
National Disaster Risk Management Plan

Government of the Democratic Republic of Timor-Leste

October 2005

Not to be reproduced without permission of NDMO.

This document is the National Disaster Risk Management Plan based on a situation analysis of natural and human-induced disasters in Timor-Leste. In eight parts, it describes risk reduction strategies within sustainable development to confront different types of disaster, and examines the various gaps and capacities to adequately address disaster risk management in Timor-Leste. The plan outlines different practical approaches to help decision-makers and humanitarian personnel prevent or at least limit the immediate and long-term effects of various types of disaster on different groups of affected populations.

Minister of Interior

Civil Protection Directorate

National Disaster Management Office

October 2005

Dili, Timor-Leste

TABLE OF CONTENTS

List of Figures

Figure 1. A Framework for Disaster Risk Reduction	23
Figure 2. National Disaster Risk Management Structure	29

List of Tables

Table 1. Disaster Risk Management Responsibilities of Departments/Agencies	30
Table 2. Operational Response Roles and Tasks of Departments/Agencies.....	31

FOREWORD	4
-----------------------	----------

ACKNOWLEDGEMENTS	5
-------------------------------	----------

ACRONYMS.....	6
----------------------	----------

TERMINOLOGY	7
--------------------------	----------

PART ONE: INTRODUCTION	16
-------------------------------------	-----------

INTERNATIONALLY ACCEPTED PRINCIPLES OF DISASTER RISK MANAGEMENT (DRM)	16
---	----

KEY GUIDING PRINCIPLES FOR DISASTER RISK MANAGEMENT IN TIMOR-LESTE	17
--	----

MAIN RISKS IN TIMOR-LESTE	19
---------------------------------	----

ASSESSMENT OF RISK	20
--------------------------	----

A PLAN TO ADDRESS TIMOR-LESTE'S RISKS	20
---	----

DISASTER RISK REDUCTION FRAMEWORK	20
---	----

THE SOCIO CULTURAL CONTEXT OF THE DISASTER REDUCTION FRAMEWORK	24
--	----

PART TWO: ORGANISATION.....	26
------------------------------------	-----------

INSTITUTIONAL BASIS OF THIS PLAN.....	26
---------------------------------------	----

ORGANISATIONAL STRUCTURE	26
--------------------------------	----

DECLARATION OF A STATE OF DISASTER	26
--	----

NATIONAL DISASTER RISK MANAGEMENT COMMITTEE (NDRMC)	27
---	----

DISASTER RISK MANAGEMENT RESPONSIBILITIES OF DEPARTMENTS/AGENCIES	30
---	----

OPERATIONAL RESPONSE ROLES AND TASKS OF DEPARTMENTS/AGENCIES	31
--	----

NATIONAL DISASTER MANAGEMENT OFFICE (NDMO)	32
--	----

JOINT NATIONAL DISASTER OPERATION CENTRE (DOC).....	33
---	----

DISTRICT, SUB-DISTRICT AND VILLAGE ARRANGEMENTS	35
---	----

RELATIONSHIP WITH SUB-PLANS AND CONTINGENCY PLANS	36
---	----

PART THREE: PREPAREDNESS	39
---------------------------------------	-----------

PREPAREDNESS MEASURES	39
-----------------------------	----

PART FOUR: HAZARD AND VULNERABILITY ANALYSIS AND EARLY WARNING.....	41
--	-----------

HAZARD AND VULNERABILITY MONITORING AND ANALYSIS	41
--	----

REGIONAL EARLY WARNING MONITORING AND ANALYSIS	41
--	----

EMERGENCY AND DISASTER REPORTING AND COMMUNICATION TO THE PUBLIC	42
--	----

PART FIVE: EMERGENCY MANAGEMENT	45
--	-----------

SAFE REFUGES AND EVACUATION PLANS	45
---	----

POST DISASTER SURVEYS.....	45
----------------------------	----

INTERNATIONAL ASSISTANCE	46
--------------------------------	----

CUSTOMS, IMMIGRATION AND QUARANTINE	46
---	----

FINANCIAL CONSIDERATIONS.....	46
-------------------------------	----

PART SIX: AWARENESS RAISING	48
PART SEVEN: RECOVERY AND KNOWLEDGE DEVELOPMENT	50
DAMAGE ASSESSMENT REPORTS AND RECOVERY ACTIVITIES.....	50
POST-DISASTER REVIEW	50
OPERATIONAL DEBRIEFINGS	51
PART EIGHT: CAPACITY BUILDING NEEDS AND TOOLS	52
GUIDING PRINCIPLES FOR TRAINING	52
CAPACITY BUILDING TOOLS	54

List of Annexes (Note: These Annexes are in a separate document)

- ANNEX 1: HAZARD CONCENTRATION INDEX MAP
- ANNEX 2: EARTHQUAKE EPICENTRES IN THE TIMOR-LESTE AREA 1973-1999
- ANNEX 3: TSUNAMI HAZARD MAP FOR TIMOR-LESTE
- ANNEX 4: HAZARDS AND THREATS THAT CAN AFFECT TIMOR-LESTE
- ANNEX 5: DIFFERENCES BETWEEN EMERGENCY ASSISTANCE AND DISASTER RISK REDUCTION STRATEGIES
- ANNEX 6: NATIONAL ACTIVATION SYSTEM
- ANNEX 7: TOOLS - FLASH REPORT AND INITIAL REPORT FORMS
- ANNEX 8: ISSUES TO BE ADDRESSED CONCERNING DISASTER RISK MANAGEMENT IN TIMOR-LESTE
- ANNEX 9: CONSIDERATIONS RELATING TO DISASTERS AND EMERGENCIES CAUSED BY SPECIFIC HAZARDS
- ANNEX 10: LIST OF CONTACTS

FOREWORD

This National Disaster Risk Management Plan (NDRMP) aims to further develop and strengthen national response capabilities in disaster-prone Timor-Leste. It will enable the country to better prepare for and respond to natural and technological disasters as well as human-induced emergencies. It has eight parts that have been designed to present theoretical and practical core concepts that can be applied to East Timorese realities. The development of the NDRMP incorporates important concepts of the disaster risk reduction framework developed by experienced disaster risk management field personnel.

Part One provides a broad overview of the key guiding principles and framework of disaster risk management. The NDRMP uses the all-hazards approach. A section on disaster risk management including risk assessment and analysis, risk management and risk communication is included. Annexes offer a matrix of the relevant disasters that the country should be prepared for as well as risk maps plotting disasters that have occurred in Timor-Leste and the surrounding region.

Part Two presents the organisational structure for disaster risk management in Timor-Leste and matters related to relevant policy and legislation. Timor-Leste's network for disaster risk management is shown from the national level through to the sub-district and village levels. Roles and responsibilities of various departments and agencies are outlined.

Part Three discusses the importance of preparedness measures at national, district, sub-district and community levels.

Part Four focuses on hazards and vulnerability monitoring and analysis and on early warning systems. This includes, in relation to tsunamis, interim special solutions until the Tsunami Information Network for the Indian Ocean is operational. Part Four also looks at procedures for reporting disasters and for communication of warnings to the public.

Part Five discusses emergency management, including evacuation plans and the recommended procedures for assessing and communicating the immediate impact of a disaster. It also looks at coordination of international assistance when this is required.

Part Six focuses on awareness raising and public education campaigns in relation to disaster preparedness, response and recovery. It identifies target audiences and various community-based approaches for raising awareness.

Part Seven focuses on the management of recovery activities and what can be learnt through reviewing disaster responses. It discusses damage assessment questionnaires that look at the full impact of a disaster and also looks at post-disaster reviews and debriefings and how these are used to improve plans and procedures.

Part Eight focuses on capacity building in relation to disaster risk management. It includes principles for training and offers a generic package of tools that can be useful to build up skills at all levels.

ACKNOWLEDGEMENTS

The following institutions provided support during the time it took to complete this plan: the UNDP provided technical assistance to complete this project; Oxfam provided financial and human resources support; the WFP provided cooperation and coordination assistance in various vulnerability assessments; USAID provided various forms of financial support; AusAID and NZAID provided human resources for capacity building of NDMO.

The National Disaster Risk Management Plan was developed and focused on a new disaster risk reduction framework. Its content was updated by the NDMO professional team comprised of Dr Jane S.P. Mocellin (UNDP/NDMO National Disaster Reduction Advisor), Dr Aurelio Guterres (NDMO Civil Society Liaison Support Consultant) and a consultant Dr H. Iskandar Leman.

The NDMO wishes to express thanks to the attendees of the National Consultation Workshop held in December 2004 whose members commented on a draft plan and delineated the priorities of disaster risk reduction and overall management for the next three years. Thanks are also extended to a number of agencies (Oxfam, Care and UNICEF) who assisted NDMO in the final revisions and editing of the plan, to the Government, and in particular to Line Ministries, the Office of Promotion and Equality of Women, the Secretary of Defence, and the F-FDTL, and to UNMISSET Security for their contributions to this plan.

ACRONYMS

ADPC	Asian Disaster Preparedness Centre
CVTL	Cruz Vermelha de Timor-Leste (East Timorese Red Cross)
DA	District Administrator - District Disaster Coordinator
DAMS	Disaster Assistance Management System (see SUMA)
DDC	District Disaster Coordinator (District Administrator)
DDMC	District Disaster Management Committee
DOC	Joint National Disaster Operation Centre
DMIS	Disaster Management Information System – hazard, risk and vulnerability data and geographical information system at the NDMO
F-FDTL	Falantil-Forces of Defence Timor-Leste
GIS	Geographical Information System
GTL	Government of Timor-Leste
NCMF	National Crisis Management Framework
NDC	National Disaster Coordinator
NDRMC	National Disaster Risk Management Committee
NDMO	National Disaster Management Office
NDRMP	National Disaster Risk Management Plan
NGO	Non-governmental Organisation
NSA	National Security Advisor
NSC	National Security Council
PKF	Peace Keeping Force
PNTL	National Police of Timor-Leste
SDA	Sub-District Administrator
SDDC	Sub-District Disaster Coordinator
SDDMC	Sub-District Disaster Management Committee
SOP	Standard Operating Procedures – a guide for operational procedures
SUMA	Relief Supply Management System – local system is DAMS (Disaster Assistance Management System)
UNDAC	United Nations Disaster Assessment and Coordination Team
UNDP	United Nations Development Programme
UNDMT	United Nations Disaster Management Team – UN Agency Country Representatives and UNMISSET internal coordination group for in country and regional disaster management activity
UNMISSET	United Nations Mission in Support of Timor-Leste
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNOTIL	United Nations Office in Timor-Leste

TERMINOLOGY

The following terminology and definitions are used in the plan:¹

Acceptable risk	<p>The level of loss a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions.</p> <p>In engineering terms, acceptable risk is also used to assess structural and non-structural measures undertaken to reduce possible damage at a level which does not harm people and property, according to codes or "accepted practice"</p>
Biological hazard	<p>Processes of organic origin or those conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.</p> <p>Examples of biological hazards: outbreaks of epidemic diseases, plant or animal contagion, insect plagues and extensive infestations.</p>
Building codes	<p>Ordinances and regulations controlling the design, construction, materials, alteration and occupancy of any structure to insure human safety and welfare. Building codes include both technical and functional standards.</p>
Capacity	<p>A combination of all the strengths and resources available within a community, society or organisation that can reduce the level of risk, or the effects of a disaster.</p> <p>Capacity may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management. Capacity may also be described as capability.</p>
Capacity building	<p>Efforts aimed to develop human skills or societal infrastructures within a community or organisation needed to reduce the level of risk.</p> <p>In extended understanding, capacity building also includes development of institutional, financial, political and other resources, such as technology at different levels and sectors of the society.</p>
Climate change	<p>The climate of a place or region is changed if over an extended period (typically decades or longer) there is a statistically significant change in measurements of either the mean state or variability of the climate for that place or region.</p>

¹ Most of the terminology has been taken from ISDR: *Living with Risk, A Global Review of Disaster Reduction Initiatives*, United Nations, New York and Geneva, 2004, page 2 – 7, <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm>; some of the terminology is from Abarquez, Imelda & Murshed, Zubair: *Community-Based Disaster Risk Management*, ADPC, Thailand, 2004, pp. 6-9.

	<p>Changes in climate may be due to natural processes or to persistent anthropogenic changes in atmosphere or in land use. Note that the definition of climate change used in the United Nations Framework Convention on Climate Change is more restricted, as it includes only those changes which are attributable directly or indirectly to human activity.</p>
Community	<p>In the context of disaster risk management, a community can be defined as people living in one geographical area, who are exposed to common hazards due to their location. They may have common experience in responding to hazards and disasters. However, they may have different perception of and exposure to risk. Groups within the locality will have a stake in risk reduction measures (either in favor or against)</p>
Community Based Disaster Risk Management (CBDRM)	<p>A process of disaster risk management in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means the people are at the heart of decision-making and implementation of disaster risk management activities. The involvement of the most vulnerable is paramount and the support of the least vulnerable is necessary. In CBDRM, local and national governments are involved and supportive (ADPC-CBDRM-11, 2003).</p>
Coping capacity	<p>The means by which people or organisations use available resources and abilities to face adverse consequences that could lead to a disaster.</p> <p>In general, this involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards.</p>
Counter measures	<p>All measures taken to counter and reduce disaster risk. They most commonly refer to engineering (structural) measures but can also include non-structural measures and tools designed and employed to avoid or limit the adverse impact of natural hazards and related environmental and technological disasters.</p>
Disaster	<p>A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources.</p> <p>A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.</p>
Disaster risk management	<p>The systematic process of using administrative decisions, organisation, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters.</p>

	<p>This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.</p>
<p>Disaster risk reduction (disaster reduction)</p>	<p>The conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.</p> <p>The disaster risk reduction framework is composed of the following fields of action (as described in ISDR's publication 2002 "Living with Risk: a global review of disaster reduction initiatives", page 23):</p> <ul style="list-style-type: none"> • Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis; • Knowledge development including education, training, research and information; • Public commitment and institutional frameworks, including organisational, policy, legislation and community action; • Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments; • Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.
<p>Early warning</p>	<p>The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.</p> <p>Early warning systems include a chain of concerns, namely: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings.</p>
<p>El Niño-southern oscillation (ENSO)</p>	<p>A complex interaction of the tropical Pacific Ocean and the global atmosphere that results in irregularly occurring episodes of changed ocean and weather patterns in many parts of the world, often with significant impacts, such as altered marine habitats, rainfall changes, floods, droughts, and changes in storm patterns.</p> <p>The El Niño part of ENSO refers to the well-above-average ocean temperatures along the coasts of Ecuador, Peru and northern Chile and across the eastern equatorial Pacific Ocean, while the Southern Oscillation refers to the associated global patterns of changed atmospheric pressure and rainfall. La Niña is approximately the opposite condition to El Niño. Each El Niño or La Niña episode usually lasts for several seasons.</p>
<p>Emergency management</p>	<p>The organisation and management of resources and responsibilities for dealing with all aspects of emergencies, in particularly preparedness, response and rehabilitation. Emergency management involves plans, structures and arrangements established to engage the</p>

	<p>normal endeavours of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs. This is also known as disaster management.</p>
Environmental impact assessment (EIA)	<p>Studies undertaken in order to assess the effect on a specified environment of the introduction of any new factor, which may upset the current ecological balance. EIA is a policy making tool that serves to provide evidence and analysis of environmental impacts of activities from conception to decision-making. It is utilised extensively in national programming and for international development assistance projects. An EIA must include a detailed risk assessment and provide alternative solutions or options.</p>
Environmental degradation	<p>The reduction of the capacity of the environment to meet social and ecological objectives and needs. Potential effects are varied and may contribute to an increase in vulnerability and the frequency and intensity of natural hazards.</p> <p>Some examples: land degradation, deforestation, desertification, wildland fires, loss of biodiversity, land, water and air pollution, climate change, sea level rise and ozone depletion.</p>
Evaluation	<p>The assessment of results and impact of a project in order to see to what extent the project objectives have been achieved.</p> <p>Mid-term evaluation is done to analyze the project halfway and if necessary make some adjustment or changes. Terminal evaluation is undertaken to determine whether the overall purpose of the project is reached.</p>
Forecast	<p>Definite statement or statistical estimate of the occurrence of a future event (UNESCO, WMO).</p> <p>This term is used with different meanings in different disciplines.</p>
Geological hazard	<p>Natural earth processes or phenomena that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.</p> <p>Geological hazard includes internal earth processes or tectonic origin, such as earthquakes, geological fault activity, tsunamis, volcanic activity and emissions as well as external processes such as mass movements: landslides, rockslides, rock falls or avalanches, surfaces collapses, expansive soils and debris or mud flows.</p> <p>Geological hazards can be single, sequential or combined in their origin and effects.</p>
Geographic information systems (GIS)	<p>Analysis that combine relational databases with spatial interpretation and outputs often in the form of maps. A more elaborate definition is that of computer programmes for capturing, storing, checking, integrating, analysing and displaying data about the earth that is spatially referenced.</p> <p>Geographical information systems are increasingly being utilised for hazard and vulnerability mapping and analysis, as well as for the application of disaster risk management measures.</p>

Goal group	Goal group is a segment of a population sharing characteristics relevant to a specific issue or the object of a given information campaign. Goal groups can be defined, among other categories, by the level of fear or professional affiliation. Ideally, for maximum effect, each specifically identified and defined goal group should be the target of separate, tailor-made messages.
Hazard	<p>A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.</p> <p>Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards). Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterised by its location, intensity, frequency and probability.</p>
Hazard analysis	Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.
Hydrometeorological hazards	<p>Natural processes or phenomena of atmospheric, hydrological or oceanographic nature, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.</p> <p>Hydrometeorological hazards include: floods, debris and mud floods; tropical cyclones, storm surges, thunder/hailstorms, rain and wind storms, blizzards and other severe storms; drought, desertification, wildland fires, temperature extremes, sand or dust storms; permafrost and snow or ice avalanches. Hydrometeorological hazards can be single, sequential or combined in their origin and effects.</p>
La Niña	See El Niño-Southern Oscillation (ENSO)
Land-use planning	<p>Branch of physical and socio-economic planning that determines the means and assesses the values or limitations of various options in which land is to be utilised, with the corresponding effects on different segments of the population or interests of a community taken into account in resulting decisions.</p> <p>Land-use planning involves studies and mapping, analysis of environmental and hazard data, formulation of alternative land-use decisions and design of a long-range plan for different geographical and administrative scales.</p> <p>Land-use planning can help to mitigate disasters and reduce risks by discouraging high-density settlements and construction of key installations in hazard-prone areas, control of population density and expansion, and in the siting of service routes for transport, power, water, sewage and other critical facilities.</p>
Mitigation	Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Monitoring	The continuous or periodic review and overseeing by stakeholders of the implementation of an activity, to ensure that input deliveries, work schedules, target outputs are proceeding according to plan.
Natural hazards	<p>Natural processes or phenomena occurring in the biosphere that may constitute a damaging event.</p> <p>Natural hazards can be classified by origin namely: geological, hydrometeorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.</p>
Participatory disaster risk assessment (PDRA)	PDRA is a process whereby all concerned parties collect and analyze disaster risks information, in order to make appropriate plans and implement concrete actions to reduce and/or eliminate disaster risks that will adversely affect their lives. It is both a dialogue and a negotiated process involving those at risk, authorities and other stakeholders.
Participatory rural appraisal	Participatory Rural Appraisal (PRA) PRA/PLA has been described as a set of approaches, behaviors and methods for enabling people to do their own appraisal, analysis and planning, take their own action, and do their own visuals, such as diagrams and maps. Other practitioners describe what they do as Participatory Learning and Action (PLA). (Chambers, Whose Reality Counts: Putting the First Last, 2002, p.7).
Preparedness	Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.
Prevention	<p>Activities to provide outright avoidance of the adverse impact of hazards and means to minimise related environmental, technological and biological disasters.</p> <p>Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education related to disaster risk reduction, changing attitudes and behaviour contributes to promoting a “culture of prevention”.</p>
Project	An organised social process involving the provision of inputs (cash, labor, technology, methodology) over a defined period of time to implement activities and generate outputs or results, to achieve a previously defined objective or purpose and desired development goal (impact/effect).
Project planning	Sequencing of tasks to achieve the project objectives through timely project implementation and ensuring efficient use of resources. It includes determining tasks, benchmarks of achievements, assigning responsibilities, developing a timetable based on activities, and determining resource allocation and timing.
Public awareness	The processes of informing the general population, increasing levels of consciousness about risks and how people can act to reduce their exposure to hazards.

	<p>This is particularly important for public officials in fulfilling their responsibilities to save lives and property in the event of a disaster.</p> <p>Public awareness activities foster changes in behaviour leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts, use of printed media, as well as the establishment of information centres and networks and community and participation actions.</p>
Public information	Information, facts and knowledge provided or learned as a result of research or study, available to be disseminated to the public.
Recovery	<p>Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk.</p> <p>Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.</p>
Relief/response	The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or protracted duration.
Resilience/resilient	The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organising itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.
Risk	<p>The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions.</p> <p>Conventionally risk is expressed by the notation $\text{Risk} = \text{Hazards} \times \text{Vulnerability}$. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.</p> <p>Beyond expressing a possibility of physical harm, it is crucial to recognise that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.</p>
Risk assessment/analysis	<p>A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.</p> <p>The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and</p>

	<p>exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios.</p>
Risk communication	<p>Risk communication is a critical component of the risk management process targeted to the provision of information to the public which will reduce fear and anxiety before, during and after the hazard impact.</p> <p>A successful information campaign (possibly consisting of several information projects) is greatly dependent on the overall <i>credibility</i> of central sources, public information releases, the channels used for transmission, and the diffusion of messages to psychologically affected masses. To manage these masses, disaster planners should consider <i>goal group</i> (see terminology) strategies.</p> <p>Credibility is the discriminating quality of an information source providing crucial information to a risk-prone group of more or less frightened people, and to some extent also of the medium used as channel between the source and the information receivers.</p>
Risk reduction measures	<p>These are various activities, projects and programs that the communities may identify after assessing and analyzing the risks that they face. These measures are specifically intended to reduce the current and prevent future risks in the community.</p>
Structural/non-structural measures	<p>Structural measures refer to any physical construction to reduce or avoid possible impacts of hazards, which include engineering measures and construction of hazard-resistant and protective structures and infrastructure.</p> <p>Non-structural measures refer to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk and related impacts.</p>
Sustainable development	<p>Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.</p> <p>It contains within it two key concepts: the concept of "needs", in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and the future needs.</p> <p>Sustainable development is based on socio-cultural development, political stability and decorum, economic growth and ecosystem protection, which all relate to disaster risk reduction.</p>
Technological hazards	<p>Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.</p> <p>Some examples: industrial pollution, nuclear activities and radioactivity, toxic wastes, dam failures; transport, industrial or technological accidents (explosions, fires, spills).</p>

Vulnerability	<p>The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.</p> <p>For positive factors, which increase the ability of people to cope with hazards, see definition of capacity.</p>
Wildland fire	<p>Any fire occurring in vegetation areas regardless of ignition sources, damages or benefits.</p>

PART ONE: INTRODUCTION

During the development of this plan, the National Disaster Management Office (NDMO) conducted an overall analysis of the risks and vulnerabilities that confront Timor-Leste. It became clear that, to implement intervention strategies to better prepare for disasters and to respond better in the event of disasters, Timor-Leste decision-makers needed to be briefed on the importance of reducing risks as part of disaster management and needed to allocate financial resources to support preparedness and contingency planning, rather than just having reserve funding for emergencies.

It became clear that a **proactive** approach is essential for policy and decision-makers. A turning point was the sweeping Asian tsunamis in late December 2004. The East Timorese population felt unprotected and clearly vulnerable to earthquakes and potential tsunamis. Government authorities and politicians were pressed to respond to population concerns; consequently, the government's consideration of disaster management was placed higher up the government's list of priorities. The Government of Timor-Leste (GTL) now keenly supports the development of policy directives and risk information dissemination channels related to disaster risk management.

Two points are highlighted:

- ✓ **Investment in preparedness** is essential. It includes carrying out **contingency planning** for key sectors and substantial **capacity building and training** in the areas of civil protection, education, health, public works and communication, among others. Furthermore, expediting membership in existing early warning systems is essential and a civil society right. However, a regional/country system will only work if it is linked to a local warning and emergency response system that ensures that the warning is received, communicated and acted upon by the potentially affected communities.
- ✓ The approach adopted here is **all-hazards approach**, which deals with the management of all hazards. For example, monitoring and warning systems should be designed with the intent that they will, to the extent possible, serve to alert and inform at-risk populations about all major hazards in their area, integrating the entire system under an all-hazards approach. The design has to be simple, easily understood by lay people, and cover national level down to districts and sub-districts.

Internationally Accepted Principles of Disaster Risk Management (DRM)

The Government of Timor-Leste (GTL) shares the internationally accepted principles of disaster risk management that are summarised below:

1. The vulnerable or disaster-affected population including women and men of all ages actively participates in the assessment, design, implementation, monitoring and evaluation of the disaster risk management (DRM) programme to ensure that programmes are equitable and effective;²

² The Sphere Project (2004) : *Humanitarian Charter and Minimum Standards in Disaster Response*, Geneva, p. 28

-
2. Written DRM programme objectives and plans reflect the needs, concerns and values of vulnerable and disaster-affected people, particularly those belonging to vulnerable groups, and contribute to their protection.³
 3. DRM programming is designed to maximise the use of local skills and capacities to ensure the long-term sustainability of the community resilience.⁴
 4. Assessment is gathered using standardised procedures and made available to allow for transparent decision-making by considering all technical sectors (water and sanitation, nutrition, food, shelter, health) in addition to assessments of the physical, social, economic, political, and security aspects and the environment.⁵
 5. Assessment findings are made available to all stakeholders including the vulnerable and disaster-affected population.⁶
 6. A gender-balanced assessment team composed of generalists and relevant technical specialist seeks to involve the population in a culturally acceptable manner.⁷
 7. Humanitarian assistance or services are provided equitably and impartially, based on the vulnerability and needs of individuals or groups affected by disaster.⁸
 8. Effectiveness of the programme in responding to problems is identified and changes in the broader context are continually monitored, with a view to improving the programme.⁹
 9. A systematic and impartial examination of the programme is done to draw lessons to improve practice and policy and to enhance accountability.¹⁰
 10. The staff of the implementing institutions possess appropriate qualifications, attitudes and experience to plan and effectively implement appropriate programmes.¹¹
 11. The staff of the implementing institutions receive supervision and support to ensure effective implementation of the DRM programme.¹²

Key Guiding Principles for Disaster Risk Management in Timor-Leste

While Timor-Leste's overall disaster management has progressed, there are many areas that need to be brought up to internationally accepted standards. The approach to be undertaken by the Government of Timor-Leste (GTL)¹³ to the promotion of risk management can be summarised as:

³ *ibid* p. 28

⁴ *ibid* p. 28

⁵ *ibid* pp. 29-30

⁶ *ibid* p. 30

⁷ *ibid* p. 31

⁸ *ibid* p. 35

⁹ *ibid* p. 37

¹⁰ *ibid* p. 39

¹¹ *ibid* p. 40

¹² *ibid* p. 41

¹³ Adapted from UNDP/BCPR (2005). *A Global Review: UNDP Support to Institutional and Legislative Systems for Disaster Risk Management*. Geneva

-
- ***Elevating disaster risk management as a policy priority:*** Elevating the importance of risk management at the policy level will follow two kinds of approaches for Timor-Leste, namely, (1) drafting a specific disaster/risk management policy, and (2) mainstreaming disaster risk management and reduction into development policy and planning. Mainstreaming risk reduction into the on-going development process will avoid the creation of parallel structures and ensure that development does not construct new risks.
 - ***Generating political commitment:*** Good governance will provide an enabling environment for disaster risk management, which will translate into political commitment of decision-makers. Possible indicators of political commitment may be the launching of reform processes or the formulation of legislation on risk reduction issues.
 - ***Promoting disaster risk management as a multi-sector responsibility:*** Disaster Risk Management is not a separate discipline but a cross-cutting issue that needs to be considered in many areas and sectors and at all levels of policy, society and economy. This requires inter-disciplinary and multi-sectoral approaches which depend upon institutionalisation and the creation of appropriate mechanisms to stimulate and further inter-agency and inter-sectoral cooperation at all levels of administration.
 - ***Assigning accountability for disaster losses and impacts:*** Good governance in disaster risk management facilitates transparency and accountability, and thus reduces opportunities for corruption at the government and as well as civil society level. Decisions about the allocation of scarce development resources or emergency relief are frequently influenced by political considerations rather than based on the real need of marginalised populations. Governance in disaster risk management will limit these opportunities for corruption and thus strengthen the legitimacy of responsible actors.
 - ***Allocating necessary resources for disaster risk reduction:*** Amongst the most telling indicators of political commitment for disaster risk management is the level of resources allocated to risk reduction by governments, civil society and private sectors. Whilst these may be specifically allocated for risk reduction and emergency relief and recovery, the scarcity of resources suggests that mainstreaming disaster risk into development processes and budgets will increase effective resources utilisation.
 - ***Enforcing the implementation of disaster risk management:*** Ultimately, only the application of risk management principles, good practices and tools will bring about the desired change at all levels of intervention and reduce vulnerabilities in the long-term. These include risk and impact assessments, early warning systems, public awareness, education and training, information management and research as much as environmental and natural resource management, social and economic development practices, physical and technical measures and lastly preparedness and emergency management.
 - ***Facilitating participation from civil society and the private sector:*** Whilst it is recognised that the state has important responsibilities in disaster risk management, the roles of civil society and the private sector are crucial for success. Participatory processes ensure that the needs and priorities of the most vulnerable and marginalised populations
-

are met. Also, it has been established that local knowledge of hazards, vulnerabilities and coping capacities in combination with technical and scientific solutions provide the best basis for lasting improvements. Participation also empowers, and ensures that the most basic levels of society, especially the level of local government and community-based governance shape the decision-making processes. Consequently this will also impact on resource allocation and negotiations on acceptable levels of risk a society may be exposed to. Decentralisation is an important vehicle for the sharing of responsibilities between central, regional and local levels and for fostering participation. However, it is not an end in itself, but only valuable if it ensures that adequate government interventions in disaster reduction reach communities more effectively.

Main Risks in Timor-Leste

Timor-Leste, or Timor Lorosa'e (Timor of the Rising Sun), is located in an area that is highly vulnerable to natural disasters. Timor-Leste is vulnerable to earthquakes and associated phenomena such as tsunamis due to its geographical location north of the subduction zone between the Eurasian and Australian plates. It experiences the El Niño/Southern Oscillation (ENSO) related weather anomalies associated with droughts in this region occurring in cycles of every four-seven years. Timor-Leste is prone to floods, landslides and erosion resulting from the combination of heavy monsoonal rain, steep topography and widespread deforestation. Volcanic hazard is not present although it must be noted that volcanic ash resulted from neighboring volcanic eruptions may cause both health and transport hazards. Cyclones have a low probability of occurrence (one per decade); however, the frequent tropical storms, which bring high winds and rainfall, can be as devastating as cyclone activity.

Timor-Leste is divided into 13 districts and 65 sub-districts based on the divisions inherited from the Portuguese and Indonesian periods. The populations¹⁴ of the districts (in order from the most populated to the least populated) are as follows: Dili (167,777), Baucau (104,571), Ermera (103,169), Bobonaro (82,385), Viqueque (66,434), Oe-cusse (58,521), Lautem (57,453), Liquica (55,058), Covalima (55,941), Ainaro (53,629), Manufahi (44,235), Manatuto (38,580) and Aileu (36,889).

Part of Lautem has a high risk of landslides in risk-prone areas. Viqueque, as a result of a soil liquefaction hazard, was affected following the earthquake of 12 November 2004. Covalima is prone to floods. Many north and south coastal areas are prone to drought.

The Hazard Concentration Index Map for Timor-Leste in Annex 1 shows that most of the more populated settlements are located far away from high hazard risk areas. However, the northern and southern coasts of Timor-Leste are considered to be high risk areas for earthquake hazards and associated tsunamis due to their proximity (100 km) to an active subduction zone, where the Australian-Irian Continental Plate collides and moves under the Eurasian Plate (the Timor trough).¹⁵

¹⁴ Population figures are from the 2004 Census (provisional counts).

¹⁵ Timor-Leste, has been affected by a number of tsunami events, although not with such destructive power of the Asian tsunamis of 26 December 2004. East Timorese coastal populations experienced a secondary traumatisation caused by the fear and devastation in images broadcasted by television networks worldwide. Perception of risk by the population was heightened, and even in the absence of either an earthquake or tsunami, the population sought refuge in the mountains. In

Contrary to the local belief, past experience and scientific data of recent tsunamis indicate that islands surrounding mainland do not offer any additional protection against the destructive power of the waves.

Timor-Leste is located in the most seismic-tectonic active group in the region. For example, two earthquakes occurred on 12 November 2004 just 40 km from Dili, one of magnitude 6.4 with its epicentre at 18 km depth and one of magnitude 7.3 with its epicentre at 38 km depth. The destruction of Kepulaun Alor in Indonesia was due to the closeness of the epicentre to habitable areas, and this could have happened in Dili. On 2 March 2005, an earthquake of magnitude 7.5 occurred in the Banda Sea and was felt strongly in Dili. Regional seismicity has been quite active in late 2004 and early 2005.

A map showing earthquake epicentres in the Timor-Leste area from 1973-1999 can be found in Annex 2 and a Tsunami Hazard Map for Timor-Leste can be found in Annex 3.

Assessment of Risk

A number of natural and human generated hazards could cause major emergencies and disasters in Timor-Leste. Annex 4 discusses the potential that different hazards have to affect the country and its population. While some hazards have an impact every year, there are others that cause casualties and damage less often. Some of the less frequent events, such as earthquakes, could have a much greater impact than the more common events, such as heavy rains and floods. Response plans at all levels and across all sectors must take these greater impacts into consideration. Communities in high risk areas should receive priority in community based disaster risk management training and risk communication.

A Plan to Address Timor-Leste's Risks

This National Disaster Risk Management Plan (the Plan) is the guiding document that will enable the government to address disaster risk management in Timor-Leste. The Plan is used by all government and non-government sectors as the basis for developing and maintaining their own sub-plans, systems and arrangements (e.g., health, transport, agriculture, public works). It is intended that the plan should be seen as a **work in progress**, which will be successively revised as improved operational procedures are developed and as the government and non-government sectors further develop disaster risk reduction activities.

The Plan is based on the most recent thinking in the field of Disaster Management. This new thinking is expressed in the Disaster Risk Reduction Framework explained below.

Disaster Risk Reduction Framework

As a result of new thinking in disaster management, this plan uses risk management methodologies as displayed in Figure 1 below. The rationality and the methods of disaster risk management are a blend of traditional disaster management concepts and risk

fishing villages close to Suai, Covalima, families were awake in the middle of the night expecting a tsunami, a result of a hoax that originated in Dili.

management approaches. It is a systematic analysis and decision-making process, which is being widely used, therefore providing a common language among all emergency responders facilitating both coordination and integration. Disaster risk management strategies will mitigate the effects of natural, human-induced and technological hazards.

With an array of issues and questions, a means of ordering and prioritising an approach to response is needed. Risk analysis is an organised way to identify and evaluate hazardous conditions and to take actions to eliminate, reduce or control the risk(s) posed by such conditions. These steps can be used to formulate policies and action plans, structure planning, and identify areas needing attention, both before the disaster – including reducing the impact of the hazard agent and any preparedness needed – and in the response phase. The emphasis of this process is on managing progress towards disaster reduction objectives rather than producing a “plan” as an end product.¹⁶

The disaster risk management approach, as represented in Figure 1 below, is generally accepted to have three aspects:

- Risk assessment and analysis;
- Risk management; and
- Risk communication.

Risk Assessment and Analysis

Risk assessment includes the identification of **hazard agents** (seen as hazards risk factors in Figure 1, e.g., tsunamis, flooding, oil leakage, and urban fires), exposure and consequence assessment, and risk characterisation. The first, and perhaps most difficult step in the process, is to identify all hazardous conditions. For example, an earthquake can affect and damage key infrastructure such as water reservoirs or oil depots and cause further damage. Risk cannot be controlled unless hazardous conditions are recognised before they cause injury, damage to equipment or other accident.

Once a hazardous condition is recognised it must be evaluated to determine the threat or risk it presents. The level of risk is a function of the **probability** of exposure to the hazard and the **severity** of the potential harm that would be caused by that exposure. Some hazards may present very little risk to people or equipment (e.g. a toxic chemical well enclosed in a strong container). Additionally, risk factors include social, economic, physical and environmental vulnerabilities.

Vulnerability is the condition or situation in which communities/settlements are already exposed to a threat and the hazard impact will only make the situation worse. For example, a family living on a river bank is more vulnerable to a certain threat (in this case flooding) than another family whose house is located further away and on higher land that cannot be reached by the river even if it floods.

Risk Management

Risk management encompasses all those activities required to reach and implement decisions on risk reduction or elimination. Once a risk has been characterised, an informed decision can be made as to what control measures, if any, are needed to reduce the risks or eliminate the hazard. Control measures can consist of any action for risk reduction or elimination. Usually,

¹⁶ ISDR (2004). *Guiding Principles, National Platforms for Disaster Reduction*. Geneva.

however, control measures involve reducing the probability of occurrence or the severity of an incident.

Risk management also must start at the lowest possible level of administration with each level accepting responsibility for an appropriate level of mitigation, preparedness, response and/or recovery activity. This includes strengthening and supporting community level initiatives on disaster risk reduction and encouraging active participation or involvement of people in the process of risk assessment, planning and implementation of disaster risk management strategies. People in the community or village suffer the most from disaster damage. In practice, they are the first front line responders. They undertake some precautionary measures and respond to the disaster even before outside help comes. The increasing disaster frequency and consequent losses, has resulted in people in the community developing some coping mechanism/strategies based on their existing capacities. However, because of limited resources, knowledge, skills and technical support, community dwellers are often outside any assistance network.

Only if the community at village level is unable to meet disaster management needs should help be sought from the sub-district. In turn, the sub-district may seek assistance from the district when it lacks the resources to meet a need and the district may seek national assistance when its resources cannot meet a need. If the government has stretched its capacities to deal with mass casualties, assistance may be sought from the international community.

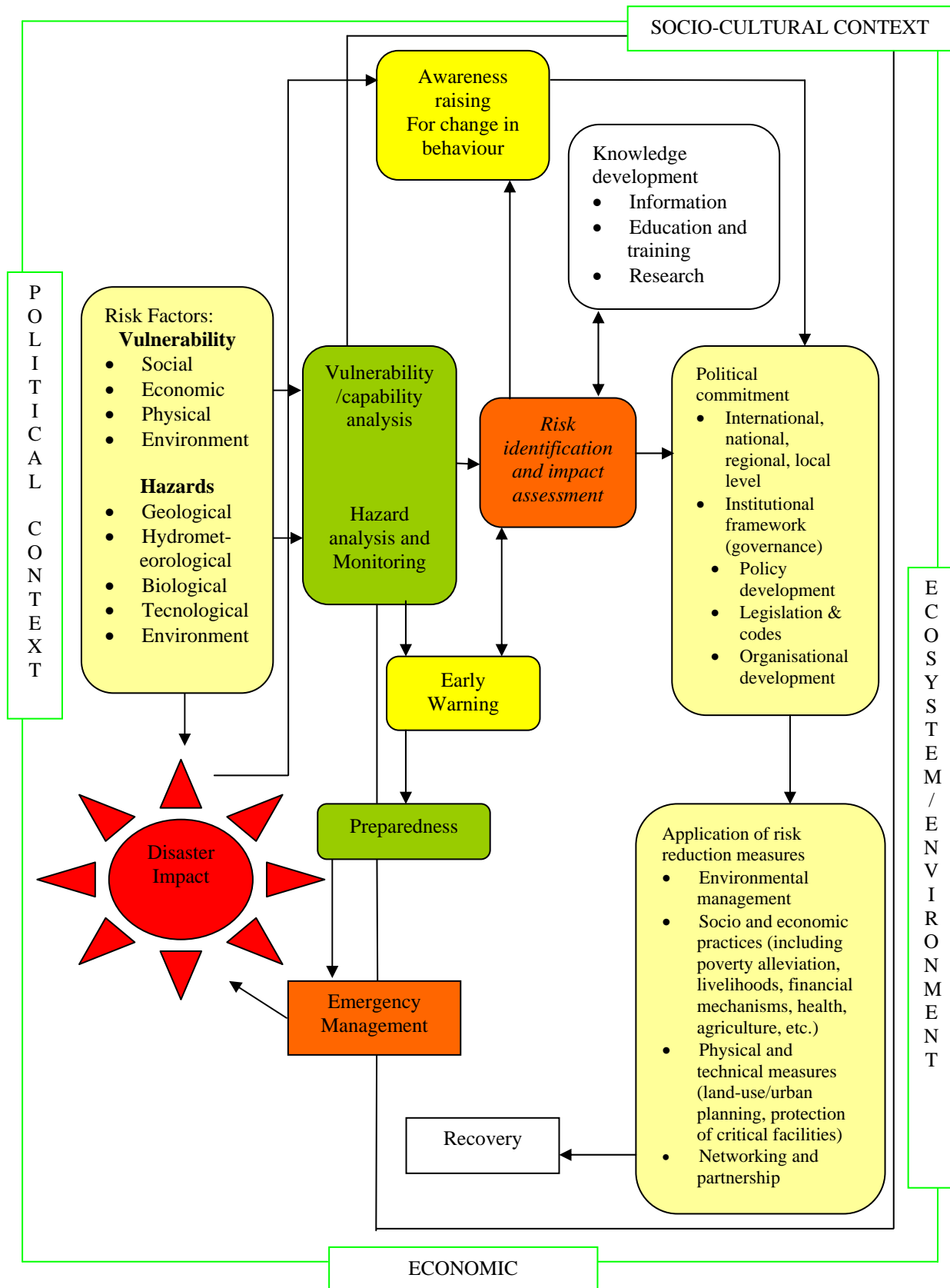
The risk management of response to emergencies is based on the principle that response activity should be planned well in advance during the preparedness phase including early warning. The risk reduction framework displays the various disaster-development measures that will reduce further risks, such as land use planning in safe areas, building codes and protection of critical facilities such as chemical/power installations. The sharing of knowledge and dissemination of risk is an essential component of protection of the civil society. This is done under risk communication, in the next section.

Risk Communication

The risk management process cannot be successful without a plan for providing information to the public and such a plan needs to be drawn up well before an emergency occurs. The communication plan may include radio and television broadcasts, or the distribution of brochures to the public describing the potential threat in plain, unemotional language. Clear advice should be given on how the alarm will be raised and what to do if that happens. A well-constructed media plan is essential, both as part of the pre-incident education process, and to avoid overreaction after an incident. It must contain explicit and exhaustive instructions on channels of communication and clearance procedures for potentially sensitive information. Of course, any public preparedness or information programme needs to be evaluated in the context of the specific local circumstances, including the possibility that too much information may be counterproductive, or even dangerous.

The underlying idea in risk reduction is to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

Figure 1. A Framework for Disaster Risk Reduction¹⁷



¹⁷ Source: UN International Strategy for Disaster Reduction ISDR (2004). *Living with Risk: A Global View of Disaster Reduction Initiatives*, Geneva, p. 15.

The Socio Cultural Context of the Disaster Reduction Framework

This National Disaster Risk Management Plan aims to be in tune with accepted **risk reduction strategies** that will considerably reduce the social and economic losses caused by natural and human-induced disasters such as technological hazards and conflicts.

Human development issues are related to disaster risk management. Economic and social elements of human development are interdependent and overlapping. Economic and social elements are shaped, retarded and sometimes accelerated by disaster. They also work directly or indirectly to decrease or increase disaster risk.

Essential points adopted in this plan:

1. **A necessary shift in managing disasters from a traditional manner – emergency assistance or crisis management – to disaster risk reduction strategies.** The main difference is that emergency assistance emphasises single operations while disaster risk reduction looks at dynamic operations with multiple risk issues and development scenarios. For further information, see Annex 5 on the differences between emergency assistance and disaster risk reduction strategies.
2. **The general framework and activities of disaster risk management.** This includes the elements necessary for any comprehensive disaster risk reduction strategy. The framework (as displayed in Figure 1) has been organised in consideration of the main reduction elements with less emphasis on the detailed information on preparedness and recovery.
3. **A focus on strengthening community capacities.** This is in line with the Hyogo Declaration,¹⁸ which affirmed that: “strengthening community level capacities to reduce disaster risk at the local level is especially needed, considering that appropriate disaster reduction measures at that level enable the communities and individuals to reduce significantly their vulnerability to hazards. Disasters remain a major threat to the survival, dignity, livelihood and security of peoples and communities, in particular the poor.” In relation to response, communities, through family units, need to be aware of first aid, evacuation from the house, hygiene and safety procedures.
4. **Integration of a gender perspective.** Gender relations are part of the social and cultural context that shape a community’s ability to anticipate, prepare for, survive, cope with, and recover from disasters. Thus, gender analysis and the participation of women are indispensable aspects of disaster risk management policy and planning at all levels (national, district, sub-district and village levels). As the Hyogo Framework for Action 2005-2015¹⁹ states: “A gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training.”

¹⁸ (2005). World Conference on Disaster Reduction. Abstract from the advance copy of the Report of the Conference (A/CONF:206/6). *Hyogo Declaration*. 18-22 January.

¹⁹ (2005). World Conference on Disaster Reduction. Abstract from the advance copy of the Report of the Conference (A/CONF:206/6). *Hyogo Framework for Action 2005-2015*. 18-22 January.

Main points for the involvement of women in disaster risk management include the following:

- To empower women in disaster-prone areas, it is necessary to implement community-based disaster risk management with the full participation of women;
- Women should be included in training workshops, simulations of evacuation procedures, and information to families regarding how to build structures resistant to disaster impact;
- Women need to be able to efficiently participate in all phases of pre-disaster planning, including developing emergency plans, evacuation procedures, shelter locations, food depots, alternate sources of water, and elaboration of risk maps;
- All women should receive non-formal training in the activities that need to be performed in the aftermath of a disaster, including organising to meet basic needs such as food, basic services supplied to the house, and building safety;
- Any communication and training has to be delivered in a way that is accessible for women, both in terms of the language used and the methodology used; the language and methodology must take into account the low literacy rate among women and that fact that many women only speak their local language; it may also require organising separate training for men and women in order to facilitate women's participation;

5. **Attention to children in disaster risk management.** Risk management education for children is an essential part of community based risk management plans. Children roles should be specified, empowering them to undertake measures that will help them to reduce risks and to respond quickly when an alert is issued.

Women died in larger numbers than men in most of the countries affected by the December 2004 tsunamis. The reason given was that mothers tried to protect their children and often did not know how to swim and stay afloat. Children also died in large numbers. Many had not had risk management education, and this may have contributed to the high mortality rate.

PART TWO: ORGANISATION

Institutional Basis of This Plan

This National Disaster Risk Management Plan is currently under the authority of the Minister of Interior in line with the Government Decree no. 3/2004 of 5 May 2004, (Artigo 9, Direccao Nacional de Proteccao Civil). The plan and the arrangements described in it will be supported by a Disaster Management Act.

Organisational Structure

The organisational structure for Disaster Risk Management in Timor-Leste is shown below in Figure 2. The multi-sectoral National Disaster Risk Management Committee (NDRMC) is the main forum for developing policies and providing broad-based advice to the Prime Minister. The Prime Minister has delegated to the Minister of Interior responsibility for coordinating all disaster risk management. The Minister of Interior has the mandate to coordinate preparation and response in relation to any emergency that may occur. Under this Minister's authority is the National Directorate of Civil Protection, which includes both the Fire and Rescue Services and the National Disaster Management Office (NDMO). Also under the Minister of Interior's authority are the National Police Directorate, the Directorate of Border Services and the National Directorate of Public Infrastructure Security and Accreditations. In times of response, the Minister of Interior assumes the role of National Disaster Coordinator (NDC). The organisational structure includes a Joint National Disaster Operations Centre (DOC), disaster management committees at district, sub-district and village levels, and District Disaster Coordinators (DDCs).

Declaration of a State of Disaster

The response to national catastrophe or public disaster situations is most appropriately managed by civil authorities and agencies. However, there will be times when the resources and capabilities of civil agencies alone will be insufficient to address disasters or emergency situations. Accordingly, Chapter II of the Organic Law No. 7/2004 May 5²⁰ for the F-FDTL provides for civilian authority support missions by the F-FDTL. The Crisis Cabinet, chaired by the Prime Minister, has the authority to declare a catastrophe or public disaster situation and to define the extent of the involvement of F-FDTL, the mechanisms for command, control and coordination, and the terms of cooperation between the F-FDTL and the PNTL. Both the Secretary of State for Defence and the F-FDTL Chief of the General Staff (CGS) are members of the Crisis Cabinet.

Declaration of a State of Disaster conveys certain powers on the NDC and the DDCs. These powers, and limitations on declarations, will be detailed in the Disaster Management Act. It should be noted that some international donors may require declaration of a State of Disaster before disaster relief assistance will be provided.

²⁰ See Article 18 on Crisis Situations, Article 19 on Catastrophes or Public Disaster Situations and Article 20 on the Crisis Cabinet.

National Disaster Risk Management Committee (NDRMC)

An Interministerial Commission for Prevention of Natural Disasters (Comissao de Prevencao das Calamidades Naturais), coordinated by the Minister of Interior, was formed under the Prime Minister's Office as a government response to the public fear of earthquakes/tsunamis after the Asian tsunamis of 26 December 2004 (Despacho 01/PM/2005). This Commission is comprised of the Ministries of Interior, State Administration, Transport, Communications and Public Works, and Health, the State Defence Secretariat, and the Secretariat of State for Labour and Solidarity and was created to deal with natural disasters.

As this plan uses the *all-hazards approach*, it is necessary to expand the Commission and the Crisis Cabinet into a National Disaster Risk Management Committee (NDRMC) comprised of the following Ministries and Agencies:

- Prime Minister (Chair) and Minister of Natural Resources, Mineral and Energy Policies
- Minister of Interior (Deputy Chair)
- Minister of State Administration
- Minister of Planning and Finance
- Minister of State for Foreign Affairs and Cooperation
- Minister of Public Works
- Minister of Transport and Communications
- Minister of Defence
- Minister of Development
- Minister of Health
- Minister of Agriculture, Forestry and Fisheries
- Minister of Education and Culture
- Minister of Justice
- Minister for Labour and Community Reinsertion
- Secretary of State for Youth and Sports
- Secretary of State for Environmental Coordination and Territory and Physical Development
- Secretary of State for Coordination of Region II
- Secretary of State for Coordination of Region III
- Secretary of State for Coordination of Region IV
- Secretary of State Resident in Oe-Cusse
- F-FDTL Chief of General Staff
- PNTL Superintendent
- Secretary General of the Timor-Leste Red Cross Society (CVTL)
- Civil society representatives including women networks
- UNDP Country Representative and UNOTIL representative

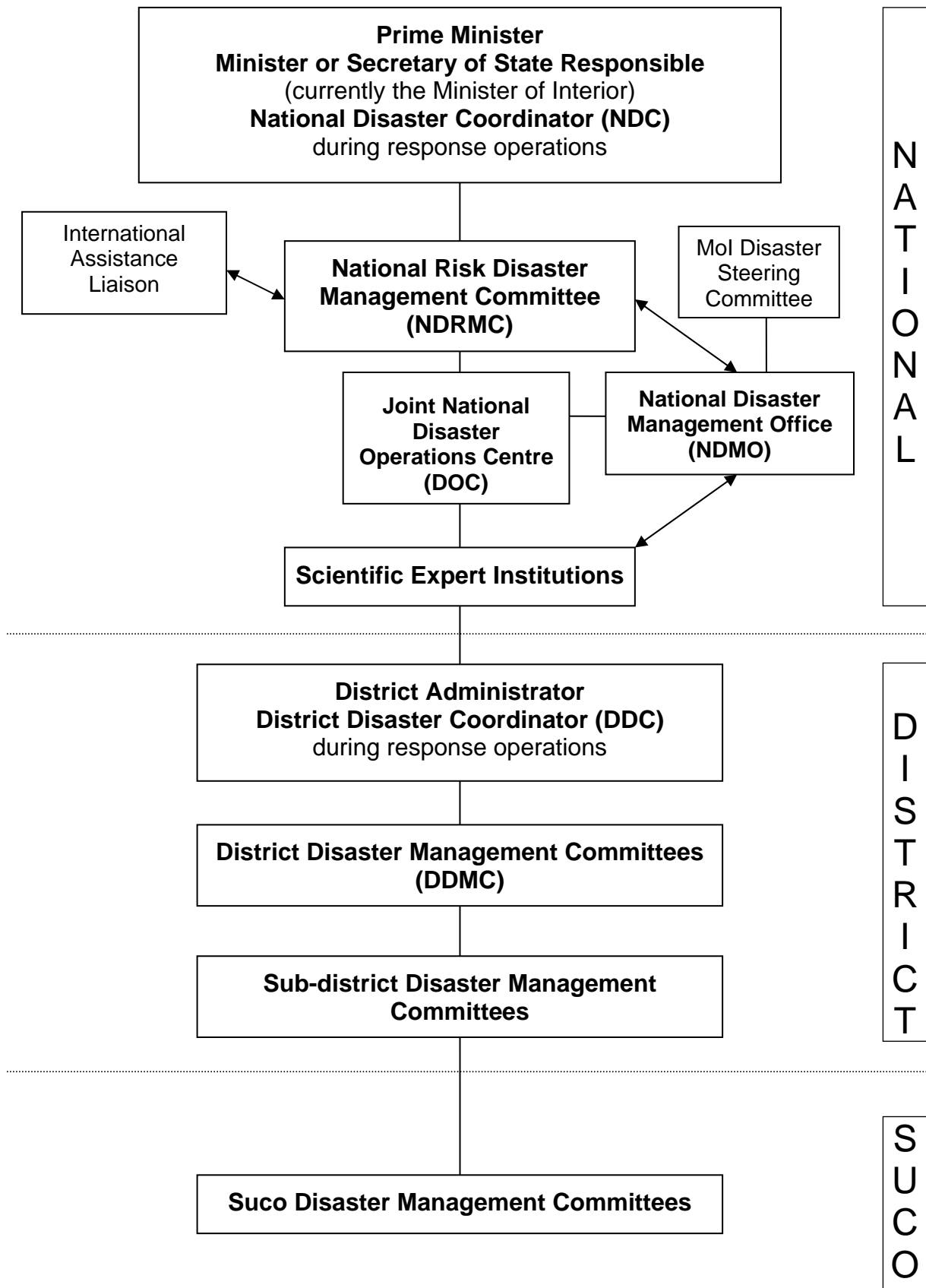
In addition, the Minister or Secretary of State Responsible for disaster risk management may appoint representatives of other organisations to the NDRMC, either for specific issues for a specific time, or for an indefinite period, or in the role of observers.

The NDRMC will convene twice a year in non-disaster/emergency times. It will also be activated at Stage 2 of an impending emergency (see Annex 6 on the National Activation System).

The functions of the NDRMC are as follows:

- Conduct an annual review of national disaster risk reduction policy and strategic development by the last sitting of Parliament each calendar year;
- Provide an annual report to the Prime Minister on national disaster risk reduction by the 31 December each year; this report will include recommendations on priorities for the next reporting year;
- Oversee the work of the NDMO in relation to NDRMC decisions and priorities and approve relevant work plans;
- Conduct an annual review of the National Disaster Risk Management Plan (NDRMP) and the Disaster Management Act by the 31 December each year;
- Provide technical and policy advice and resource support to the National Disaster Coordinator (NDC) and the Joint National Disaster Operations Centre (DOC) during response operations, if required;
- Assign responsibilities related to disaster risk management to relevant departments and other bodies; and
- Carry out any other disaster risk reduction related tasks as allocated by the Minister or Secretary of State responsible for disaster risk management.

Figure 2. National Disaster Risk Management Structure



Disaster Risk Management Responsibilities of Departments/Agencies

The responsibilities, roles and tasks described below are to be managed and carried out by the responsible departments/agencies. The NDRMC may change these responsibilities, roles and tasks if circumstances make it necessary, such as a change in the capacity of a department/agency, or a re-alignment within government of departmental portfolios. Table 1 below details the roles and tasks of departments/agencies regarding the prevention, mitigation, preparedness and recovery aspects of disaster risk management. Note that some of the departments/agencies have been initiating in-house disaster risk management plans (for example, the Minister of Defence and the National Police of Timor-Leste).

On 19 September 2005, the Ministry of Interior created the Disaster Steering Committee with the following functions:

- Oversee the NDMO work in relationship to priorities determined by the NDRMC and approve relevant workplans;
- Conduct an annual review of the National Disaster Risk Management Plan and the Disaster Management Act before 31 December of each year;
- Provide technical and political advice to be followed by the Civil Protection Directorate and other relevant Directorates;
- Enforce the appropriate legislation and make sure that disaster management programmes are adequately implemented; and
- Support the development of a communications network and technological support among the critical stakeholders of PNTL, F-FDTL, Emergency Services, Safety of Buildings and Accreditations, NDMO and scientific partners.

Table 1. Disaster Risk Management Responsibilities of Departments/Agencies

RESPONSIBILITY/ROLE/TASK	DEPARTMENT/AGENCY
Develop and maintain appropriate policy and legislation regarding land use	Ministry of Agriculture, Forestry and Fisheries assisted by Ministry of Justice and the Ministry of Finance and Planning
Develop and maintain appropriate policy and legislation regarding environmental protection and disaster risk reduction and development	Ministry of Development and NDMO
Develop and maintain appropriate policy and legislation regarding transport (air, sea, land) matters that involve safety of the community	Ministry of Transport and Communications assisted by Ministry of Justice and NDMO
Ensure all nationally and internationally funded development projects address risk reduction and development in feasibility studies and design phase	Ministry of Foreign Affairs and Cooperation and Ministry of Finance and Planning
Develop and maintain disaster risk management legislation	Office of the Prime Minister, NDMO and Minister of Justice
Develop and maintain a public health management sub-plan	Ministry of Health and NDMO
Develop and maintain policy and legislation regarding appropriate hazard related building codes	Ministry of Transport and Communications assisted by Ministry of Justice

Develop and maintain policy and advice on animal and crop related issues such as food security, agriculture technology, agro-climatology, irrigation, food preservation, and forestry that reduce community vulnerability	Ministry of Agriculture, Forestry and Fisheries
Develop and maintain preparedness including planning and the necessary training for emergency responders	Ministry of Interior, Ministry of Defence and NDMO
Develop and deliver disaster related public education and awareness programs	Ministry of Interior through NDMO, Ministry of Education assisted by districts, other ministries/departments and agencies as required
Develop and maintain district disaster operational preparedness and response plans	District Administrations assisted by NDMO
Develop and maintain response plans for situations that would impact on the ability of the department/agency to continue operations	All departments and agencies
Develop and maintain disaster operational response support plans, including resources lists, to support the National Disaster Risk Management Plan (NDRMP)	All departments and agencies
Maintain the NDRMP	NDRMC assisted by NDMO
Develop and maintain appropriate early warning, monitoring and coordination systems	NDMO and DOC assisted by other departments and agencies as required
Develop and maintain disaster related multi-sector training programs	NDMO assisted by all departments and agencies
Participate in disaster recovery programs	All departments and agencies

Operational Response Roles and Tasks of Departments/Agencies

Table 2 below details the roles and tasks of departments/agencies management during an operational response. The roles and tasks described relate to response activities once a disaster has occurred or is believed to be about to occur, whether or not a formal declaration of a disaster has been made. Each sector has a role, whether it is a lead role or a supporting role. Therefore each department/agency must produce a support plan or procedures to effectively carry out their roles (see Table 1 above). NDMO can assist with development and review of such plans. Though many of the tasks relate to activities at national level, districts are to carefully note the details and mirror them where possible to assist in developing and maintaining standard systems and arrangements. This means that roles and tasks are allocated at district level to the counterparts of sectors at national level. Departments/agencies are to note carefully where the sector representative at district level would logically be given a role and are to provide technical advice, guidance and support to that person or persons at district level.

Table 2. Operational Response Roles and Tasks of Departments/Agencies

RESPONSIBILITY/ROLE/TASK	DEPARTMENT/AGENCY
Provide regular information on potential weather hazards to NDMO	DOC, Ministry of Transport and Communications
Provide warnings to government and public	NDMO and DOC
Arrange extended broadcasting time for warnings and public safety messages	Ministry of Transport and Communications, Radio/TV broadcasting stations, NDMO
Provide staff for DOC	NDMO and PNTL

Provide disaster management material support to DOC such as advice, hazard maps and other relevant information	NDMO and DOC
Provide assistance with evacuation (checkpoints, etc.)	PNTL
Provide security for evacuated areas/villages	PNTL and F-FDTL
Establish and manage evacuation centres, including feeding, water, shelter, clothing, registration, etc.	Ministry of Labour and Community Reinsertion
Provide fire vehicles and crews	Fire Services and Civil Protection
Arrange for provision of ambulances, ambulance crews, and emergency medical teams	Ministry of Health assisted by health NGOs
Arrange for the provision of vehicles (land, sea, air) for relief delivery, evacuation, and other related tasks	Ministry of Transport and Communications and Directorate of Civil Protection
Arrange for environmental health teams to check and advise on affected areas	Ministry of Health assisted by health NGOs
Provide members for damage and needs assessment teams to go to affected areas if necessary	All departments and agencies as requested
Provide liaison officers to the DOC as requested	All departments and agencies as requested
Provide repair teams, and/or arrange urgent contracts, for restoration of communications infrastructure, and re-establishment of national and international communications links if necessary	Ministry of Transport and Communications
Provide repair teams, and/or arrange urgent contracts, for restoration of water supply, power, road access, airport access, navigation aids, etc.	Ministry of Transport and Communications and Ministry of Public Works
Arrange for provision of emergency food and water	NDMO assisted by Ministry of Labour and Community Reinsertion
Arrange for provision of seeds, seedlings and other planting materials	Ministry of Agriculture, Forestry and Fisheries
Arrange for provision of emergency shelter materials	Ministry of Labour and Community Reinsertion assisted by NDMO
Arrange and provide briefings for the international community on the disaster	NDMO assisted by Ministry of Foreign Affairs and Cooperation
Arrange for reception of incoming international assistance	NDMO assisted by Ministry of Foreign Affairs and Cooperation
Arrange for provision of warehouse space and management for internationally supplied relief items	Ministry of Internal Administration

National Disaster Management Office (NDMO)

The National Disaster Management Office (NDMO) is a permanently staffed organisation, currently situated within the Ministry of Interior. It is responsible for providing disaster risk management coordination and technical support to the government and community in Timor-Leste. It works in support of the National Disaster Coordinator (NDC) during times of operational disaster response. Note that to be an effective coordinating body; the NDMO requires significant additional capacity development assistance in risk management and planning.

Functions of the NDMO include:

- Acting as Timor-Leste's centre for disaster risk reduction activities and knowledge, collecting information, monitoring overseas developments and proposing developments for incorporation into the national disaster risk reduction system;
- Developing strategies in disaster risk reduction including preparedness and response plans and procedures and assisting in district planning;
- Administering and providing secretariat support to the NDRMC;
- Establishing and sustaining links to risk assessment and monitoring in the region, and interpreting and providing warning and strategic planning in relation to developments that may affect Timor-Leste;
- Acting as the contact point for initial reports of emergencies and disasters in conjunction with the DOC;
- Coordinating disaster risk management including scheduling of regular meetings of actors and stakeholders;
- Organising and leading multi-sector damage and needs assessment teams during response when necessary;
- Developing and conducting public information and awareness programmes in cooperation with other relevant agencies;
- Developing disaster risk reduction and emergency response training programmes in conjunction with relevant partners;
- Maintaining and developing a National Disaster Risk Management Information System;
- Developing or identifying the sources of baseline data for use in disaster preparedness and response activities;
- Maintaining, reviewing and developing the National Disaster Risk Management Plan (NDRMP), developing the Disaster Management Act and advising on other sector and development policies, strategies and legislation related to disaster risk management; and
- Administering a national regional strategic stockpile of disaster response assets.

Joint National Disaster Operation Centre (DOC)

The Joint National Disaster Operation Centre (DOC) is to be staffed on a 24 hour basis by well trained personnel and equipped with communications equipment, a secure power supply and disaster proof structures. The DOC staff will be distributed according a 3 tier system: Tier 1. Essential personnel, such as from the Fire Services, health staff and PNTL, all of whom will be drawn from the core of disaster and operations managers. Tier 2: Personnel drawn from other departments of the Civil Protection Directorate to be activated in emergencies. Tier 3: Personnel from other government Ministries to be activated in large emergencies. The DOC will be staffed with a minimum number of essential personnel distributed in the 3 tiers and fully trained in multi-functions (each person is trained in more than one skill required in an emergency). Other specialised personnel such as for risk information and disaster/emergency operations would be available for risk analysis before the onset of emergencies. These will include staff from social services, public works, NGOs and other disaster actors as necessary. In particular, the DOC needs to include staff from

emergency medical services to be set up in cooperation with the Ministry of Health and other relevant agencies. In large scale disasters, the DOC will be coordinating operations through the direct participation of the government members, the specialised agencies, the press and observers. All actors will be working in the Emergency Operations Room of the DOC, and thus smooth coordination is assured.

The functions of the DOC are as follows:

- *Directions and control of the population's survival recovery efforts and operations:*
 - protecting civil society by available means
 - coordinating evacuation procedures
 - managing the population's survival recovery efforts and operations
 - providing secure communications links for government authorities in emergencies
 - coordinating "all clear" conditions allowing the safe return of the population to their homes
 - coordinating search and rescue
- *Public information regarding emergencies:*
 - functioning as a communication hub for all information related to the occurrence of natural disasters, human induced disasters and other technological emergencies in the country
 - providing information and directions to the public on appropriate protective actions
 - functioning as a reliable information centre for the media
- *Early warning and notification:*
 - monitoring on a 24 hour basis global early warnings that may affect Timor-Leste
 - notifying the public of probable impending disasters in time to take protective action; this includes operation of all communications services and operational forces
- *Damage assessment:*
 - monitoring and analyzing initial disaster reports
 - assessing physical damage in critical infrastructure
 - collecting information essential to recovery efforts and future mitigation
- *Evacuation, traffic control and security:*
 - coordinating the movement of people from the path of a threat or an area impacted by a disaster to an area of relative safety
 - coordinating the movement of persons and emergency equipment necessary to protect civilian society
 - ensuring that risk reduction measures are in place for protection of critical infrastructure
- *Health and emergency medical care:*
 - coordinating appropriate health and medical care or services to the stricken population
- *Emergency food and shelter:*
 - coordinating the provision of shelter, lodging, food, clothing and sanitation to the affected population
- *Debris clearance:*
 - coordinating the removal of debris from public roads and facilities

-
- *Restoration of utilities:*
 - coordinating the restoration of public works and utilities damaged by an emergency/disaster

District, Sub-district and Village Arrangements

District Arrangements

The district is the key to risk management at the administration level. District Administrators (DAs) should have their mandates extended to include their functions as District Disaster Coordinators (DDCs). As DDCs, they are responsible for emergency and disaster risk reduction activities within the district. Should the DA be unavailable, the Deputy DA will act as the DDC. If the Deputy DA is unavailable, the Police District Commander will perform the role as required by the DA.

NDMO will be the reporting line for the management of operations within their area of responsibility. This includes ensuring that the mechanisms to coordinate effective preparedness, response, and recovery efforts are in place. As far as possible, district plans, programs and procedures should reflect national policy and procedures as spelt out in this Plan.

A District Disaster Management Committee (DDMC) containing district representatives of key government and non-governmental agencies likely to become involved in disaster risk management activities as well as community representatives is to be formed to assist the DDC in response operations and disaster risk reduction. Membership may vary from district to district, but typically might include members of the District Administrator's staff, sectoral officers, F-FDTL, PNTL, representatives of Catholic and Protestant Churches, mosques, CVTL, major NGOs and appropriate community leaders. Additional members may be called from time to time to meet particular needs. Details of the committee (personnel, contact details) are to be sent to the NDMO annually or when there are significant changes. The DDMC will provide guidance and policy advice on disaster mitigation, preparedness, response and recovery matters in the district. Annual reports on disaster risk management activities within the district are to be sent to the NDMO annually by 20 October.

The DDC will be responsible for disaster response decision-making within the district, assisted in decision-making by the DDMC when appropriate. Contingency plans, which will include food security, are to be developed for use in the districts affected by food shortages as well as other disasters. During an emergency response, functions of the DDMC may include:

- Coordination of rapid assessment surveys of affected areas and analysis of results (see Annex 7 for Flash Report and Initial Report Forms);
- Coordination of financial resources of the district to provide the most effective response to identified needs; and
- Recommendations on the timing and content of requests for national support, identifying the description, scale and timing of the support and the logistical information needed for effective delivery.

Sub-District Arrangements

Generally, at sub-district level, the Sub-District Administrator (SDA) is responsible for emergency and disaster risk reduction activities. When the response to a major emergency or disaster is beyond the capability of sub-district resources, assistance should be sought from the DDC, then from national level if necessary.

Village Arrangements

Generally, within each village, the *Suco* Chief and village leaders (such as elders, traditional leaders and village councils) are responsible for emergency and disaster risk reduction activities. When a village requires assistance, a request should be passed through the village head to the SDA.

Relationship with Sub-Plans and Contingency Plans

This National Disaster Risk Management Plan (NDRMP) is to be used by all districts, agencies and organisations as a guide for the development and maintenance of their own disaster risk management arrangements, plans, and procedures. The needs assessment conducted as part of the development of this plan showed a weak risk management system in place. The government needs to bring disaster risk management to acceptable levels of preparedness and response. Annex 8 compares current policy and legislation and existing capacity in Timor-Leste with optimal standard procedures.

Various government departments are willing to cooperate with NDMO in areas of their competence. In particular, the PNTL and F-FDTL have been preparing to be involved in disaster risk management operations as necessary. The participation of all actors in monthly meetings in non-crisis times is to be encouraged to facilitate coordination in crisis times.

The development of specific sub-plans is essential to guarantee an adequate emergency response. Some agencies, such as PNTL, F-FDTL and the Ministry of Health, have begun disaster response planning. This planning, as it becomes further developed, needs to be done in the context of the National Disaster Risk Management Plan. Sub-plans are also urgently needed in other ministries, such as the Ministry of Education, Culture, Youth and Sports and the Ministry of Transport, Telecommunications and Public Works.

Contingency plans are to be designed to address specific key threats (see Annex 4 for the various types of hazards affecting Timor-Leste). Sectors for which contingency planning is needed include: food security, health, education, and defence. All departments and agencies also need internal contingency planning focused on protection of staff and assets in the event of an emergency.

Food Security

The country is prone to drought and other hazards affecting food security in vulnerable communities. Every year a large proportion of the population suffers from food shortage for a number of months. Assistance may be needed in some communities when localised food shortages result from a complex range of factors, including climatological changes (see the Terminology section for information on El Niño-southern oscillation). Recurrent food security issues need to be addressed through both risk reduction measures and contingency planning.

Health

As Timor-Leste is at high risk of earthquake-related disaster and other hazards such as floods, tropical storms, landslides and epidemics (including potentially 'bird flu'), risk management of mortality (deaths), diseases/injured (morbidity) and combinations of diseases (co-morbidity) in relation to such disasters should be part of the health sub-plan. The Health Disaster Management for Timor-Leste is being finalized by the WHO office and will be delivered through specialized training in the districts in 2006.

As a general rule, there is a decrease in death from disasters if countries are prepared for them. There are, however, more people *affected* by disasters than those *killed*. Rather than having measures in place to deal with high disaster mortality, Timor-Leste should be prepared for helping survivors.

Yearly rates of mortality and morbidity are most influenced by a single large-scale disaster in which many people are killed and disproportionately large numbers of people are affected. For example, the Chernobyl nuclear accident in 1986 affected 5.3 million people although it directly killed less than 500 people. The Bam earthquake in 2003 killed approximately 15,000 people and affected thousands of people. The Turkish earthquakes in 1999 killed more than 12,000 people and affected thousands of individuals. The Asian tsunamis of 26 December 2004 killed close to 300,000 people and affected many more by being a single disaster spreading death and destruction in 10 countries. The earthquake of October 2005 affecting Pakistan, India and Afghanistan killed more than 38,000 people and affected more than 3 million.

The morbidity:mortality ratio, as well as its relation to property destruction, is specific to each type of disaster. For example, in massive earthquakes the ratio of morbidity:mortality is usually 3:1. This has implications for the public health management of effects because of the large number of physical injuries to limbs (crushing of limbs, amputation, broken bones) and the long-term physical and psychological rehabilitation that is required. The tsunamis disaster of 2004 had extremely high mortality and few injured people (light injuries caused by floating debris) Floods generally have high mortality rates, but few injuries. Because of technological advancements in warning systems and better preparedness programmes in at-risk areas, typhoons/tropical storm are responsible for relatively few injuries and deaths, but great loss of property.

According to *IFRC World Disasters Report*, 2005 edition, globally, the number of people affected by natural disasters in the past 10 years decreased from 258 millions to 146 million people. This is a clear example of the effectiveness of the risk reduction strategies.

Education

Introducing disaster risk reduction strategies through the educational system is one of the key successful interventions. Disaster preparedness, prevention and response should be part of the general education curriculum. People in schools, universities and workplaces should be continuously informed and trained to cope with natural hazards and fire hazards. From an early age, all East Timorese should be taught how to behave during earthquakes/tsunamis or other relevant hazards. Every year, a two-day training session in risk reduction for

earthquakes/tsunamis and storms/flooding complete with simulation exercises and concrete preparation actions should be conducted. This facilitates the mobilisation of communities at the local level when a disaster hits. Contingency planning in education should include:

- Ongoing training programmes (e.g., emergency procedures, First Aid and CPR, evacuation, search and rescue, use of fire extinguishers; damage assessment)
- Establishment of evacuation routes from schools, and
- Education of staff in public buildings.

Defence

The F-FDTL is an organised force with unique professional capabilities suited to supporting the civil authorities and agencies in disaster/emergency situations. For example, it has a professional command structure, a relatively quick reaction time, a ready pool of disciplined people who are familiar with operating in uncertain and potentially dangerous situations, field communications, motorised transport and a limited sea transport capability, logistics management skills, some minor field engineering capabilities, and the respect and confidence of the people. Accordingly, the F-FDTL could be expected to assist in a range of emergency situations – for example, in the event of major flooding, the F-FDTL could be tasked to support the civil agencies in providing humanitarian assistance, evacuation, communications, and the critical transportation and distribution of relief supplies. To optimise F-FDTL support, it is desirable that senior F-FDTL staff participate in preparatory disaster risk management activities including the development of contingency plans.

Internal Plans for All Departments and Agencies

Disaster risk reduction strategies should be part of normal management practice in offices of administration and business. Every government department, office, agency, NGO, institute and organisation should have a contingency plan of measures to protect its own assets if there is a disaster threat and to assist its staff to a rapid return to normal service after a disaster.

The plan should include appropriate and timely activation arrangements and should cover the following:

- Backing up computer software and storage of backups at remote locations;
- Alternative locations for a core office if the main office is out of action;
- Arrangements for removing or raising assets in natural hazards-prone locations;
- Protection of electronic and other equipment from water damage from roof leaks or broken windows (covering with plastic, storage of telephones in drawers, etc);
- Arrangements to allow staff to return home to ensure family safety either before impact or after an event; and
- Environmental safeguards for hazardous materials management.

PART THREE: PREPAREDNESS

Disaster preparedness measures are the measures taken to reduce casualties, suffering and damage in disasters by preparing and organising prompt and effective response action when it is needed. They include such measures as warning, planning, training, public education, establishing stockpiles and developing procedures for response and recovery. All actors or emergency responders that will be involved in an emergency operation should be trained, equipped and prepared to work together in a coordinated manner. These actors should prepare detailed support plans that outline the ways in which they will meet their operational responsibilities under the National Disaster Risk Management Plan. The NDRMC is responsible for conducting an annual review of the status of these plans. Simulation exercises should be implemented twice a year. It is essential to update information on emergency contacts every three months, and stockpiling updating should be done at least three times per year.

Preparedness Measures

The wet seasons occur in Timor-Leste from December-March (throughout the country) and May-July (in the south) each year; during these months, there are threats from floods, landslides, tropical storms, and destructive winds. Other hazards, such as earthquakes and tsunamis, can strike at any time. Therefore, the following preparatory actions should be taken.

At National Level

The NDRMC with support from NDMO should:

- Meet twice a year to discuss preparedness and any changes needed to plans and procedures (including updated risk assessments);
- Confirm all contact details for NDRMC members, key agency representatives, NDMO, District and Sub-District Administrators;
- Confirm public warning and information system details;
- Check the national stockpiles of relief supplies and replenish as necessary;
- Update and/or develop assets mapping for hazards logistics;
- Request departments and agencies to update their records of stockpiles of supplies that might be required for relief operations;
- Check that reception and storage arrangements for incoming supplies are still applicable;
- Check how many functional trucks and four-wheel drive vehicles are available at national level and within districts particularly at those locations that can be isolated by road closures and landslides;
- Arrange for the Ministry of Transport, Communications and Public Works to confirm the whereabouts of heavy machinery that might be needed for clearance of landslides and opening of roads;

-
- Develop/update community guidelines for disaster preparedness (for earthquakes, flood and other hazards) and organise public awareness campaigns supported by educational materials (Annex 9 describes safe measures to be taken in relation specific hazards that may affect Timor-Leste).

At District and Sub-District Level

The District Disaster Coordinator (DDC) with support from the District Disaster Management Committee (DDMC) should:

- At least twice a year, convene meetings of the District Disaster Management Committee (DDMC) and Sub-District Disaster Management Committees (SDDMCs) to discuss readiness for disasters, brief on any changed arrangements and identify any changes needed, and pass on any concerns to the NDMO for consideration by the NDC or the NDRMC;
- Confirm contact details for DDMC and SDDMC members, key agency representatives, key staff, and Sub-District Administrators;
- Confirm emergency communications arrangements in the district;
- Check district stockpiles and arrange replenishment as necessary;
- Request agencies to update their records of stockpiles of supplies that might be required for relief operations;
- Check the availability of trucks and four wheel drive vehicles in the district (and sub-districts) particularly at those locations that can be isolated by road closures and landslides;
- Confirm public warning and information system details; and
- Implement disaster preparedness in at risk-communities.

At Village Level

Sub-District Disaster Management Committees (SDDMCs) should remind communities to prepare for possible disasters. Such preparedness measures may include:

- Ongoing awareness of the possibility of disasters and/or emergencies;
- Clearing drains and floodways;
- Clearing debris from under bridges and confirming their approaches are firm;
- Removing and/or securing in residential areas, coconuts, rubbish, iron sheets, and other materials that could cause damage in a tropical storm;
- Ensuring food and other reserves are stored above normal flood level;
- Checking the security of houses in case of storms; and
- Confirming the community knows the evacuation routes to be used in any disaster event, safe refuges from flood and the routes to those refuges, and locations where basic items will be made available to survivors of a disaster.

PART FOUR: HAZARD AND VULNERABILITY ANALYSIS AND EARLY WARNING

Capacity and vulnerability analysis provides knowledge and understanding to communities, government and other agencies about hazards and community capacities to respond. The vulnerabilities of communities (e.g. poor people living on unstable slopes, in flood-prone areas, or in soil liquefaction hazard areas) need to be analysed and appropriate risk reduction undertaken. Hazards of various types (see Annex 4) need to be analysed and monitored, both in terms of their individual effects and also their possible cumulative effects if more than one impacts at the same time (such as flooding at the same time as an earthquake) or if a particular hazard impacts over a long period of time (such as recurrent drought). Hazards analysis and monitoring provide relevant authorities with the information they need to issue an early warning, activate plans already developed, and anticipate the deployment of emergency management teams in the early hours of an impact of a hazard agent (such as a tropical storm or flood). At community level, local experience and preparedness enables community members to act as first responders immediately after the impact of a hazard agent. Thus, priority should be given to community based capacity building to strengthen existing locally developed coping strategies.

Hazard and Vulnerability Monitoring and Analysis

Monitoring is a responsibility of all government and non-government sectors. The NDMO is supporting various sectors to carry out capacity development activities. While some sectors such as the Ministry of Health and PNTL have established national to community monitoring systems, many sectors require significant technical development support to establish effective communications between communities, community groups, NGOs, District Administrations and national level government.

The NDMO is responsible for receiving, analysing, integrating, interpreting, distributing and coordinating national hazard, vulnerability and risk monitoring data. This information is then used to advise government and non-government sectors in relation to appropriate disaster/emergency preparedness, response, recovery and reduction measures. The NDMO has already established the Disaster Management Information System (DMIS), which has a number of GIS hazard maps for Timor-Leste's common natural hazards. A disaster database named *Desinventar* will allow data on hazard type, damage caused and mortality and morbidity to be recorded by disaster event.

Regional Early Warning Monitoring and Analysis

Early warning systems can be extremely effective in saving lives and property and protecting the vulnerable when natural hazards threaten. However, many countries do not have early warning systems in place, and warning systems too often fail at times of crisis. At the international level, the International Early Warning Programme (IEWP) is comprised of early warning activities coordinated by the UN sponsoring organisations.

Sources of early warning information available include the following:

- **Humanitarian Early Warning Service (HEWS)** developed by WFP is a global multi-hazard watch service (www.hewsweb.org).
- **Natural Disaster Prevention and Mitigation** programme of the World Meteorological Organisation (WMO) provides information on disaster activities, research programmes and weather and climate events (www.wmo.int/disasters).
- **Global Information and Early Warning Systems (GIEWS)** of the Food and Agriculture Organisation (FAO) provides information on food production, food security, commodities assessment and pests (www.fao.org/giews/english/index.htm).
- **Division of Early Warning and Assessment** of the United Nations Environment Programme (UNEP) provides analysis of global and regional trends to provide policy advice and early warning information on environmental threats (www.unep.org/dewa).
- **International Tsunami Information Centre** established by UNESCO is an Hawaii-based centre that supports Pacific members states to establish and maintain tsunami early warning systems (<http://ioc.unesco.org/itsu/>).

Severe weather warnings and routine weather forecasts for Timor-Leste are available temporarily through the Australian Defence Force from the Australian Bureau of Meteorology Regional Forecasting Centre in Darwin. The NDMO monitors weather as well as extreme climate conditions to reduce the impact of seasonal hazards, drought and forest fires. Currently, a *Tsunami Watch Information* for the Indian Ocean is available to Timor-Leste through the Japan Meteorological Agency in coordination with the Pacific Tsunami Warning Center. The information is available to NDMO and other Ministries. The warning is expected to be issued with a target of less than 20 to 30 minutes after the occurrence of the earthquake depending on the condition of communication and the availability of seismic data. Specific information will be relayed, including the estimated tsunami travel times to reach the respective coasts of the countries in the Indian Ocean region (only for the earthquake of $M > 7.0$). After a warning has been received, it is important to communicate the risk to the population without causing panic.

Emergency and Disaster Reporting and Communication to the Public

The key to achieving effective response from participating organisations and the community is to have reliable and effective warning and alerting systems in place. Advice of a developing hazard or of the occurrence of a disaster will come from either of two main sources:

- Official source (e.g. geological or meteorological international agencies, NDMO, DOC, PNTL, F-FDTL, District Administrators, UN Agencies); or
- Unofficial sources, such as the church or other members of the public.

Any official or other person becoming aware that a disaster or major emergency has occurred should report the situation to the nearest District Administrator, Sub-District Administrator, police officer, civil security officer or fire service officer. Contact details for all these points should be widely promulgated to departments, agencies and the public throughout the country.

Police officers, civil security officers and fire service officers should pass reports of a disaster or major emergency to the relevant District Administrator or Sub-District Administrator. It is the responsibility of the Sub-District Administrator (as Sub-District Disaster Coordinator)

and the District Administrator (as District Disaster Coordinator) on receiving an unofficial report, to verify its accuracy. Once verified, the District Administrator or Sub-District Administrator will report to the DOC and NDMO. If receiving an unofficial report directly, the NDMO should advise the relevant District Administrator and ask for the report to be verified.

When there is advance warning of the likely impact of a hazard or when a disaster has occurred, it is the responsibility of the DOC to ensure that timely and appropriate warning messages are broadcast to the public advising of the degree of threat and action that should be taken. When the threat has abated, information will be passed to the public as well as to any search and rescue and recovery efforts that are underway.

Departments and organisations should assist in this communication process by ensuring that all relevant information is forwarded to the DOC and NDMO. In addition, all disaster management focal points in the districts should ensure that they are contactable at all times and particularly after normal working hours. Personal mobile phones should be kept charged and turned on at all times.

Annex 6 provides details of the National Activation System (Alerts, Stand By, Activation and Stand Down) and Annex 10 provides a list of contacts. Details of warning systems and community alerting systems are yet to be fully developed.

Principles and Responsibilities for Effective Early Warning²¹

The objective of early warning is to empower individuals and communities threatened by hazards to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life and damage to property or the environment. Risk assessment provides the starting point for an effective warning system. It identifies potential threats from hazards and establishes the degree of local exposure or vulnerability to hazardous conditions. This knowledge is essential for policy decisions that translate warning information into effective preventive action.

The responsibility for effective early warning spans from local to international levels, each level having essential but partially overlapping functions:

- Vulnerable populations need to be aware of the hazards and the related effects to which they are exposed and be able to take specific actions to minimise the threat of loss or damage.
- Local communities need to have sufficient familiarity with the hazards to which they are exposed.
- Community leaders must understand the advisory information received to be able to advise, instruct or engage the population in a manner that increases their safety or reduces the possible loss of resources on which the community depends.
- The government needs to exercise responsibility to prepare and issue hazard warnings for its national territory in a timely and effective manner.
- The government should ensure that warnings and related protective guidance are directed to those populations determined to be most vulnerable to the hazard risk.

²¹ Adapted from Living with Risk (2002), *ibid*.

-
- The provision of support to local communities to develop knowledge and response capabilities is an essential function to translate early warning knowledge into risk reduction practices.

Problems with warning may include²²:

- Inadequate warning lead-time
- Errors in warning information
- Faults in warning systems for technical reasons
- Delays in transmission of warning to key officials or organisations
- Failure of public warning systems (e.g. radio broadcast stations) due to the impact of the hazard
- Failure of people to respond to warnings

²² Carter, N/ADB (1992). Disaster Management: a disaster manager's handbook. Manila. Page 248.

PART FIVE: EMERGENCY MANAGEMENT

As described in Part Two, the Joint National Disaster Operation Centre (DOC) will have critical roles in assisting agencies/partners and coordinating emergency actions:

- Directions and control of population's survival recovery efforts and operations
- Public information regarding emergencies
- Monitoring global early warnings on a 24 hour basis
- Notifying the public of probable impending disaster in time to take protective action
- Damage assessment
- Evacuation, traffic control and security
- Health and emergency medical care
- Emergency food and shelter.
- Debris clearance
- Restoration of utilities

Safe Refuges and Evacuation Plans

Village committees, as part of their preparedness for disasters and major emergencies, should identify safe refuges from floods and other hazards and safe routes to these refuges. The decision to use these refuges must be made at the local level since it is unlikely that there will be enough information even at sub-district level to instruct people to evacuate to refuges. The identification of locations that can be used as evacuation centres is the responsibility of District Administrators working with community leaders during disaster preparedness. The public should be informed of the location of shelters and the conditions under which they will be made available as a threat develops. The location of shelters, management responsibilities and location of any keys required should be documented and made available to relevant officials as a threat develops. Arrangements should be made for the provision of support to the shelters, although it is suggested that users should be encouraged to be self-sufficient for the first few days of use. Education programs should not only identify the locations of shelters, but also inform the community of the self-sufficiency requirements for food, water, bedding, medicines and toiletries.

For Dili, NDMO has developed a preliminary evacuation plan in cooperation with the PNTL, Fire Services and Civil Security. In this preliminary plan, the main evacuation meeting point for Dili is the central market and the main agencies involved are Ministry of Labour and Community Reinsertion, Ministry of Health, PNTL and F-FDTL. Detailed evacuation routes, dissemination of those routes to the public and responsible partners' organisations to conduct evacuations need to be developed.

Post Disaster Surveys

Organised surveys are a very effective way of collecting standardised information on the impact of a disaster. Survey teams, preferably with members from a range of different sectors, should be deployed to the affected area as soon as possible after the event. Annex 7 provides standard forms for Flash Reports and Initial Reports. Copies of standard forms should be held at national, district and sub-district level ready for use in an emergency.

Standard instructions for survey teams should be available with the forms. If required, the results of a survey can be passed by radio using the numbers on each section of the forms as a guide. Rapid aerial surveys can provide a useful overview of the situation after a disaster and may be valuable in preparing for response, but are not an adequate substitute for a planned survey.

International Assistance

Requests for international assistance will only be submitted when it has become clear that there are needs that cannot be met from national resources, NGOs and other agencies already present in the country. Requirements for international assistance will be determined by the NDC, which will submit requests through the Ministry of State for Foreign Affairs and Cooperation. The DOC will be responsible for providing detailed information on needs and reception arrangements to assist donors to meet requests as quickly and effectively as possible. All departments and organisations that require international assistance must submit their needs to the DOC for NDC consideration. Under no circumstances should direct requests be made to aid agencies/donors or diplomatic missions.

All donors will be required to register all capital and human assistance with the NDMO Supply Management System (SUMA). Coordination of international assistance can impose a heavy additional workload on a response. Assistance with this coordination can be obtained from the United Nations, which has United Nations Disaster Assessment and Coordination (UNDAC) teams of experienced disaster managers on constant alert. This should only be viewed as a last resort, as it provides little capacity development opportunity. However, UNDAC can assist through UNOCHA, UNDP and other UN system international appeals for assistance to the government. UNDAC can activate a team and have it in a disaster-affected country within 24 hours if transport is available. A request for such a team can be made through the NDMO, NDC and Minister of State for Foreign and Cooperation to the UNDP Resident Representative in Timor-Leste. For example, UNDP could consider developing a United Nations Disaster Management Team (UNDMT) for Timor-Leste.

Customs, Immigration and Quarantine

Once an official request for international assistance has been submitted, Border Services is to be advised by NDMO and is to make the necessary arrangements for “Disaster Management Assistance Endorsed by the NDMO.” This will include duty exemption for goods purchased locally with disaster relief funding and clearance for agricultural and hazardous material imports.

The NDMO or DOC is responsible for providing information on donor assistance to Border Services to facilitate this process. This includes details of the type, quantity, source, means of transportation, arrival point, estimated time of arrival and whether or not the assistance is Disaster “Management Assistance Endorsed by the NDMO.”

Financial Considerations

At the National level, the Central Fiscal Authority holds the responsibility for the management of disaster relief funds, and must authorise the expenditure of such funds in the

event of a disaster, through a request by the National Disaster Coordinator (NDC). At the district level, the District Administrator, as District Disaster Coordinator (DDC), should ideally have access to a small contingency account that can be used for emergency response purposes.

Urgent requests for procurement of vitally needed supplies or services for disaster response purposes can be made directly to the Head of Treasury, or Deputy Head, who will arrange urgent allocation of funds from the contingency account and accelerated procurement. Accounts charged to the disaster relief fund that have not been approved by the NDC and processed in accordance with Finance Regulations will be returned for payment to the department, organisation or individual that incurred the costs. This procedure will ensure that the limited available funds are committed to high priority requirements, and will avoid unnecessary expenditure on items that may already be available from other sources.

PART SIX: AWARENESS RAISING

The NDRMC with assistance from NDMO is responsible for providing advice to the Ministers and Secretariat's responsible for assisting NDMO to identify, develop and implement national public education and awareness programs. Target audiences should include:

- Vulnerable groups, such as women, children, the aged, widows, returnees, refugees, religious and ethnic minorities and those in hazard-prone areas;
- Community leaders;
- Rural families and village communities;
- Urban families;
- District officials and District Disaster Management Committees;
- National Disaster Risk Management Committee members;
- Other key officials and decision makers;
- Non-governmental organisations; and
- Diplomatic and donor community.

The content of public education and awareness programs will vary according to the target audience, the threats and the areas in which they are undertaken. The media used to present the programs should be selected after consideration of the target audience and the acknowledged way of communicating effectively and sustainably with that audience. Media and language appropriate to one audience may be less effective with a different audience.

Options considered should include the following:

- Radio/television - pre recorded messages, interviews and discussion programmes;
- Newspaper articles, advertisements and lift-outs;
- Official briefing sessions for officials;
- Development of educational material for use in schools;
- Visits to schools and villages by theatre groups and video presentation teams;
- Village and community meetings;
- VCD community presentations;
- Production of posters, pamphlets and hazard maps.

Although day-to-day public awareness and education activities will be managed by the NDMO, a specialised working group may be established to plan specific campaigns. The group could include representatives from the following organisations:

- NDMO
- National Directorate for Territorial Administration
- PNTL
- Ministry of Transport, Communications and Public Works
- Ministry of Education,
- Ministry of Labour,
- Timor-Leste Red Cross (CVTL)
- Women's Network (Rede)
- Other specialist agencies according to need (e.g. church representatives)

District Administrators will be responsible for supporting the awareness and education programs by identifying special requirements for their area, disseminating material, and conducting visits to ensure that villagers are familiar with the material and are aware of preparedness measures which must be taken.

In both technological and natural disasters, how the press conveys information to the public can magnify or reduce psychosocial distress for the “at risk” population. There are certain key principles that are often applicable to both types of disaster. Threat of an impending natural disaster and threat of contamination by a chemical, biological or nuclear emission all cause anxiety. The role of the press in increasing or reducing perceived or real fear is critical. Frightening news, if repeated many times to a community can magnify fears, leading to widespread stress and anxiety. This can be manifested in many forms and can ultimately impair decision-making processes, causing people to take wrong mitigation measures to protect themselves.

People who are not physically affected by a catastrophe, but who live within range of potential, possibly long-term and largely unknown dangers may be frightened by both proximity to the danger and the lack of credible information. To a large extent, the degree of fear and insecurity due to the lack of credible information will determine people’s attitudes and overall behaviour.

Communication of public risk must use a variety of techniques in dealing with the press and the public. For example, news releases will provide the press with the basic facts about an emergency, but these will often be incomplete. The exchange of information between interested parties will allow for more informed decisions. Therefore in a public crisis situation, the local, national, and international partners should all cooperate with the press to keep the general public accurately informed. The local media received training in how to broadcast risk messages in a workshop sponsored by ADPC and NDMO in September 2005.

Communication of emergency information should consider the following:

- Information should be controlled by a single public spokesperson who openly cooperates with the press;
- The press should also convey information on risk reduction and safety measures to be adopted by the public;
- The spokesperson should be truthful and straightforward with the press in order to maintain credibility and trust;
- The spokesperson should be clear about what is not known, as misconceptions are likely to lead to inappropriate responses by the press, the public and other partners in an emergency response.

PART SEVEN: RECOVERY AND KNOWLEDGE DEVELOPMENT

Recovery is a term used to describe the often-complex series of measures that result in both rehabilitation and reconstruction taking place. Rehabilitation encompasses measures taken after a disaster to begin restoring community life to normal by beginning the repair of essential services and environmental, social and economic damage. Recovery is a process by which communities and the country are assisted in returning to a proper level of functioning following a disaster. Depending on the severity of damage, the recovery process may take many months or, in the worst case, many years to complete. This aspect of disaster management is best tackled using established government procedures and in close cooperation with development projects and programmes. Disaster officials can assist in recovery processes through providing damage assessment reports, making recommendations for recovery activities, conducting a post-disaster review and organising operational debriefings.

Damage Assessment Reports and Recovery Activities

District Administrators are responsible for preparing a full report on the impact of the disaster to the National Disaster Coordinator (NDC) within two weeks of the end of major response operations. These reports will be added to a similar report prepared by the DOC covering the national aspects of the damage.

The NDC, after considering the damage assessment reports, may recommend to the NDRMC one of the following options for managing a recovery program:

- The establishment of a recovery program management committee appointed by the NDRMC. The composition of the committee will be determined by the nature of the disaster, and this committee will be responsible for managing the recovery program and ensuring that the NDRMC is informed of the progress of recovery activities.
- Management by one Minister with a special temporary office or section acting on direction of the NDRMC.
- The NDRMC itself providing direction to individual Ministers and their departments.

The NDC is responsible to the NDRMC for monitoring the requirement for any continuation or resumption of disaster relief during the recovery period.

Post-Disaster Review

The NDRMC is responsible for ensuring that a thorough and accurate review of the activities and procedures used during a disaster response operation is conducted to ensure that the experience gained and lessons learned can be applied towards improving future mitigation, preparedness, response and recovery procedures. The post-disaster review needs to be as comprehensive as possible and should, after a significant disaster, include the following aspects:

- Status of mitigation measures, preparedness measures and response plans prior to the disaster;
- Communications;

-
- Warning, including origin(s), transmission and receipt, processing, dissemination, action taken (by government, the community, etc.), functioning of warning systems;
 - Activation of the response system and mobilisation of resources;
 - Procedural aspects of the DOC including information acquisition, receipt, analysis, display, decision making, dissemination of information;
 - Assigning of tasks to organisations involved;
 - Operations conducted, including search and rescue, casualty handling, initial relief measures, clearance of vital routes/areas, evacuation, restoration of services;
 - Arrangements for emergency feeding, health, welfare and shelter;
 - International assistance arrangements;
 - Assessment of public education/awareness programs, in the light of community reactions;
 - Training aspects;
 - Provision of information for recovery programs;
 - Any special factors raised by the nature of the particular disaster; and
 - Research requirements revealed by the disaster.

If circumstances are appropriate the review can include input from specialists on future trends and developments.

The outcomes of the review should be examined carefully for possible actions needed in relation to the following:

- Amendment or revision of the National Disaster Risk Management Plan, of sector plans and procedures, and of district plans and procedures;
- Amendments to mitigation, preparedness and similar measures and/or the introduction of new measures;
- Changes to organisational structure;
- Revision of, or adjustment to, major disaster management issues, such as training and public education and awareness activities;
- Adjustments to national or district development plans.

Operational Debriefings

Operational debriefings should be conducted as soon as possible after the event. They are aimed at determining the views of those involved while the issues are still fresh, and learning the more immediate lessons. Debriefing outcomes form a significant base for the post-disaster review. These debriefings should be conducted in stages:

- Within the DOC, the NDMO, and the Ministry of the Interior to review departmental operating procedures and to allow staff to submit their views on the operation;
- Within each affected district to review district, sub-district and village procedures and the success of the measures taken to respond to the event; and finally
- An open debriefing attended by district representatives and all departments and agencies that actively participated in the operation.

To obtain optimal results, debriefings should be open discussions between professional staff in which the aim is to learn from mistakes, not to allocate blame. Debriefings that become exercises in self-promotion, self-justification or blaming of others by participants are of very limited value.

PART EIGHT: CAPACITY BUILDING NEEDS AND TOOLS

All personnel involved in disaster risk management activities require training. Those with permanent disaster risk management roles, such as NDRMC members, NDMO staff, NDMO focal points, and DDMC members, should be given priority for capacity building. However, training needs to extend to sub-district and community level as well as to government staff likely to become involved in disaster risk management activities.

The NDMO, in consultation with District Disaster Coordinators (DDCs), is responsible to the NDRMC for the management and co-ordination of disaster risk management training activities, including:

- The identification of training needs at national, district, sub-district and community levels;
- Arranging for appropriate training activities to be developed;
- Preparing and conducting an annual programme of national training;
- Developing and operating a system for nomination and selection of participants in training activities,
- Identifying international training activities and opportunities that can help to develop national disaster risk management capabilities and seeking support for the attendance of selected Timor-Leste disaster risk management staff at such activities;
- Selecting appropriate and qualified persons to attend in-country, regional and international activities; and
- Maintaining a training resource register.

Guiding Principles for Training

The importance of training for ensuring expeditious assistance to the affected population is widely recognised. Lives can be saved if a strong training component is built into the disaster risk management plans, particularly in the pre-disaster phase. Specific disaster training interventions involve situations both prior to the hazard impact (preparedness) and after the impact (response/emergency assistance and recovery).

Training prior to disasters should take into consideration the following:

- Training should be targeted to building the capacity of both the population affected (community members) and the disaster response teams; this is particularly important in Timor-Leste where natural disasters are prevalent.
- Training of the population at risk should include measures of mitigation and preparedness, usually under the responsibility of NDMO as well as other relevant agencies. These measures involve effective means of communicating pre-warning and warning messages through the media (see Part Six, Awareness Raising).
- Disaster risk management plans should be drawn up and rehearsed well in advance of the onset of any disaster. (For instance, in Peru, a high-risk country for a number of natural disaster agents, national simulation exercises are conducted.) Exercises should include clear and simple messages containing the basics of risk and stress management, including control of such emotions as fear and techniques for maintaining calm at the time of impact. These issues should also be included in risk communication packages.

-
- Training of the emergency/disaster response teams includes preparation for coping with dangerous situations. This is considered an important protective factor. Stress resistance can be increased by teaching innovative methods derived from disaster psychology and disaster medicine, such as SIT (Stress Inoculation Training). Researchers agree that such methods are very effective in mass disasters. Highly trained professionals who must identify corpses and rescue severely injured people have shown insignificant levels of post-traumatic stress reactions. The non-professional disaster responder has shown more frequent and severe post-traumatic stress reactions and used more emotional control techniques than the experts. Operational and psychological debriefing is widely utilised by emergency responders to minimise post-traumatic stress responses. Specific details should be addressed in the development of the Health Sub-Plan.
 - Helpers and emergency responders may be involved in many different aspects of assistance at the disaster site. Typically they are: disaster control and rescue operations; medical tasks (triage and treatment of dead and injured); information and communication; and support services for the injured and relatives. Persons who undertake such helping roles at the time of disaster may be either specifically trained for their tasks – **professionals** such as police, ambulance or rescue squads – or may be spontaneously formed – **non-professional helpers** such as the voluntary workers and community members who offer their services in response to the crisis. Simple measures implemented during training can have a powerful psychological effect during on-site operations. For example, body handlers should not go home and take on additional family responsibilities; they should stay overnight together. They should also be kept in a specific area and nobody should be working at night-time. Also, by placing a very experienced person in every search and rescue or emergency team, work stress is then lowered. Personnel selection is important for certain occupational groups such as the body handlers.
 - Training can be conducted at national level using the network of schools. This type of training is programme oriented in that it is necessary to design and implement emergency norms in conjunction with the preparedness needs of the country. For instance, because of the high risk of earthquakes in Timor-Leste, it is essential to prepare the population, particularly children, in how to protect themselves in the event of an earthquake. This can also be applied to storm preparedness and other mixed types of disasters and emergencies. Such a programme is designed to accommodate three levels of target groups:
 - **Level one training** targets national capacity building by training a core of specialists in the country, who will in turn provide monitoring and supervision to the other levels to be trained. The core of specialists will ensure long-term sustainability of the training programme.
 - **Level two training** is targeted to the teachers and school facilitators responsible for day-to-day interaction with students. Messages delivered on this level are mainly based on the fear-induced elements related to the prevalent disaster in the area; they concern specific stress management techniques to be used by teachers with the children when pre-warnings are issued. It is essential that this kind of information be retained through repeated learning by both teachers and students, including rehearsals of 45 minutes, to take place as part of the general school curriculum once every 6 months.
 - **Level three training** involves the training of the students themselves for two reasons. Firstly, recent research data focused on children and disasters has shown that one of the reasons for child injury in large-scale natural disasters is that parents do not convey to them preparedness messages (under the assumption that they will be with the children). Secondly, it is important to ask children about their valid concerns in

disaster situations, thereby empowering them to behave effectively within disaster contexts. Furthermore, children will also convey these preparedness messages to their parents in their daily home interaction.

Capacity Building Tools

In addition to formal training, exercises are a valuable means of capacity building as well as a useful way of testing plans and procedures. The following types of exercises can be conducted with limited preparation and will prove useful in the development of skills at national, district, sub-district and community levels:

- ⇒ **Participatory capacity and vulnerability assessments.** To undertake a risk management process it is necessary to first deepen the understanding of local realities. Aligned with the disaster risk reduction framework, existing threats and vulnerabilities must be identified before applications of strategies to reduce risks can be put in place. Participatory assessments at community level help community members to analyse the hazards they face, their vulnerabilities in relation to different hazards and their capacities to reduce the risks.
- ⇒ **Developing indicative risk maps.** An indicative risk map is a graphic and written representation of risk conditions in a community as determined by existing threats (drought zones, seismic faults, epidemics, etc.) and vulnerabilities (such as physical, environmental and financial vulnerabilities). An indicative risk map is a tool that helps decision making and prioritisation of activities that help reduce the occurrence and the impact of disasters while promoting sustainable development. Indicative risk maps may be generated by communities.
- ⇒ **Hazard assessments.** A series of simple skills can be taught to district and sub-district leaders that will allow them to read a map, plot indicators of on-going hazards (e.g. earthquake aftershocks, landslides, etc.) and convey to NDMO the proper records. Aspects of risk communication should be included in this basic training.
- ⇒ **Tabletop or discussion exercises.** A disaster scenario is prepared and presented to representatives of agencies likely to have a role in disaster response. Discussing a disaster scenario involves imagining the impact of an event or danger and taking its consequences into account. The participants discuss how they would coordinate their activities to meet the expected needs, identifying organisational and logistical factors and the ways of dealing with changing requirements.
- ⇒ **“Hypothetical” exercises.** A ‘hypothetical’ exercise is a variant of the table-top exercise. An experienced facilitator presents a scenario, then as participants develop ways of responding, identifies possible consequences of their actions and presents these as new problems to be dealt with by an individual agency or in a coordinated manner.
- ⇒ **Procedural exercises.** A procedural exercise is a simple exercise in which the messages that would be expected from a pre-determined scenario are passed in ‘real’ time to participants who practice the operational procedures for receiving, organising and presenting the information. This type of exercise requires detailed preparation of the messages but may not need to cover more than a limited period or aspect of the scenario.

These exercises are valuable for training DOC staff and equivalent district staff.

- ⇒ **‘Live’ exercises and simulations.** These are exercises in which skilled personnel are given the opportunity to practice their skills in circumstances as near as possible to reality. They may include practice fires that have to be extinguished, events such as earthquakes paired with tsunamis resulting in mock casualties who need to be treated appropriately, or practice evacuations in which people have to be actually transported to an evacuation centre and processed after arrival. For example, in April 2005, the F-FDTL, PNTL and NDMO cooperated in a disaster simulation exercise, which took place on Atauro Island. Some lessons learned through this simulation exercise were as follows:
- Further disaster simulation exercises should be done on a medium scale by involving a few additional stakeholders who will play an important role in emergencies. For example, the Minister of Health (Emergency Medical Services utilizing information on disaster medicine), observers from WFP and selected NGOs among others.
 - The F-FDTL needs to develop an immediate action plan considering its critical role in the early stages of an emergency, such as the deployment of search and rescue teams, providing initial First Aid, and providing emergency food and water.
 - In the case of a large scale disaster, a liaison officer should be provided by NDMO to liaise with international humanitarian assistance for provision of key elements required for an effective humanitarian search and rescue operation that may be required in Timor Leste. There should be liaison with AusAID, EMA (Emergency Management Australia) and the Australian Defence Forces (ADF) as preparedness plans progress as part of the existing relationship between the F-FDTL and the ADF. This should include earthquake preparedness and emergency readiness plans for large-scale natural disasters.