are left impassable after regular damage from flooding, earthquakes, and landslips. Across the nation, pockets of housing are regularly destroyed and damaged. National resources are called upon almost weekly to provide emergency relief and shelter and to repair roads and infrastructure.

Seasonal monsoon rains and strong winds or cyclones besiege Timor-Leste and regularly damage and destroy homes, particularly in the rural areas. The country is affected by two sets of monsoonal conditions: the Northwest or wet monsoon that brings storms and flooding and the Southeast or dry monsoon that brings strong winds to the south of the island. Wet and dry seasons vary in length from the northern and southern zones as a product of the mountainous ridge through the center of the country. Timor-Leste has three climate zones that can be delineated on the basis of topography (northern coastal and lowland zone, mountain zone, and southern coastal and lowland zone).

The island of Timor is also greatly influenced by La Niña and El Niño climate events, with La Niña shortening the dry season to 1 to 2 months only (UNDP

2008). In early to mid-January and mid-February 2008, two active phases of extreme monsoonal storm activity associated with La Niña produced localized wind, flood, and landslide, impacting agriculture, roads, bridges, and private homes in all 13 districts of Timor-Leste. In the 2008 wet season, 3,600 houses were destroyed across all the districts. The long rainy season, combined with La Niña, triggered substantial efforts from the Government and the international community to improve risk reduction preparedness in the internal displacement camps in Dili and wider communities in all districts.

At relatively the same time of the catastrophic weather event (November 2007 to January 2008), three districts—Covalima, Bobonaro, and Oecusse—experienced a re-emergence of locust infestations, with a simultaneous infestation in Indonesian West Timor. The inability to quickly address the locust problem resulted in widely spreading and dramatically increasing damage. The recurrence of locust infestation caused crop failures, compounded by drought and flood. Adding to the severity, winds and landslides resulted in crop damage.

Climate change issues arising from increasing variability of climate extremes include (a) the potential for increasing food security problems, (b) increasing susceptibility of forests to degradation and related impacts on watersheds and slope stability, and (c) the extended incidence of diseases and increasing coastal vulnerability. Climate change is acknowledged to have the potential to exacerbate all weather-related hazards (including slow onset conditions such as drought). Scientific understanding of the nature and incidence of these changes in Timor-Leste remains very limited. ❖

## Key Country Findings

Collectively, the socio-economic and socio-cultural conditions in Timor-Leste are key factors to be taken into account when considering how the nation can implement disaster risk reduction measures and address the challenges of adapting to climatic variability and change. Disaster risk reduction is a core theme in strategies for reducing the socio-cultural vulnerabilities that Timor-Leste has inherited.

The UNDP (2008) identifies main areas to be addressed by central and local authorities of the country:

- Build up their emergency preparedness and response systems (central and decentralized);
- Help the population to be better aware and to adopt mitigation behavior; and
- Put in place regional control, prevention, and co-operation mechanisms.

Just seven-years old, Timor-Leste, as a country after decades of conflict, has weak infrastructure, limited human and budgetary capacity, and enormous vulnerability to natural hazards, including the potential effects of climate change. In a short time, the Government has demonstrated its commitment to dealing with these issues by adopting the National Development Plan, the IV Constitutional Plan, and the Budget Plan. In 2008, it adopted an ambitious National Disaster Risk Management (DRM) Policy and is fulfilling its commitments to the United Nations Framework Convention on Climate Change (UNFCCC) by submitting the Initial National Communication, as well as developing a National Adaptation Program for Action (NAPA).

Despite Government commitment resulting in sound policy development and senior-level backing at department levels, the DRR/CCA activities are constrained by critical staff capacity at the middle operating levels of all Government departments. Planning for disaster

risk reduction and climate change adaptation should recognize and accommodate this situation with pragmatic and sustained support to develop well-grounded and sustainable programs. Uncoordinated ad hoc programs ultimately result in little capacity development.

A review of evident risk reduction activities in Timor-Leste resulted in the following key findings:

- (a) The country is very vulnerable to hazards— floods, landslides, drought, pests, earthquakes— but has little capacity for response. Countrywide response is centrally managed through the National Disaster Management Directorate, which is overburdened with frequent occurrences . Slow, centralized response exacerbates the impact of disasters.
- (b) Government commitment and understanding of disaster risk reduction and climate change adaptation is strong, which is an encouraging start for an enabling environment. Limited acknowledgment of the needs for DRR/CCA application is a strong impediment.
- (c) At the senior government official level, there is an acknowledgment of the need for external support within a 5-10 year program.
- (d) Coordination across government agencies for disaster risk reduction and climate change adaptation is ensured by a policy framework and good capacity at the senior government level. However, the frameworks are recent; there is limited capacity for application, and limited arrangements for DRR/CCA coordination.
- (e) There is limited capacity to deliver services within Government departments at the middle and junior levels. With over a decade of internal conflict, opportunities for education and training have been limited. However, enthusiasm to develop enabling environments and internal capacity is encouraging. It may require a 5-10 year period to develop full capacity.



- (f) In addressing climate change adaptation, the National Directorate of Environmental Services (NDES) and National Directorate of International Environmental Affairs (NDIEA), as well as the important Meteorological Service face capacity limitations.
- (g) District-level structures for disaster management are scarce. The NGO activity in some districts at the *suco* (village) level—focused on disaster management preparedness rather than disaster risk reduction—lack resources. There is no focus on climate change adaptation at the district level.
- (h) Widespread social, infrastructure, health, and food vulnerabilities in Timor-Leste are exacerbated by hazard and climate risks, lack of capacity, and weak governance arrangements at the operating level.
- (i) There is no credible monitoring or analysis of hazards and climate changes. The country continues to depend on information and warnings from Indonesia, Australia, and Japan.
- (j) Many donors and NGOs are seeking to provide support. Apart from the Community-Based DRM Working Group, there appears to be little coordination among donors and no leadership mechanism.
- (k) The profusion of donors and NGOs seeking responses to information requests and international reporting is met with skepticism. In the absence of greater stakeholder coordination, the available competent managers in government tend to devote time to responding to diverse queries, rather than planning and addressing emergency situations.

Risk reduction should focus on integrating disaster risk reduction into national policies and programs within effective and sustainable governance structures, rather than adding externally driven short-term projects when there is no internal capacity to engage with them.

The development of a pragmatic institutional framework for disaster risk management (involving government and stakeholder agencies across all levels) and the preparation of a coordinated 5-year program would give effect to the National Disaster Risk Management Policy. Such a program should embrace (a) development of legislation; (b) establishment of arrangements at the national, district, and village levels; (c) development of capacity at the organization and community level; (d) enhancement of hazard monitoring and analysis; and (e) development of disaster management and risk reduction plans across sectors and communities. For example, addressing the acute hazard risk from flooding for low-lying coastal villages adjacent to rivers through the adoption of simple river management measures following floods requires community-level planning.

The UNDP-supported National Adaptation Plan of Action for climate change adaptation will identify areas for activity over the next 18 months. In the meantime, assistance could be provided for professional and capacity development, as well as the development of NAPA and its coordination with DRR programs.

This assessment has identified the following four priority areas where investment is needed:

- Development of a simple policy and institutional framework and organizational mechanism for disaster risk management and climate change adaptation;
- Development of meteorological monitoring capability with data management, and analysis and forecasting systems and skills;
- Support for nongovernmental community-based DRM program at the district, sub-district, and village levels within a structured institutional framework;
- Development and support for a range of professional development initiatives for cross-sector staff

in areas of hazards, vulnerability assessment, and organizational management for disaster risk reduction and climate change adaptation.

Due to the plethora of vulnerabilities faced by the country and its weak capacity, the Hyogo Framework for Action, still needs to be applied in its entirety in Timor-Leste. While the first of the five HFA priority areas—ensuring risk reduction as a national and local priority, with a strong institutional basis for implementation—is being addressed, at least at the national

level, the remaining priority areas, further discussed in the next sections, still require attention and resources.

A summary of gaps or impediments to effective risk reduction, and areas of opportunity for improvement are summarized in Table 1. A more detailed explanation of possible opportunities for addressing the identified gaps and impediments within the HFA are presented in the final section of this assessment report. Proposals for future support are presented in Annex A. ❖

**Table 1. Summary of the Key Gaps and Opportunities for enhancing DRR and CCA for Timor-Leste**

| Situation   | Gap or Impediment  | Opportunities  |
|---|--|--|
| <p>Timor-Leste adopted a strong DRM policy position but has yet to establish an institutional framework to support development programs across sectors and levels of government into communities.</p> <p>For CCA, Initial National Communication has just been submitted and coordinating advisory committees to support the NAPA development over next 18 months are being established.</p> <p>Government sectors do not adequately support disaster response or risk reduction in their area of responsibility.</p> | <p>Lack of institutional framework to support DRM and CCA development programs across sectors and levels of government.</p> <p>Lack of coordinated DRM development program.</p> <p>Lack of CCA policy and advisory structures for coordinating CCA development and NAPA preparation.</p>   | <p><b>Provide support for the development</b> of a simple policy and institutional framework for DRM suitable also for CCA.</p> <p>Coordinate with the UNDP NAPA.</p>  |
| <p>Diverse hazards and risks impose threats to human life, public and private infrastructure and property in Timor-Leste. Hazard monitoring and assessment is inadequate to support DRR and CCA activity.</p>   | <p>No basic monitoring system is in place for metrological, hydrological, and geophysical data collection.</p> <p>Limited professional capacity to undertake monitoring and data analysis.</p> <p>Lack of central system for information management, storage, and access on geophysical, climatological, hydrological, and health hazards.</p> | <p><b>Provide hazard information and monitoring support</b> from Australia and others, while local capacity is built.</p> <p><b>Support the building of professional competency</b> in the meteorological, hydrological, and geophysical fields to ensure that Timor-Leste can build risk reduction measures based on scientific evidence.</p> <p><b>Support the development of DRR and CCA knowledge and information systems</b> that reflect the emerging institutional needs and that can be accessed at district, sub-district, village, and community levels.</p> |
| <p>Risk reduction awareness and training programs have been initiated at district, sub-district, village, and community levels.</p>   | <p>Awareness, attitudes and behavior towards DRR/CCA is limited at district, sub-district, village, and community levels.</p>  | <p><b>Strengthen community-based awareness and capacity building</b>, including education and efforts to change attitudes and behavior toward DRR/CCA and in building and maintaining resilience of environmental, social, and economic systems to reduce vulnerability.</p>   |
| <p>Weather-related hazard risks (both rapid and slow onset) are creating vulnerability to food security and water supplies, which are likely to be exacerbated by increasing climate variability.</p>   | <p>The nature and incidence of increasing climate variability in Timor-Leste is not well understood. Initial assessments are needed for informed CCA interventions.</p>  | <p><b>Develop and support a range of professional development initiatives</b> for DRM, CCA, and cross-sector staff in areas of hazards, vulnerability assessment and organizational management for DRR and CCA.</p>  |

## Detailed Country Assessment

### Legal framework and policies, and their effectiveness

The broad responsibility for various aspects of vulnerability and risk assessments is spread across the Ministry of Social Solidarity and the Ministry for Economy and Development and their associated departments. Within the Ministry of Social Solidarity, the National Disaster Management Directorate (NDMD) is responsible to the Secretary of State for Social Assistance and National Disasters and the focal point for management of the overall response to catastrophic events. The National Directorate for Environmental Services (NDES) and the associated National Directorate for International Environment Affairs (NDIEA), within the Ministry for Economy and Development, are responsible for climate change adaptation and mitigation matters.

Both Directorates face a critical capacity issue in meeting their international commitments for climate change. The NDES lacks district structures to address local climate change issues.

The Government of Timor-Leste has clearly recognized the paramount importance of introducing a pro-active strategic and programmatic approach to planning for land, water, energy, health, and education in order to attain sustainable development. One of the outcomes of the strategic approach is the creation of the national Climate Change Focal Point in the NDIEA. The Ministry for Economy and Development is promoting the development of coordinated national and sector policies for addressing climatic variability and change. However, this still-developing initiative requires appropriate resources.

The commitments of the Government of Timor-Leste toward disaster risk management are embedded in the IV Constitutional Government Program of the Council of Ministers for 2007-2012. In this document, the Government identifies the following essential priorities to be addressed:

- Identification of risk zones,
- Creation of early warning systems particularly relating to rains and droughts,
- Development of human resource capacity in the area of disaster risk management,
- Ability to provide immediate response when disasters occur, and
- Establish inter-sectoral coordination mechanisms to respond to natural disasters.

The NDMD is responsible for implementing the program. In March 2008, the Government adopted the National Disaster Risk Management (NDRM) Policy, which covers a shift from traditional crisis response management to disaster, conflict, and climate change risk reduction. It provides general framework and activities of disaster risk management; and the integration of activities across all sectors addressing economic, social, and environmental development and strengthening community capacity and reducing vulnerabilities. Prepared with international support, the NDRM Policy is comprehensive and ambitious with the following objectives:

To engage all levels of society; promote the integration of disaster management in different government development programs; improve disaster risk management in all sectors at all institutional and operational levels; achieve financial sustainability through the use of greater resources; and preserve our natural environment to guarantee peace for all Timorese people.

The NDRM Policy specifically provides for launching the Disaster Operation Center and Departments for Preparedness and Formation, Prevention and Mitigation, and Response and Recovery. Although the NDMD has recently doubled in size to 8 staff, it lacks the skills for disaster and risk management.

The NDMD director noted the difficulty in focusing on hazard reduction since the Directorate is continuously addressing local disaster-related problems. It is expected that the NDMD focus will be broader in 2009 with more resources available for district-level activities.

The NDRM Policy also provides for disaster management committees at district, sub-district, and village (or suco) levels. District Disaster Management Committees are given decisionmaking responsibilities during disasters. District Administrators are designated as District Disaster Coordinators during these periods. At the sub-district level, the Sub-District Administrator and suco chiefs and village leaders are assigned the responsibilities.

Representing strong Government commitment, the NDRM Policy establishes an Inter-Ministerial Commission for Disaster Risk Management. This Commission comprises 12 ministers and vice secretaries of state, as well as agency representatives from the Red Cross, United Nations, and civil society. Plans for the Inter-Ministerial Commission are to meet twice annually to oversee the introduction of the policy and the accountability of relevant departments and other DRM-invested bodies. The Commission would also meet during disasters to provide political oversight and direction.

The success of the NDRM Policy will depend on the focus of the Inter-Ministerial Commission, which is still in a formative stage. Reportedly the formation of the Commissions suffers from lack of departmental commitment although it has strong political support. This support was reiterated at a meeting with the Secretary of State for Social Assistance and National Disasters who noted that in 2008—a difficult year in terms of the size of disaster events—the responses of the Ministries for Agriculture and Infrastructure had been inadequate, particularly in terms of allocated bud-

gets in response to activities. The new NDRM Policy is expected to clarify responsibilities of the departments.

A pragmatic institutional framework (involving government and stakeholder agencies across all levels) could give effect to the NDRM Policy. Such a program would include the development of legislation; the establishment of simple but explicit arrangements at the national, district, and suco (village) levels; support to the development of capacity at the organization and community level; the enhancement of hazard monitoring and analysis; and the development of disaster management and risk reduction plans across sectors and communities.

In the area of climate change adaptation, policies and institutional arrangements are being established. The Ministry of Economy and Development, through the NDES and NDIEA, submitted the first Initial National Communication in 2008 and established several thematic working groups to oversee the commencement of climate change planning.

The Initial National Communication of January 2008 is a starting point for addressing climate change adaptation in a coordinated manner. It notes nominal CCA activities in water supply and sanitation, agriculture, forestry, and food security, and some emissions mitigation activities. But still a range of gaps and challenges remain to be tackled, including the following:

- Lack of environmental policy;
- Incomplete environmental laws and regulations;
- Weak enforcement of the existing environmental regulations and laws;
- Lack of climate change regulations;
- Lack of experts specializing in climate change;
- Lack of climate change activities undertaken by the country in the past;



- Limited climate data and other meteorological data;
- Limited equipment for collecting meteorological data;
- Limited human resources to undertake climate change impacts assessment; and
- No climate change data on impacts, vulnerability, and adaptation options.

The Government of Timor-Leste is acutely aware of these issues and has included them in the Annual Action Plan of the Ministry of Social Solidarity (contained in Budget Paper No 1 of the General Budget of the State 2008). An aim of the Action Plan would be to include institutional and systemic development of the National Directorate of Disaster Management and the development of an efficient Disaster Management Service for reducing disaster risks in Timor-Leste. This is consistent with both the National Development Plan and the IV Constitutional Government Program. It shows political support and the policy commitment to disaster risk management.

The Government of Timor-Leste is a signatory to the Kyoto Convention. The Initial National Communication, prepared pursuant to UNFCCC requirements, indicates the nation's situation with respect to greenhouse gas emissions and provides a broad assessment of the vulnerabilities to climate change and adaptation measures that may be taken.

One of the CCA Thematic Working Groups is developing a NAPA with UNDP support and Global Environment Facility (GEF) funding. Development of the NAPA over an 18-month period would evaluate climate change risks and identify prioritized adaptation activities across a range of sector working groups, including the National Disaster Management Directorate.

The NAPA project development document sets out an organizational structure for the process under a National Project Director within the NDIEA. The structure comprises a Project Steering Committee, a Project Working Committee, a Project Implementation Unit headed by a National Project Coordinator, and 6 sectoral working groups. The Minister/Vice Minister of Economy and Development chairs the Project Steering Committee with Minister and Secretary of State representation from key CCA-related ministries and directorates. The Project Working Committee, comprising director-level officials, oversees the program and provides for cross-sector coordination. The 6 sectoral working groups address food security and agriculture, water quality and accessibility, forests coastal ecosystems and biodiversity, human health, human settlement and infrastructure, and natural and human-induced disasters. Mechanism for DRR/CCA coordination is reportedly lacking with limited departmental support at the operational level.

The objectives of the NAPA project include establishing the institutional structure, assessing district-level vulnerability to climate variability, identifying key CCA measures, developing proposals for priority activities, and preparing the NAPA document.

The project structure that is being established provides the basis for oversight and coordination of a wide range of organizations to make assessments of climate change vulnerability at the district level. The following constraints point to the need for a very pragmatic approach in defining the scope of achievable outcomes:

- Limited internal understanding of the climate data, which implies that external support will be needed to provide the core analysis for vulnerability assessments.
- Reported lack of capacity within many departments contributing to the sector working groups. New

programs should be part of existing programs.

- Lack of technical support for the national- and district-level assessments of vulnerability. Procedures will need to be supported toward a consistent outcome.
- Lack of district structures in the NDES and NDIEA. The project will depend on existing structures in other sectors (e.g., health, disaster management, agriculture, forestry, social) for inputs at the district level and community level. An institutional framework from the national to district to community level can be reinforced in disaster risk management and climate change adaptation.

Integrating disaster risk reduction and climate change adaptation into policy and planning as well as legislation and regulations is seen as a long-term common goal by the NDMD, the UNDP, and representatives of other national and international NGOs working on disaster management.

Many of the CCA impediments are similar to those for disaster risk management, including the lack of technical capacity within the NDES and NDIEA and more particularly within the other departments of the sectoral working groups, the lack of policy and legislative development, and the lack of program development. In the development plan, the NAPA should address many of these issues.

### Gaps

- *Lack of legislation to support the NDRM Policy.* The Secretary of State for Natural Disasters and Social Assistance observed that legislation to support the functions and obligations of the NDRM Policy, particularly to reinforce the areas of cross-sector coordination and the risk reduction function, is much needed.
- *Lack of an institutional/governance framework for disaster risk management for procedures across sec-*

*tors and levels.* Such a framework is necessary to give effect to the NDRM Policy, which extends to community level and would provide for the development of capacity and support to the community. Such a framework would also provide for integration with climate change adaptation.

- *Lack of professional capacity in the middle levels of government.* This is reportedly an issue across all departments and at the district level. The Secretary of State for National Disasters and Social Assistance identified a need for an on-going programmatic support over at least 5 years.
- *Lack of technical capacity.* The Secretary of State for Natural Disasters and Social Assistance noted that the need for technical assistance support and provisions to ensure the transfer of skills to relevant counterparts in these areas.
- *Limited consideration of DRR/CCA integration into policy, plans, legislation, and regulations.* In the period when Timor-Leste is rebuilding its state structures, there is an opportunity to initiate new policies, plans, and legislation early this process.

### Inter-government and agency coordination

The two sectors responsible for vulnerability and risk assessments—the Ministry of Social Solidarity and the Ministry for Economy and Development—report having good working relations. However, cooperation is at the working group formation stage, and integration is not being considered. Both sectors also report major capacity issues and difficulties in getting other government agencies actively involved.

With responsibility for disaster risk management, the Inter-Ministerial Commission for Disaster Management is expected to coordinate government activities. One of its functions is to allocate areas of activity and responsibility to the various departments and agen-

cies. The NDRM Policy sets broad functions at the district, sub-district and suco administration levels, and the NDMD is tasked with promulgating and implementing the policy and decisions of the Inter-Ministerial Commission. While there are significant capacity issues to constrain the activity arising from both the NDRM Policy and the NAPA development, the potential exists to coordinate this work. If coordination is successfully handled, it could provide for continuing development of policies and legislation, along with community strengthening DRR and CCA activities, through potentially a 10-year program.

In the area of climate change adaptation, the NAPA administrative structures are centered on the ministerial-level and secretary of state-level Project Steering Committee and 6 sectoral working groups. The effectiveness of these arrangements (that have no policy or legislative mandate to act with contributing agencies) for coordinating agency involvement has yet to be tested, but capacity considerations and reported experience indicate relatively low expectations. The CCA policy and internal resourcing structures are less developed than for disaster risk management, and many agencies will be expected to contribute to both areas.

Neither disaster risk reduction nor climate change adaptation have been addressed in district and sub-district planning. Although there appears to be understanding at the district level, neither human resources nor funds adequately reflect the scope and implications of hazards and risks as part of the normal operations of the district, sub-district and suco (village) administrations. The next step in DRM improvement is an institutional framework to allocate departmental functions (or develop them on the lower administrative levels) and to allocate functions and accountabilities explicitly to agencies. It is also a pre-requisite to provide for effective government agency coordination and DRM integration into policies and plans.

The National Disaster Management Directorate is

attempting to establish capacity in the districts to assist with climate events but the continuous call on their resources to provide relief is presenting a situation desperately in need of coordinated and sustained support.

### Gaps

- *Limited inter-governmental coordinating mechanisms to ensure whole-of-government involvement in disaster risk reduction and climate change adaptation.* This reflects the status of the re-establishment of the governmental processes. Government officials are aware of the need for coordinating mechanisms and are actively seeking donor support to address the issue.
- *There is a need for a policy discussion to consider the integration of DRR and CCA initiatives* and to establish a form of integration that meets the needs of each. Such a discussion should be based on DRM and NAPA development with technical assistance from the DRR, CCA, and governance perspectives.

### Planning and budgetary processes

The Government appears to have a well-structured national development planning and state budget process, and there is evidence of strong political and senior official commitment to it. The rigor and efficacy of the arrangements will be evaluated; but at present there still appears to be a lack of mid-level organizational commitment and poorly defined and developed institutional frameworks in the planning and budgetary processes.

The general state budget (dated December 18, 2007, refers to the Second National Development Plan) was set up to consolidate the Government's vision on the reduction of vulnerability to disaster and risk. The budget documents draw attention to the priority—the environment, reforestation and prevention of natural

disasters—of the 4<sup>th</sup> Constitutional Government program. This priority is addressed under Program Area 5, *Infrastructure and Improving Living Conditions*. Such a priority could be given action with the assistance of land-use zoning maps and vulnerable area mapping to help address disaster risk reduction and climate change adaptation in the context of natural and human-induced hazards. Considerable efforts in basic data collection will be essential to underpin such efforts.

A 15-month institutional strengthening program (US\$1.5-million) supports the NDMD. The International Organization for Migration is the executing agency, which, while making good progress on strengthening office programs and connections into the districts, observes the lack of technical DRM capacity that is limiting the value of the program. In these circumstances cross-sector advisory committees and working groups are unlikely to be internally effective and externally driven outcomes are likely to face implementation difficulties. Likewise, multiple short-term support projects are unlikely to generate internal capacity and sustainable commitment.

The generally sound policy development should be matched by delivery outcomes, which are now limited but can be addressed by a simple and clearly accountable institutional framework, as well as a long-term development program supporting internal capacity development.

The overwhelming plethora of issues the Government is presently facing limits the allocation of internal DRR and CCA resources. There is a significant risk of the NAPA project becoming an externally driven initiative. The Government is clearly concerned about the development of DRM and DRR arrangements throughout its districts; this issue is addressed in a platform of its National Development Plan and in a comprehensive policy. An internally driven initiative could be promoted by bringing together the DRR and

CCA activities, the development of DRM arrangements and capacity within a coordinated governance framework. This requires both internal and external funding between international agencies and donors to allow and facilitate this development.

### Knowledge, data, tools

Timor-Leste is a new nation in the process of building its structures, including the ones to provide for disaster risk management and climate change adaptation. Within the government, the understanding of constraints to national development posed by geophysical, climatic, and hydrological hazard and risks across sectors and communities is growing. However, the severe lack of data, tools, and capacity to quantify and interpret those risks is limiting to the potential means for integrating the knowledge into policy, analysis, strategy, and development planning and decisionmaking.

The National Directorate of Meteorology and Geophysics has a primary responsibility for the collection, collation, and analyses of meteorological and geophysical data. The Director of Meteorological Services sees the expansion of climate data monitoring as a high priority. This will entail long-term objectives needing donor support and technical advisory, including:

- Re-establishing a meteorological network, such as the provision and training of observers;
- Recovering, digitizing, analyzing, and storing data that was collected under previous administrations (Portugal and Indonesia); and
- Developing professional capacity in the meteorological forecasting and climate risk fields.

There are no hydrological monitoring stations operating in Timor-Leste. The impact is a lack of coherent and comprehensive set of data and information covering the national situation for water resources and

water-related risks, such as floods and droughts. Government officials believe that measures are being initiated to remediate the situation.

With regards to climatological information, the variability and extremes of rainfall are central to understanding the flood, drought, and water supply risks facing the country. The Dili Airport is the only fully operational meteorological station in Timor-Leste. The only rainfall intensity data coming from the Dili Airport are not representative of a country with highly diverse terrain. The Dili airport station is operated with the assistance of the Australian Bureau of Meteorology. The data is collected, processed, and analyzed for forecasting and for airport operational purposes. The Ministry of Agriculture and Arboriculture also collects rainfall data, which is forwarded to the Australian Bureau of Meteorology. The National Directorate of Meteorology and Geophysics does not collect these materials. Management of these and other historic data in a computerized database is needed, as well as automatic pluviometric rain gauges sited strategically in priority catchments.

Long-term records from a geographically representative set of rainfall and temperature recording stations are needed to build a picture of climatic variability and change. Such records are not available for Timor-Leste. Historic data may be available for some district-level rainfall stations from a more expansive pre-Independence network operated under the Portuguese and Indonesian administrations. Data from these historic stations should be sourced, acquired, collated, digitized and analyzed as essential to any new local weather data-recording and climate-monitoring network.

Earthquakes pose significant risks across Timor-Leste, and the broad seismic hazard recorded in past studies and experience is reasonably well understood. However, this understanding is not derived from comprehensive data since neither seismic hazard maps

nor an earthquake-monitoring network are available in Timor-Leste. Staff of the National Directorate of Meteorology and Geophysics understood that donors would provide assistance for establishing a seismic monitoring network. Earthquake measurements and seismic data are available from the Badang Meteorologic Geophysica in Jakarta and Japan.

The coastal communities of Timor-Leste are at risk from tsunami. Despite recognition of the risk, no governmental bodies in Timor-Leste have accurate data on tsunami occurrence. Some information may be available from the Governments of Portugal and Indonesia and other neighboring countries. In common with other Pacific countries, Timor-Leste has an opportunity for a paleo-tsunami study and collection of oral histories.

Cyclone tracking and early warning information is available from the Australian Bureau of Meteorology and other international bodies calculating the frequencies of cyclonic events. However, due to lack of additional data and professional capability within Timor-Leste to undertake analysis, the Director of the Meteorological Service cannot provide full risk estimation and evaluation. The limited professional capacity is illustrated by the fact that there are no trained meteorologists in the emerging Bureau of Meteorology; four meteorological observers work at the airport and four geophysical staff in the Bureau with support of six administrative staff.

Neither systematic tidal measurements nor sea-level rise monitoring are carried out for Timor-Leste in any port of the Pacific or Indian Ocean. The monitoring is necessary to gather knowledge of the long-term implications of sea-level rise on the coastal systems of the country.

Overall, minimal monitoring or data analysis is being conducted. Although data collection is taken



into consideration, lack of resources and professional capacity is prohibiting quick improvement. Hazard management in Timor-Leste relies on support of limited climatological, hydrological, and geophysical information. Thus, future risk assessments are severely limited. Its affect will be realized in carrying out projects that are intended to mainstream climate proofing into national and district planning and development policy and projects, such transport infrastructure and other construction works for tourist resorts and related facilities. Despite severely limited capacities, the Ministries of Infrastructure and Economy and Development are slated to rectify this situation according to government officials.

Some initial disaster hazard mapping has been undertaken. The GIS-based material is available from UNDP, however, the maps cannot be reproduced in the NDMD. The maps indicate the types of hazard and geographic distribution of areas at risk. “Hot spots” are highlighted and areas for priority ranking in relation to potential disasters are easy to identify. In 2008, the UNDP provided simple maps on areas that were prone to flooding.

Scarce information exists on the general biophysical conditions of Timor-Leste showing land forms, soils, slope, and vegetative cover. Also, no socio-economic assessment of populations, land use, and infrastructure at risk is available. Such information needs to be collected, systematically geo-referenced, and digitized for application to spatial analyses of hazard risks faced by urbanized and non-urban areas.

At the national level, the understanding is high for needed emergency response to earthquakes, cyclones, and floods, and their impact on the country’s development. The underlying causes of food and water security are also well understood. However, there is a severe lack of environmental health epidemiological data and limited capacity to collect and analyze the

necessary information to enable appropriate risk assessments to be included in the disaster management processes. This situation requires priority action.

### Gaps

- ***Lack of technical capacity in the areas of hazard monitoring and assessment*** at three levels: (a) basic capacity development to take full advantage of available information from neighboring countries and enhance those relationships, (b) enhancement of the in-country monitoring to provide for basic differentiation of regional monitoring and for early warning, and (c) capacity development to provide for hazard data analysis and projection.
- ***Lack of capacity to understand and process core climate data and provide continuing collection of DRM and CCA data.*** This need should be addressed in short term, including in the development of the NAPA; bi-lateral arrangements and support will be required.
- ***Loss of climate and hydrological monitoring network*** due to the destruction of monitoring and collection systems throughout the Timor-Leste. With the exception of Dili Airport, there is no equipment for the systematic collection of climatological data, no hydrological network, and no seismic monitoring.
- ***Lack of tidal data and systematic monitoring of sea-level rise.*** The standardized collection, collation, and electronic storage of tidal records as part of the systematic measurement of water-level oscillation is essential for determining and monitoring the changes in sea level that could be attributed to global warming.
- ***Lack of historical time-series data for risk assessments*** due to the removal of data records from the country. Lack of data provided by climatological, hydrological, and geophysical systems inhibits analyses of frequency and magnitude of extreme events.

- ***Lack of spatially distributed data sufficient to construct hazard maps at a scale appropriate for planning and risk reduction.*** For climatic data, especially rainfall, there is a need for spatial interpolation to fine resolution. The lack of spatially interpolated baseline climatologies limits the ability to analyze scenarios of climate changes for the purposes of climate-risk, impact, and adaptation assessments.
- ***Lack of adequate data monitoring networks to meet future needs of climate vulnerability and risk assessments.*** Across the range of geophysical, hydrological, and climatological hazards, the absence of data collection capability will negatively influence disaster risk management and climate change adaptation. Concerted efforts are necessary to review and re-establish an enhanced network.
- ***No procedures or capacity for systematic and consistent collection of disasters damage and loss data.*** The lack of disaster impact data is a constraint to economic analyses of the benefits of disaster risk reduction and climate change adaptation. Evaluation of benefits and costs of risk reduction, and therefore investments by government and donors, requires systematic procedures and appropriate institutional support. This deficiency is recognized, and donor assistance to remediate the situation will be welcomed.
- ***Lack of current and comparable land use and socio-economic data and information at appropriate sub-district, suco, and town scales.*** This is required to accurately assess the costs of responding to catastrophic events and the recovery phases where infrastructure and housing needs repair or replacing.
- ***Lack of capacity and data to undertake health risk analysis.*** This is an important type of data for disaster management and response procedures at national and district scales.

## Vulnerability and risk assessments

Timor-Leste faces a wide range of natural and human-induced hazards, comparable to the situation of Papua New Guinea and Vanuatu. Natural hazards include earthquakes, landslides, tsunamis, tropical cyclones, storm surges, floods and tidal-induced back-flooding, droughts, bushfire, and coast erosion. Risks stemming from these hazards are further exacerbated by:

- Climatic variability;
- Increasing population;
- Development of settlements and infrastructure at vulnerable sites in rural, urban, and coastal locations; and
- Sea-level rise and coastal retreat.

Government departments and the nongovernment sector share a sound understanding of the risks and their implications, as well as a strong commitment to address these issues using national, international donor, and nongovernment sector resources. However, no assessments are available to estimate the following:

- Degrees of risk,
- Number of communities at risk in specific locations,
- Key infrastructure at risk and its location, and
- Socio-economic implications of the risks.

As reported by UNDP and NDMD officials, the Government of Timor-Leste is facing serious challenges in assessing the national impact of disasters and all different types of disaster events across all 13 districts at various times of the year. Primary among impacts is crop damage caused by monsoonal winds, floods, and landslides. Also, crop failure coinciding with dry periods between plantings and locust infestations are not uncommon. Root causes for disaster and conflicts are inextricably linked to recovery issues. Recovery issues include food insecurity, lack of access to water, fragile livelihoods, volatile public

security, psycho-social conditions such as trauma, lack of communications, lack of environmental sustainability, justice, and governance issues (UNDP 2008). Insufficient institutional and budget execution capacity to implement interventions in those areas are limiting the country's development.

UNDP concludes that new measures should address the following:

- Capacity strengthening and community-based disaster risk management,
- Prevention and mitigation measures,
- Preparedness and response, and
- Delivery of post-disaster recovery services.

In the area of climate change adaptation, preliminary assessment of climate change vulnerabilities and adaptation options are required on a district-by-district basis. It should be carried out as part of the on-going NAPA process.

As noted above, the biggest impediment to the development of detailed risk and vulnerability assessments and maps is the lack of climatological, hydrological, and geophysical data. Digital elevation models are essential for assessment of some hazards, like coastal and river flooding, bushfires, tsunamis, and sea-level rise. This need is clearly recognized by the NDMD and further actions are considered to supplement existing coarse resolution maps with high-resolution mapping of vulnerable areas across the country. The NDMD officials suggested that this activity would require outside support.

### Gaps

- *Lack of vulnerability and risk assessments and maps required to plan and implement DRR and CCA activities, and lack of models and tools for analyzing and interpreting data for purposes of vulnerability and risk assessments, risk profiles, and mapping.* Filling this gap is a fundamental requirement for

advancing concerted actions for risk reduction in Timor-Leste. Even when data are available, the lack of tools and human capacity prohibits the data to be translated into usable information.

- *Lack of identified priorities for vulnerability and risk assessments.* Timor-Leste has only started building its vulnerability and risk assessment capabilities. While sector priorities were identified in the NAPA project document, a systematic prioritization of hazards for the populations, infrastructure, and areas at-risk—the hotspots—is a basis for developing vulnerability and risk assessments to support town planning and rural development.

### Monitoring and evaluation

No systematic monitoring and evaluation of risk reduction efforts is available in Timor-Leste. In the area of disaster risk reduction, the 2008 NDRM Policy provides for the integration of DRM activities into plans and development programs across all sectors. The Policy notes a need for setting targets and outcome measures; however, it is too early to evaluate its implications.

In the area of climate change adaptation, the monitoring and evaluation framework is even less developed with no policy document; the cross-sector coordination arrangements are being established. The NAPA development document provides for the establishment of monitoring and evaluation mechanisms over 18 months within UNDP and GEF procedures. This is also the time when integration of CCA with DRM consideration could be considered.

### Gaps

- *Lack of monitoring and evaluation reporting with mechanisms to promote improvement.* There is an opportunity to build these measures into emerging governance arrangements and integrate DRR/CCA measurement parameters. This will depend

on the provision of appropriate DRR/CCA technical/governance support.

- *Lack of an institutional framework for DRM within which development planning and evaluation parameters can be set across sectors and levels.* Such a framework is necessary to give effect to the NDRM Policy that extends to the community level. It would provide for CCA integration, which lacks a district-level structure within the Secretariat for the Environment.

Filling these gaps is fundamental, from moving beyond uncoordinated, ad hoc activities to measuring progress and providing for future program adjustment based on outcomes.

### **Awareness raising and capacity building**

As an emerging post-conflict nation, Timor-Leste is facing limitations across all sectors in professional, technical, and administrative capacity. Discussions with officials of the NDMD, the Ministry for Environment, the European Union, as well as UNDP, AusAID, and NGOs, indicate that there are substantial systemic problems in developing professional and technical expertise needed to build DRR/CCA capacity. Specifically, areas where the country has weakest capacity include:

- Monitoring environmental conditions such as weather and stream flows;
- Knowledge of the theory and practice of disaster management and climate change;
- Data analysis and interpretation for vulnerability and risk assessments.

For Timor-Leste in its development as a new country, the most profitable strategic approach is to build long-term professional and technical capacities and

competencies rather than simply recruiting people to fill immediate job vacancies without ensuring adequate pre-employment and continuing professional development. Having been identified as a high priority by public and nongovernmental bodies, capacity building could be tackled head on if external consultants were used to build in-country capacity, to carry out the work and prepare for further applications. As a stakeholder observed in discussions, “We want people to work with us, not for us.”

For years the NDMD has been conducting a public hazard and preparedness awareness program. It distributes information on risks and climate change disasters. The program involves training and awareness building of personnel within government departments, as well as district and sub-district officials. The awareness and training has also involved schools, church groups, and community-based organizations. Although no outside funding has supported the activities, training had been provided to some 700 people over the past 4 years. However, with limited resources, just 4 of the 13 districts could be considered to have reasonably benefitted from the program. There is an expectation that the NDMD will receive budget support for 2009 activity in 4 districts. Planning is underway and resources are to be mobilized to extend the activities to additional districts before rolling the program out nationally.

The assessment team visited the District of Ermera where district administrators demonstrated a high degree of understanding of hazards and disaster management and an awareness of climate change issues. However, no resources to provide support or travel to communities on a regular basis were available.

The NGOs are playing an important role in addressing the environmental health dimensions of disaster response. Some NGOs provide DRM support at the district and sub-district level of 9 districts. Other

NGOs are establishing district and community programs for disaster management development in some districts. These activities would benefit from a national and district institutional framework since until recently NGO activities had limited connection with the NDMD. The connections have been strengthened with adoption of the NDRM Policy but have not been formalized. The NGOs have a positive view of the NDRM Policy; however, they considered it optimistic and perhaps not strong enough to penetrate into the communities. The NGOs have recently established a connection with the NDMD coordinating body for community-based DRM activities. The NGOs would welcome development of a DRM framework to work together with the Government within a coordinated 5-year program.

Many NGOs prepared proposals for funding in 2008 (UNDP Transitional Strategy Appeal). The DRM component of this totals US\$5.8 million in 11 projects over 18 months; the funding status is unknown.

### Gap

- *Lack of institutional and planning framework for coordination of capacity development across national, district, and community levels is a strong impediment to development of DDR and CCA activities.* Sustainable capacity development at the district and community levels requires an institutional framework with allocated functions and procedures for each program. It is also useful to have a longer-term (5-year) development plan within which short-term projects can be more effective. Ad hoc, 6-month projects, which attempt to provide community DRM solutions, proved unrealistic. As proven in other countries, comprehensive programs take several years to be developed.

### Coordination among donors and key stakeholders

With the multitude of issues faced by Timor-Leste, many donors, stakeholders, and NGOs are active in the country. Coordination of funding for DRR/CCA activities is however lacking. There is widespread acceptance among donors and stakeholders of the usefulness of some form of integration between these activities. An agreement among donors and key stakeholders would be required to facilitate the processes necessary to differentiate activities within an integrated framework.

The UNDP plays a significant role in coordinating NGO activities, as evidenced in the 2008 Transitional Strategy and Appeal through which it supports national responses to humanitarian and recovery needs of internally displaced people and vulnerable communities and strengthens disaster management in Timor-Leste. The UNDP pursued 67 short-term projects totaling US\$33.5 million. This included US\$5.8 million for 11 DRM initiatives. The UNDP is also addressing development of National Recovery Policy and Disaster Operation Centers at the national and district levels.

While the Transitional Strategy and Appeal might be perceived as too optimistic in its scope and timing, it could provide the basis for development of a coordinated and sustained program over a minimum of 5 years. Such a program should run in parallel with the emergency assistance and humanitarian recovery programs recognizing national and community priorities, as well as limited absorptive capacity. In the area of climate change adaptation, UNDP is helping prepare the NAPA for Timor-Leste.

The European Union plays a significant role in rural development and infrastructure. It encounters difficulty in mobilizing internal interest in the



programs, due to low capacity issues. The European Union also sees a need for better coordination among donors and government agencies. In addition, the Asian Development Bank could fund infrastructure programs with elements of disaster risk reduction; however, the scale of the programs has not yet been addressed.

AusAID provides significant DRM support to the NDMD. Additionally, NGOs coordinate community initiatives through the Community-based DRM Working Group. Various programs, such as FAO food production and distribution assistance, are needed to boost food security, especially in areas that are also vulnerable to extreme weather events (floods and droughts).

Both the NDMD and the Environment Directorates appeal to donors to move beyond short-term project support to addressing capacity development in line with the Government priorities.

### Gap

- *There is a need for better recognition and coordination of the long-term development needs on a programmatic basis and processes to facilitate DRM and CCA funding within an integrated framework.* The issue is addressed in the country; leadership from the donors and stakeholders will help facilitate the outcome. ❖

## Opportunities for Investment

This Timor-Leste assessment highlights the current country status, gaps, opportunities and barriers related to national policies, strategies, plans, and activities with regard to the management of natural hazards. It also focuses on the importance of an enabling environment for a comprehensive risk management approach and the capacity to undertake such an approach by strengthening institutional arrangements, human resources, public awareness, information, and national budget allocations.

The country assessment shows that Timor-Leste is facing many critical issues and is severely limited in its internal capacity to address them effectively. Many donors, stakeholders, and NGOs are contributing to a wide range of activities that require government interaction. The Secretary of State for Natural Disasters and Social Assistance stresses that help is needed at a technical and governance level to develop internal capacity. On-going engagements and relationships are necessary to embed institutional and capacity development over a 5-year period or longer. Officials of the Ministry of Economy and Development working on climate change echo this call. Both agencies note the importance of the Government providing for appropriate counterparts for development. Programs therefore should be established and conducted at a level and pace appropriate to the counterpart capacity available. In some areas, such as the Meteorological Service, external technical support will be needed to establish the basis for monitoring. In these areas, programmatic bi-lateral support might be most appropriate.

The Secretary of State for Natural Disasters and Social Assistance has identified the following needs for assistance in implementing the NDRM Policy. The Government could choose to pursue these options with its own resources, with support from the international donor community, and/or from international financial institutions such as the Asian Development Bank and the World Bank.

- Technical assistance support for development of the DRM institutional framework and legislation—potentially World Bank funded.
- Technical assistance support for DRM planning across government sectors and, associated, technical assistance for vulnerability assessment—potentially World Bank and donor funded.
- Technical assistance support for hazard monitoring, data management and mapping—potentially supported by a bi-lateral arrangement.
- Professional development of staff in areas of hazards, vulnerability assessment, and organizational management for DRM—potentially donor/stakeholder sponsorship for targeted professional development programs both internal and external.
- Support for the development of district and sub-district structures and capacity for DRM—potentially donor and stakeholder support for NGO activities within a structured framework.

In narrowing the field of project opportunities for Timor-Leste, the assessment team considered the needs identified by the Secretary of State and other activities discussed in the assessment. In the area of climate change adaptation, the UNDP-supported development of the NAPA will need specific support in policy and regulatory development, and planning and project management. Professional development support for national capacity development is an area of immediate attention, as outlined in the UNDP-supported National Capacity Development Action Plan for Global Environmental Management (February 2007). Administrative coordination mechanisms through thematic and sector working groups are unlikely to succeed without institutional mechanisms for integration of DRR/CCA activities. Technical assistance is required to support the community-based DRM activity that is tackling local-level vulnerability such as river management measures for reducing flood

risk to low lying coastal villages adjacent to short flood prone rivers. Donor funding is needed for a paleo-tsunami study and collection of oral histories that could be undertaken in collaboration with the National University.

From all these considerations the following four opportunities for investment are proposed for consideration:

- (1) *Development of a simple DRR/CCA institutional and policy framework and organizational mechanism, which allows for activities to be differentiated within an integrated framework.* The framework would allocate functions and accountabilities across agencies and sectors and establish institutional relationships and procedures for disaster risk management, disaster risk reduction, and climate change adaptation. The program would include development of legislation; establishment of arrangements at the national, district, and suco (village) levels; development of capacity at the organization and community level; enhancement of hazard monitoring and analysis; and development of disaster management and risk reduction plans across sectors and communities. The arrangements would be driven by Government priorities
- (2) *Development of meteorological monitoring capability with data management, analysis, and forecasting systems and skills.* This would allow for initial analysis of available hazard data and programmatic support to reinforce monitoring networks

and develop internal capacity. It would most appropriately be provided through a bi-lateral development arrangement.

- (3) *Support for NGO community-based DRM programs at the district, sub-district, and suco levels within a structured institutional framework as developed in priority.* This could include technical support for developing river management practices to reduce future flood risk to low-lying communities adjacent to short flood prone coastal rivers. This would integrate the community-based DRM programs into the proposed institutional framework and become part of a programmatic, capacity development initiative.
- (4) *Development and support for a range of professional initiatives for cross-sector staff in areas of hazards, vulnerability assessment and organizational management.* This would provide a programmatic commitment to capacity development for staff across sectors within CCA and DRM programs and would include both internal and external initiatives.

These priority areas are set out as 4 proposals in Annex A. These are intended to provide preliminary information on required actions and tasks, as well as their indicative costs. While these priorities reflect a great deal of consultation and analysis, the impediments and gaps previously noted in the report could create serious obstacles if they are not addressed as part of the program preparation process. ❖

## Annex A. Proposals for Support in Timor-Leste

| <b>Proposal</b>          | <b>TL1 Support the development of a practical policy and institutional framework and organizational mechanism for DRM and CCA to provide the basis for coordinated development of capacity</b> |   |  |                         |   |
|--------------------------|--|---|--|-------------------------|---|
| <b>Country/sector</b>    | Timor-Leste; multi-sector  |   |  |                         |   |
| <b>Goal and purpose</b>  | An explicit and sustainable set of arrangements for developing DRR and CCA capacity through national agencies, districts and into communities with strong linkages to civil society.           |   |  |                         |   |
| <b>Scope</b>             | National, district and local arrangements for government, local government and civil society   |   |  |                         |   |
| <b>Lead agencies</b>     | NDRMIC, NDMD and Ministry of Economy and Development with NDES/NDIEA   |   |  |                         |   |
| <b>Cost and duration</b> | US\$240,000 over 3 years   |   |  |                         |   |
| <b>Hazards targeted</b>  | <b>Risk reduction measures</b>   | <b>Key gaps/barriers</b>  | <b>Tasks</b>   | <b>Cost US\$k</b>       | <b>Time-frame</b>   |
| All hazards              | Multiple, according to hazard and sector at risk   | Commitment to the institutional framework, capacity at the national and district levels, and resources to provide sustained support | Develop institutional framework for DRM across sectors and levels allocating functions, accountabilities and arrangements, including CCA<br><br>Develop legislation to give effect to the framework and the new national disaster plan<br><br>Facilitate the establishment of national and provincial structures with members and NGOs in developing terms of reference, statements of purpose, and exercising – 3 months technician assistance per year for 3 years<br><br>Support NGOs in implementation of the framework for local arrangements and civil society | 40<br><br>50<br><br>150 | Year 1<br>2 months<br><br>Year 1<br>3 months<br><br>Years 1-3 |

*Continues*

### Annex A. Proposals for Support in Timor-Leste *Continues*

|                          |   |   |
|--------------------------|---|---|
| <b>Proposal</b>          | TL2   | Development of meteorological monitoring capability with data management, analysis and forecasting systems and skills   |
| <b>Country/sector</b>    | Timor-Leste;  | multi-sector  |
| <b>Goal and purpose</b>  | An established capacity for meteorological monitoring and the generation of information responsive to the needs of key sectors established capacity for meteorological monitoring and the generation of information responsive to the needs of key sectors. |   |
| <b>Scope</b>             | National  |   |
| <b>Lead agencies</b>     | Meteorological Services, in liaison with other agencies   |   |
| <b>Cost and duration</b> | US\$250,000 over 3 years  |   |
| <b>Hazards targeted</b>  | <b>Risk reduction measures</b>  | <b>Key gaps/barriers</b>  |
| All hazards              | Availability of meteorological information  | Capacity, equipment, skills for analysis and forecasting  |
|                          |   | <b>Tasks</b>  |
|                          |   | Build capacity of local Met Services through technical assistance, training, and provision of equipment   |
|                          | <b>Cost US\$k</b>   | <b>Time-frame</b>   |
|                          | 100   | Year 1<br>4 months  |
|                          | 150   | Years 2-3<br>6 months   |
|                          | 250   | Years 1-3   |
| <b>Proposal</b>          | TL3   | Support for non-governmental community-based disaster risk management program at the district, sub-district and village levels  |
| <b>Country/sector</b>    | Timor-Leste;  | multi-sector  |
| <b>Goal and purpose</b>  | Consolidation of existing arrangements for developing DRR and CCA capacity and activities within districts and into communities   |   |
| <b>Scope</b>             | District, local government and civil society  |   |
| <b>Lead agencies</b>     | NDMD and Ministry of Economy and Development with NDES/NDIEA  |   |
| <b>Cost and duration</b> | US\$1 million over 3 years  |   |
| <b>Hazards targeted</b>  | <b>Risk reduction measures</b>  | <b>Key gaps/barriers</b>  |
| All hazards              | Multiple, according to hazard and sector at risk  | Emerging community-based DRM programs need strengthening  |
|                          |   | <b>Tasks</b>  |
|                          |   | Strengthen institutional arrangements for government support to community-based DRR activities.<br>Support NGOs and local communities in the implementation of community-based DRR activities |
|                          | <b>Cost US\$k</b>   | <b>Time-frame</b>   |
|                          | 200   | Years 1-3   |
|                          | 800   |   |



## Annex A. Proposals for Support in Timor-Leste

|                          |  |   |  |                   |  |
|--------------------------|--|---|--|-------------------|--|
| <b>Proposal</b>          | TL4 Development and support for a range of professional development initiatives for disaster risk management, climate change adaptation and cross sector staff in areas of hazards, vulnerability assessment and organizational management for disaster risk management and climate change adaptation. |   |  |                   |  |
| <b>Country/sector</b>    | Timor-Leste; multi-sector  |   |  |                   |  |
| <b>Goal and purpose</b>  | Increased understanding of DRR and CCA in key agencies and increased skills of key staff   |   |  |                   |  |
| <b>Scope</b>             | National, district and local government, civil society   |   |  |                   |  |
| <b>Lead agencies</b>     | NDRMIC, NDMD and Ministry of Economy and Development with NDES/NDIEA   |   |  |                   |  |
| <b>Cost and duration</b> | US\$250,000 over 3 years   |   |  |                   |  |
| <b>Hazards targeted</b>  | <b>Risk reduction measures</b>   | <b>Key gaps/barriers</b>                                  | <b>Tasks</b>   | <b>Cost US\$k</b> | <b>Time-frame</b>  |
| All hazards              | Multiple, according to hazard and sector at risk   | DRR and CCA management skills in key agencies and sectors | Identify priorities for DRR and CCA management skills development in key sectors<br>Develop and implement training programs<br>Improve organizational management | 100<br>150<br>250 | Year 1<br>4 months<br>Years 2-3<br>6 months<br>Years 1-3 |

## Annex B. Project Team and People Consulted

### *Project team*

|                |                        |
|----------------|------------------------|
| John Norton    | Consultant New Zealand |
| Peter Waterman | Consultant Australia   |
| Supported by   |                        |
| Darian Clark   | AusAID                 |

### *Persons consulted* (Country visit, June 9-12, 2008)

|                        |   |
|------------------------|---|
| Jacinto Gomes de Deus  | Secretary of State for Social Assistance and Natural Disasters  |
| Francisco do Rosario   | Director, NDMD  |
| Aurelio Guterris       | Advisor to Secretary of State for Social Assistance and Natural Disasters, Prof. of Planning National University of Timor-Leste |
| Francis Barns          | Advisor to NDMD, International Organisation for Migration   |
| Abilio da Fonseca      | National Advisor, NDIEA   |
| Terencio Moniz         | Director, Meteorology and Geophysics  |
| Vitor dos Santos       | District Administrator, Emera District  |
| Antonio Franco         | Country Manager, World Bank   |
| Natalie Mckelleher     | 2nd Secretary, AusAID   |
| Jose Perreira          | AusAID  |
| Pedro Aquino           | AusAID  |
| Guglielmo Colombo      | European Union  |
| Hiroko Takagi          | Deputy Country Director, UNDP   |
| Joana de Mesquita Lima | UNDP  |
| Ruth Maria Jorge       | UNDP  |
| Nicholas Russell       | UNDP – Recovery Advisor to Deputy PM  |
| Kevin Austin           | Human Securities International  |
| Lynne Kennedy          | Oxfam   |
| Jay Maheswaran         | Austcare  |
| Richard Markowski      | Catholic Relief Services  |
| Maria Fellizar-Cagay   | CARE International  |
| Tapan Barman           | CONCERN   |

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*\*In bold, GFDRR Donors*