Towards a Safer Sri Lanka

Road Map for Disaster Risk Management

Disaster Management Centre
Ministry of Disaster Management

Towards a Safer Sri Lanka

A Road Map for Disaster Risk Management

December 2005

Disaster Management Centre
Ministry of Disaster Management
Government of Sri Lanka

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Towards a Safer Sri Lanka: A Road Map for Disaster Risk Management

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Message from the Hon. Prime Minister

It is a great pleasure and privilege to launch the Road Map for Disaster Risk Management in Sri Lanka. I am confident that the implementation of this plan will fulfill the needs of the country to make it safer in the future from natural as well as human induced disasters. Disaster preparedness and risk management are vital for the well-being of the nation.

It should be noted that over the past decade efforts have been made to establish a legal framework in the country for disaster risk management (DRM). The 2003 floods and landslides disaster and the 2004 tsunami have brought to light the urgent need for a systematic approach to DRM.

The Disaster Management Act enacted this year provides the legal base and a high level National Council for Disaster Management to oversee all activities in this area. A separate Ministry for Disaster Management has been created and the Disaster Management Centre has been established as per the Act, as the lead agency in the country for Disaster Management. It will implement activities related to all phases of DRM in collaboration with relevant stakeholder ministries, national and provincial level administration, private agencies, civil society, non-government organisations, community based organisations and the communities.

These significant steps have paved the way for us today to launch a Road Map that facilitates us to systematically approach DRM. However, we must realise that we have a long way ahead. Merely having a Road Map is not sufficient to make the country safer from disasters. It would need all the stakeholders to get together with a clear vision and to work as a team for a Safer Sri Lanka.

I take this opportunity to thank UNDP for the assistance extended in the development of the Road Map.

I wholeheartedly wish that this Road Map will be a great success.

Ratnasiri Wickramanayake
Prime Minister of the Democratic Socialist Republic of Sri Lanka
Minister of Disaster Management

Foreword

'A journey of a thousand miles begins with a single step' - Confucius

Disaster Risk Management is not an area new to Sri Lanka; what is new however, is the approach to it. In the past, efforts in this area have focussed more on reactive measures after a disaster. Until very recently Sri Lanka did not have an integrated institutional framework for disaster response, and a pro-active policy to tackle the trend of increasing disasters.

This year has been a test of the county's resilience and the capacity of the people to overcome the devastation of the December 26, 2004 Indian Ocean Tsunami, the worst disaster that nature has brought on us.

The need for a strong institutional framework and leadership in this very important area has been fulfilled through the Disaster Management legislation and the establishment of the National Council for Disaster Management (NCDM) – which is a high-level body under the leadership of H.E. the President and vice-chaired by the Hon.Prime Minister.

The Ministry of Disaster Management has been created, under the Hon. Prime Minister, to lead the strategic planning for disaster preparedness, response, risk mitigation and risk reduction. The Disaster Management Centre (DMC) has been established as per the Sri Lanka Disaster Management Act to facilitate the implementation of these strategic plans.

The Road Map for Disaster Risk Management in Sri Lanka, prepared with UNDP support is one of the first activities undertaken by the DMC, in collaboration with a range of stakeholders from the government, international agencies and non-governmental organizations. This road map serves as a vision document for leading the way towards a safer Sri Lanka, and incorporates prioritized activities that need to be implemented over the short, medium and long-term.

The Road Map will serve to coordinate the activities of the numerous stakeholders in this area, and also mobilize resources from donors and development partners of Sri Lanka. This journey towards a safer Sri Lanka, requires the cooperation and goodwill of all concerned - ministries, government institutions, departments, agencies and also the International agencies and non-government organizations. This Road Map for Disaster Risk Management is a significant first step on the journey towards a Safer Sri Lanka.

Dr. U. Vidanapathirana
Secretary
Ministry of Disaster Management

Preface

'Towards a Safer Sri Lanka: A Road Map for Disaster Risk Management', is a guiding document to achieve the Vision of Disaster Management in Sri Lanka. It includes necessary programs/ projects/ activities with details of required resources such as manpower, funds, equipment, and a targeted time frame, in which to achieve this vision.

This Road Map contains seven themes/ components, which are in line with ongoing and past efforts in the field of disaster risk management and development planning in Sri Lanka. The strategy proposed under this disaster risk management framework for Sri Lanka covers the areas of *Policy, Institutional Mandates & Institutional Development; Hazard, Vulnerability & Risk Assessment; Multi-hazard Early Warning Systems; Disaster Preparedness Planning and Response; Disaster Mitigation and Integration into Development Planning; Community based Disaster Management;and Training, Education and Public Awareness.*

It is said that a plan is only as good as the process, and the Disaster Management Centre has developed this Road Map through a consultative process involving all relevant stakeholders, ranging from government ministries and departments to international agencies and non-government organisations. This process has helped in the identification of gaps, needs, priorities and strategies for further action.

These areas for immediate action will be addressed in a systematic and prioritised manner with the necessary collaboration of relevant stakeholder agencies, departments and ministries in Sri Lanka. These priorities for action are also consistent with the *Sri Lanka Disaster Management Act No. 13 of 2005*, which the DRM framework will work towards implementing over the next 10 years.

I take this opportunity to sincerely thank all the stakeholder agencies and individuals who volunteered to compile this important document. I also deeply appreciate the valuable services rendered by the United Nations Development Programme (UNDP) in this activity.

I am confident that the activities in the Road Map when implemented will lead to a Sri Lanka safer from disasters.

Major General Gamini Hettiarachchi
Director General
Disaster Management Centre
Ministry of Disaster Management

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Acronyms

ADPC	Asian Disaster Preparedness Center
ADRC	Asian Disaster Reduction Centre
AEA	Atomic Energy Authority
APELL	Awareness and Preparedness for Emergencies at Local Levels
BOI	Board of Investment
CBDM	Community Based Disaster Management
CBDRM	Community Based Disaster Risk Management
CBOs	Community Based Organizations
CCD	Coast Conservation Department
CEA	Central Environmental Authority
CEB	Ceylon Electricity Board
CECB	Central Engineering Consultancy Bureau
CHPB	Centre for Housing Planning and Building
CPC	Ceylon Petroleum Corporation
DEM	Digital Elevation Model
DIA	Disaster Impact Assessment
DM	Disaster Management
DMC	Disaster Management Centre
DoA	Department of Agriculture
DoM	Department of Meteorology
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSs	Divisional Secretariats
EOC	Emergency Operation Centre
ERD	External Resources Department
EW	Early Warning
FEMA	Federal Emergency Management Agency
GCE(AL)	General Certificate of Education (Advance Level)
GIS	Geographic Information System
GN	Grama Niladhari
GO	Government Organization
ICTAD	Institute for Construction, Training and Development
ID	Irrigation Department
IDB	Industrial Development Board
IESL	Institution of Engineers Sri Lanka
IOC	Intergovernmental Oceanographic Commission
ISDR	International Strategy for Disaster Reduction
ITI	Industrial Technology Institute
LA	Local Authority
LG	Local Government

LGAs	Local Government Authorities
LIDAR	Light Detection and Ranging
LHZ	Landslide Hazard Zoning
M&E	Monitoring and Evaluation
MASL	Mahaweli Authority of Sri Lanka
MC	Municipal Council
MDTC	Management Development & Training Centres
MDTU	Material Development & Training Unit
MoDM	Ministry of Disaster Management
MRI	Medical Research Institute
MoE	Ministry of Education
NARA	National Aquatic Resources Research and Development Agency
NBRO	National Building Research Organization
NDMC	National Disaster Management Centre
NEOC	National Emergency Operation Centre
NGOs	Non Government Organizations
NHDA	National Housing Development Authority
NIE	National Institute of Education
NISD	National Institute of Social Development
NPPD	National Physical Planning Department
NSF	National Science Foundation
NWS&DB	National Water Supply & Drainage Board
PCs	Provincial Councils
PCLG	Provincial Council Local Government
RDA	Road Development Authority
S&M	Surveillance & Monitoring
SAR	Search and Rescue
SCADA	Supervisory Control and Data Acquisition
SLIA	Sri Lanka Institute of Architects
SLIDA	Sri Lanka Institute of Development Administration
SLILG	Sri Lanka Institute of Local Governance
SLLRDC	Sri Lanka Land Reclamation and Development Corporation
SLRCS	Sri Lanka Red Cross Society
SLUMDMP	Sri Lanka Urban Multi-hazards Disaster Mitigation Project
SoPs	Standard Operating Procedures
ToR	Terms of Reference
TOT	Training of Trainers
TRC	Telecommunications Regulatory Commission
UDA	Urban Development Authority
UGC	University Grants Commission
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
USGS	United States Geological Survey
WRB	Water Resources Board

Executive Summary

Over the past few decades, disaster losses in Sri Lanka have increased substantially. The country is prone to natural disasters caused by floods, cyclones, landslides, drought and coastal erosion with increasing instances of environmental pollution related hazards. The devastation caused by the Indian Ocean tsunami of 2004 has highlighted that Sri Lanka is also vulnerable to low-frequency, high impact events which cause extensive damage and reverse years of development gains.

Last year's tragic tsunami has brought about a collective recognition among the Sri Lankan government, civil society organizations and international agencies of the need for comprehensive disaster risk management, rather than just post-disaster relief or better response mechanisms for the country. Creating the political and social will to manage disaster risks *before* the occurrence of a disaster event continues to be a great challenge.

Over the last year, the Government of Sri Lanka has taken significant steps towards strengthening legislative and institutional arrangements for disaster risk management. The Sri Lankan *Parliament Select Committee on Natural Disasters*—a bi-partisan committee, was constituted to deliberate on issues relating to the status of disaster management in Sri Lanka. The Committee's recommendations towards achieving a safer Sri Lanka have subsequently guided legislative and policy efforts in this regard.

In May 2005, the *Sri Lanka Disaster Management Act No.13 of 2005* was enacted, which provides the legal basis for instituting a Disaster Risk Management (DRM) system in the country. The Act establishes the *National Council for Disaster Management* (NCDM). This high-level body chaired by H.E. the President, vice-chaired by the Hon. Prime Minister with participation of the leader of Opposition, Ministers, Provincial Council Chief Ministers and five members of the Opposition, provides direction to DRM in the country. In November 2005, the *Ministry of Disaster Management* (MoDM) was established. It has been accorded the lead role in directing the strategic planning process for disaster response, risk mitigation, preparedness planning and risk reduction. The Disaster Management Centre (DMC) was established as per the Act as the lead agency for disaster risk management in the country.

After the tsunami other major actors such as non-government organizations and international agencies have also been actively involved in coordinating efforts for reconstruction and introducing systems for disaster risk management towards sustained risk reduction in Sri Lanka. While they have been recognized as important partners for reconstruction activity, efforts in establishing DRM systems for Sri Lanka have often overlapped. Hence the need to coordinate efforts of various government agencies and the offers of support by international agencies has been recognized.

A comprehensive DRM framework for Sri Lanka will unify the efforts of all agencies working in various sectors across all regions and levels of development activity. The Ministry for Disaster Management proposes such a framework to identify and coordinate multi stakeholder efforts in the next 10 years through a holistic strategy or 'Road Map' towards building a safer Sri Lanka. The

Road Map is focused on seven thematic components which are consistent with ongoing and past efforts in the field of disaster risk management and development planning. The strategy proposed by the DRM framework for Sri Lanka will cover the following areas:

- *Policy, Institutional Mandates, and Institutional Development,* includes components like preparation of a national policy for disaster management, reviewing and formalising mandates and identifying capacity development needs of agencies to perform their disaster management functions, and steps to implement policies already in place.
- *Hazard, Vulnerability and Risk Assessment,* comprises activities ranging from flood simulation modelling in key river basins to the development of a vulnerability atlas for Sri Lanka. This will enable development planning which is sensitive to multiple hazards and different kinds of vulnerabilities.
- *Multi hazard Early Warning Systems,* incorporates elements to generate advance warnings for floods, cyclones, abnormal rainfall, droughts, landslides, and thus enables decision-makers to take much-needed action even prior to the occurrence of a disaster.
- *Preparedness and Response Plans,* to minimize the adverse impacts of a hazard through effective precautionary actions and timely, adequate responses. Prioritised activities include development of a national emergency preparedness and response plan and establishment of emergency operation centres at national, provincial and district levels.
- *Mitigation and Integration of Disaster Risk Reduction (DRR) into Development Planning,* encompasses activities relating to reducing impacts of droughts, preventing floods, landslides, protection against storm surges, sea and coastal flooding by incorporating disaster risk considerations in development plans.
- *Community-based Disaster Risk Management,* involves activities that recognize the fact that communities though affected in disasters are also the first line of defence against disasters if they are well prepared. Interventions proposed include mobilization of community teams, creation of a local network of trained volunteers, establishing resource centres, and small grants to fund priority projects by community teams.
- *Public Awareness, Education and Training,* focuses on empowering the public with ways and means to reduce disaster losses, and includes a national awareness campaign, designating a 'National Disaster Safety Day', promoting disaster awareness among professionals through training and among children through school curriculum.

Table 1 summarises the projects on a priority basis under each component over the short, medium and long term, with budget requirements identified for the short term. Further details of the activities and their implementation arrangements are discussed in Chapter 2.

These components have been developed through a consultative process which has helped in the identification of gaps, needs, priorities and strategies for further action. Priority areas for immediate action have been identified by working groups to address them in a systematic and prioritized manner with the requisite collaboration of relevant stakeholder agencies, departments and ministries in Sri Lanka. The priorities for action have been made consistent with the requirements and responsibilities of the *Sri Lanka Disaster Management Act No. 13 of 2005*, which the DRM framework will work towards implementing over the next decade.

Table 1: Summary of Road Map - Priority Projects with Indicative Budget for the Short-term

Component	Time Frame			Budget (Short-term)	
	S	M	L	USD (mil)	Total
1. Policy, Institutional Mandates and Institutional Development					
1.1 Implementation of Sri Lanka Disaster Management Act	●			0.52	
1.2 Review of Institutional Mandates	●			0.02	
1.3 Developing Institutional Mandates and Capacities	●	●		1.50	**2.24**
1.4 Formulation of CBDRM Policy	●			0.10	
1.5 Enforcement of Policies		●		0.10	
2. Hazard, Vulnerability and Risk Assessment					
2.1 Landslide Hazard Zonation Mapping	●	●	○	1.57	
2.2 Establishment of Disaster Risk Management Information Systems at DMC	●	●	○	0.50	
2.3 Flood Risk Assessment	●	●	○	1.05	
2.4 Coastal Vulnerability Assessment & Risk Analysis	●	●	○	0.30	
2.5 Development of Drought-prone Area Maps	●	●	○	0.10	
2.6 Dam Safety and Risk Assessment	●	●	○	0.20	**4.17**
2.7 Vulnerability and Risk Assessment for Local Government Areas	●			0.05	
2.8 Vulnerability Atlas	●	●		0.10	
2.9 Development of Wind Zoning and Storm Surge Maps	●	●	○	0.20	
2.10 Seismic Zonation Maps	●	●	○	0.10	
2.11 Integrated Epidemic Risk Assessment		●	○		
2.12 Major Transportation/ Industrial Accidents		●	○		
3. Multi-hazard Early Warning System					
3.1 Early Warning Centre	●			0.28	
3.2 Meteorological Observation and Forecasting	●	●		1.00	
3.3 Flood Monitoring and Forecasting	●	●	○	0.36	
3.4 Landslide Prediction and Early Warning	●	●	○	0.08	
3.5 Drought Monitoring and Forecasting	●	●		0.21	
3.6 Cyclone and Storm Surge Tracking	●	●		0.01	**1.94**
3.7 Seismic Monitoring		●	○		
3.8 Early Warning Systems for Major Dams		●			
3.9 Oceanographic Monitoring Systems		●	○		
3.10 Nuclear/ Radiological Monitoring		●	○		
4. Preparedness and Response Plans					
4.1 Hazard Specific Response Plans	●			0.50	
4.2 National Rapid Response Team	●			0.10	
4.3 Emergency Operation Centre	●			0.35	**2.70**
4.4 Hazard Specific Contingency Plans	●	●		0.75	
4.5 Emergency Service Networks	●	●		1.00	
4.6 Knowledge Management Systems		●			
5. Mitigation and Integration of Disaster Risk Reduction into Development					
5.1 Landslide Mitigation in High Risk Prone Areas	●	●		0.44	
5.2 Flood Protection for Major Cities		●	○		
5.3 Disaster Mitigation Action Plans	●	●		0.05	
5.4 Integrating Disaster Impact Assessment into Development Projects	●	●		0.29	
5.5 National Land Use and Physical Planning Policy	●	●		0.04	
5.6 Coastal Zone Management	●	●		0.10	
5.7 Development Controls, Building Bye-laws	●			0.03	
5.8 Housing, Education, Tourist and Infrastructure Facilities	●	●		1.60	**2.87**
5.9 Drought Mitigation in Select Districts		●			
5.10 Dam Safety Enhanced in Major Dams	●	●		0.09	
5.11 Risk Transfer mechanisms		●			
5.12 Research and Development in DRR		●			
5.13 Health risk due to Polluted Ground Water	●	●		0.23	
6. Community Based Disaster Risk Management					
6.1 Promoting CBDRM Volunteerism	●	●	○	5.00	
6.2 Establishing CBDRM Resource Centres	●	●	○	2.00	
6.3 Preparedness and Mitigation through Small Grants Programmes	●	●		6.00	**13.30**
6.4 Micro-finance Schemes	●	●		0.30	
6.5 Applied Research Grant Scheme for CBDRM		●			
7. Public Awareness, Education and Training					
7.1 Awareness through Disaster Safety Day	●	●	○	0.05	
7.2 National Public Awareness Programme	●	●	○	0.50	
7.3 Awareness through Schools and School Curriculum	●	●			
7.4 Awareness through Continuing Education/ University Education		●	○		**1.25**
7.5 Training for Government Employees		●	○		
7.6 Training for Emergency Responders and Enhancing Training Capacities		●	○	0.70	
7.7 Special Awareness Programmes		●	○		

● *S-Short term (1-2 years)* ● *M- Medium term (3-5 years)* ○ *L- Long term (6-10 years)*

Chapter 1

Disaster Risk Management in Sri Lanka

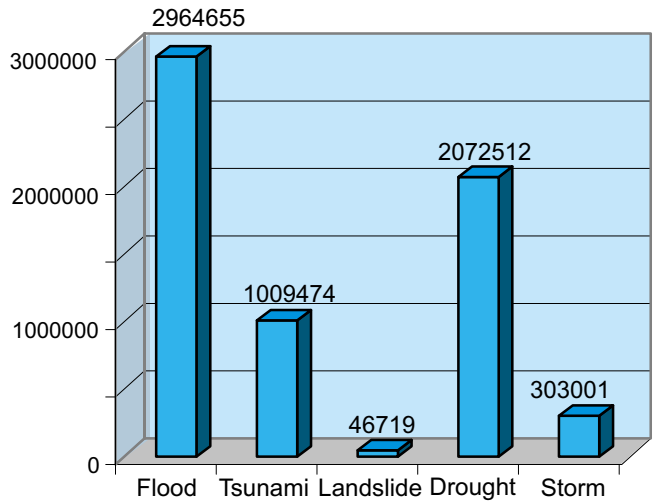
1.1 Disaster Risk in Sri Lanka

1.1.1 Hazard Profile

Sri Lanka is affected by different kinds of natural hazards such as floods, cyclones, droughts, landslides and coastal erosion. Other localized hazards include lightning strikes, epidemics and the effects of environmental pollution. Earthquakes have been recorded over the past 400 years and the country is also exposed to various human-induced hazards which result from deforestation, indiscriminate coral, sand and gem mining and industrial pollutants. More recently, the Indian Ocean tsunami of December 2004 has highlighted the country's vulnerability to low-frequency, high-impact events *(see Fig. 1)*.

Floods: Major floods are associated with the two monsoon seasons. Typically, during the south-west monsoon season (May-September) the western, southern and Sabaragamuwa provinces are vulnerable to floods. During the north-east monsoons (December-February) the eastern, northern and north-central provinces are prone to flooding. Rivers along the western slopes of the hilly central areas cause floods in the lower flood plains of Kalu Ganga and Kelani

Fig. 1. People affected by different disasters in Sri Lanka (1974-2004)



Ganga in particular during these periods. Records show that major floods have occurred in the years 1913, 1940, 1947, 1957, 1967, 1968, 1978, 1989, 1992 and 2003 with severe loss of human lives, public and private property, and the environment.

Landslides: Excessive rainfall, typical landform and geology, deforestation and unplanned land-use practices combine to create this socio-natural hazard. The districts of Badulla, Nuwara Eliya, Ratnapura, Kegalle, Kalutara, Kandy and Matale are the most prone to landslides. In 2003, landslides in Matara, Galle and Hambantota districts caused massive damages to human settlements and the environment. Paddy fields and forests were destroyed and there was immense loss of human lives and livelihood. Recent records show landslide activity peaking in January 1986, May-June 1989, October 1998 and May 2003.

Droughts: Droughts occur in the south-eastern, north-central and north-western areas of Sri Lanka mainly due to low rainfall during monsoons. In some areas, consecutive drought years have had lasting impact on livelihood options, often resulting in negative effects on existing vulnerabilities. Droughts of a serious nature occur every 3-4 years and severe droughts of national significance occur every 10 years or so. Severe droughts have been recorded during the years 1935-37, 1947-49, 1953-56, 1965, 1974-77, 1981-83, 1985, 1993-94, 2000-01 and 2003-04. In 2004, the north-western, north-central and south-eastern parts of the country experienced severe drought conditions. The droughts also impact hydropower generation - the main source of energy in the country, thus affecting the economy.

Cyclones: The eastern and north-eastern parts of Sri Lanka are highly vulnerable to cyclones especially in the months of November and December. Some parts of north-central and north-western areas have also been subject to occasional cyclone impacts in the past decades. Major cyclones have been experienced in the years 1907, 1922, 1964, 1978 and 2000.

Coastal Erosion: The effects of coastal erosion are largely felt in the west, south-west, and southern coastal belt. About 50% of the population lives in villages and towns in the coastal areas. Coastal erosion severely affects infrastructure facilities such as the railway, road system, communications and other economic activities along the coast. Such erosion also results in damage to residential buildings, hotels and degradation of valuable land and also disrupts fishing, recreational and other coast-related activities.

1.1.2 Underlying Vulnerabilities

Unplanned patterns of human settlement, development and land-use have resulted in severe encroachments into flood plains and unstable slopes, creating unsafe conditions for the population inhabiting these areas. This trend of settlement is evident on the western slopes of the central hill country and the lower catchment areas in the western, southern and Sabaragamuwa provinces.

Settlers in the Kalu Ganga flood plains are affected by floods that occur almost annually. These flood victims tend to return to their former homes after the disaster but more often than not become victims once again due to such recurring events.

Over the past couple of decades, depletion of forest cover has resulted in environmental degradation. This results in increased runoff, soil erosion, unstable slopes and silting of water bodies. Paddy fields which serve as flood detention areas in the suburbs are being filled for commercial and residential purposes. The drainage systems in these new settlements require significant improvement. Despite the occurrence of three serious droughts during the last decade, irrigation schemes and water conservation measures still remain inadequate. The existing tanks in many areas are silted causing considerable reduction in storage capacity.

1.1.3 Trends in Disaster Risk

While a lot of information is available on the general disaster risk profile of Sri Lanka, little systematic information and analysis is available on *trends of disaster risk* according to seasonal variations and geographical location. In 2004, the Ministry for Women's Empowerment and Social Welfare, with UNDP support initiated a systematic collection of disaster impact data of the last 30 years. Preliminary analyses indicate the following key trends:

- Physical vulnerability to floods is most pronounced in the western, eastern, southern and Sabaragamuwa regions of the country.

- While the western, southern, Sabaragamuwa and eastern regions are more or less equally exposed to the annual floods, the nature of impact is quite different in each. In the western and southern provinces the floods cause considerable loss to industry, whereas in the central and eastern provinces losses are associated with farming and damage to other means of livelihoods.

- The capacity to cope with the impacts of seasonal flooding is also markedly different in the two regions. In the eastern and central provinces, communities take a lot longer to recover from the impact. The agrarian population is unable to engage in agricultural and cropping activities due to the high rate of silting and water logging which makes the soil infertile and uncultivable not only for the present and but also for the next seasons. In comparison, communities in western and southern provinces have access to diverse sources of livelihood, thus enabling faster recovery in the aftermath of seasonal floods.

Thus, there is need for a clearer understanding of the patterns of disaster risk and factors contributing to it in different parts of the country. This will help better target the disaster risk reduction (DRR) interventions in the country.

Fig. 2: FLOODS: Number of reports by region
(1974- 2004)

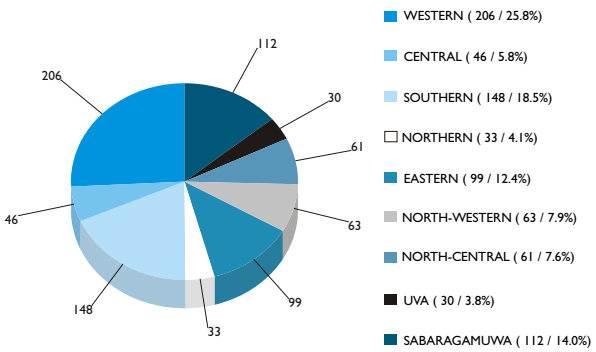
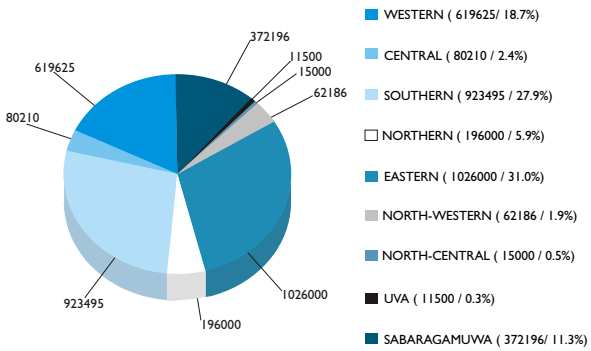


Fig. 3: FLOODS: Number of people affected by region
(1974 – 2004)



1.2 Institutional Arrangements for DRM in Sri Lanka

There have been efforts by individual specialized agencies in different aspects of disaster management in the past decade or so. However, in the absence of a legal framework for disaster management, so far there has been no coordinated mechanism for a holistic approach to DRR in Sri Lanka.

Specialized institutions such as the National Building Research Organisation (NBRO), Centre for Housing Planning and Building (CHPB), Urban Development Authority (UDA), National Physical Planning Department (NPPD), Coast Conservation Department (CCD), Sri Lanka Land Reclamation and Development Corporation (SLLRDC), Irrigation Department (ID), Central Environmental Authority (CEA), Department of Meteorology (DoM), Geological Survey and Mines Bureau (GSMB) and some other agencies of the government have also been playing important roles in different aspects of DRM in Sri Lanka.

Apart from landslide mitigation work by NBRO and urban disaster mitigation work by CHPB and UDA, most of the focus was on post-disaster response. There were no legislative arrangements specific to disasters that could integrate the work of different players at all levels. DRM efforts remained largely disconnected from the development processes.

In the former set up, the Ministry of Women's Empowerment and Social Welfare, created the National Disaster Management Centre (NDMC) under a cabinet paper, as a division to carry out the Ministry's post-disaster relief activities at district and divisional level along with training and awareness activities amongst stakeholders. These responsibilities have since been entrusted to the recently created Disaster Management Centre, under the Ministry of Disaster Management.

The widespread destruction caused by the 2004 tsunami reconfirmed the urgent need for multi-sectoral, inter-institutional and multi-disciplinary approaches to manage disaster risks in the

country. In the aftermath of the tsunami, a number of initiatives have been undertaken to address DRM issues over short and medium terms within the context of the post-tsunami recovery as well as over the long term with a view to integrating DRM with the development processes.

In the aftermath of the Tsunami, the following interim committees were set up in the area of disaster management:

- A Parliamentary Select Committee was constituted to review the current status of DRM in the country and make recommendations for improvement. This multi-party committee adopted a highly consultative process across institutions and made extensive use of national and international expertise to come up with a comprehensive report.

- An Interim Committee on EW Systems was set up to review the existing (multi-hazard) EW systems in the country and make recommendations.

The reports of these committees as well as the broad-based dialogue started by them have significant relevance to the improvement of DRM systems.

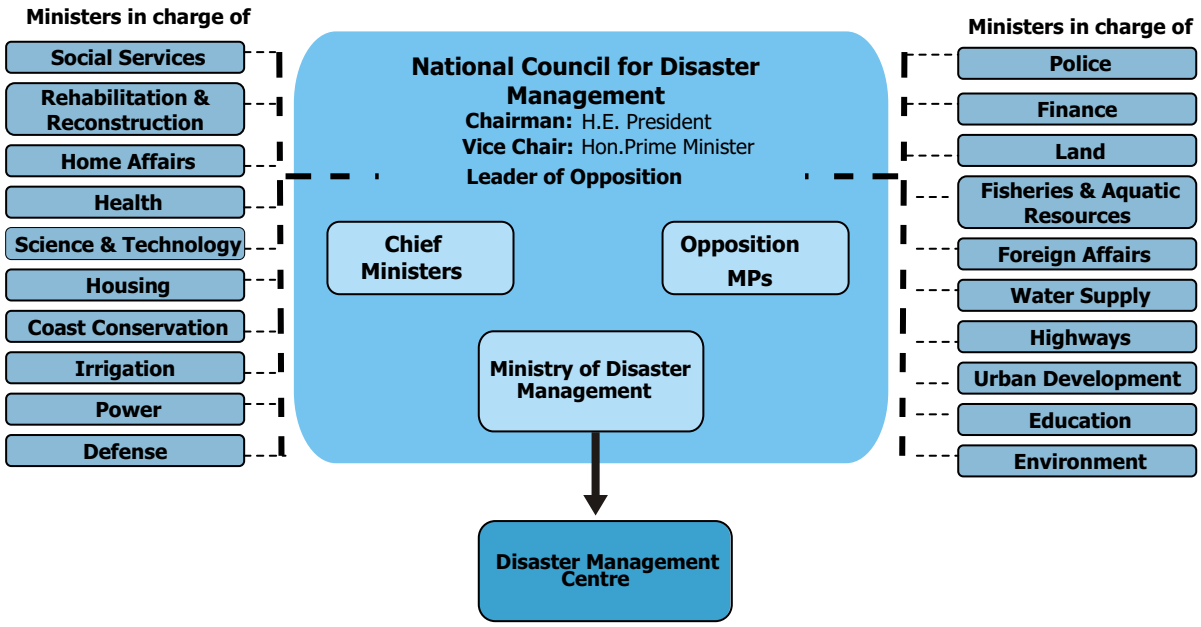
The Government of Sri Lanka has taken the following important steps towards strengthening legislative and institutional arrangements for DRM in the country:

- In May 2005, the *Sri Lanka Disaster Management Act No.13 of 2005* (hereafter, referred to as the 'DM Act') was enacted (*see Annex 1; DM Act*). This provides the legal basis for a DRM system in the country. The Act establishes the National Council for Disaster Management (NCDM), chaired by H.E. the President, vice-chaired by the Hon. Prime Minister with participation of the leader of Opposition, Ministers, Provincial Council Chief Ministers and five members of the Opposition. This high-level oversight body, provides direction to DRM efforts in the country.

- The Disaster Management Centre (DMC) was established in July 2005, to implement the directives of the NCDM.

- The Ministry for Disaster Management, was established in November 2005 under the Prime Minister to take the lead role in directing the strategic planning for disaster response, risk mitigation, preparedness planning and risk reduction.

Fig. 4: Institutional Framework for DRM in Sri Lanka

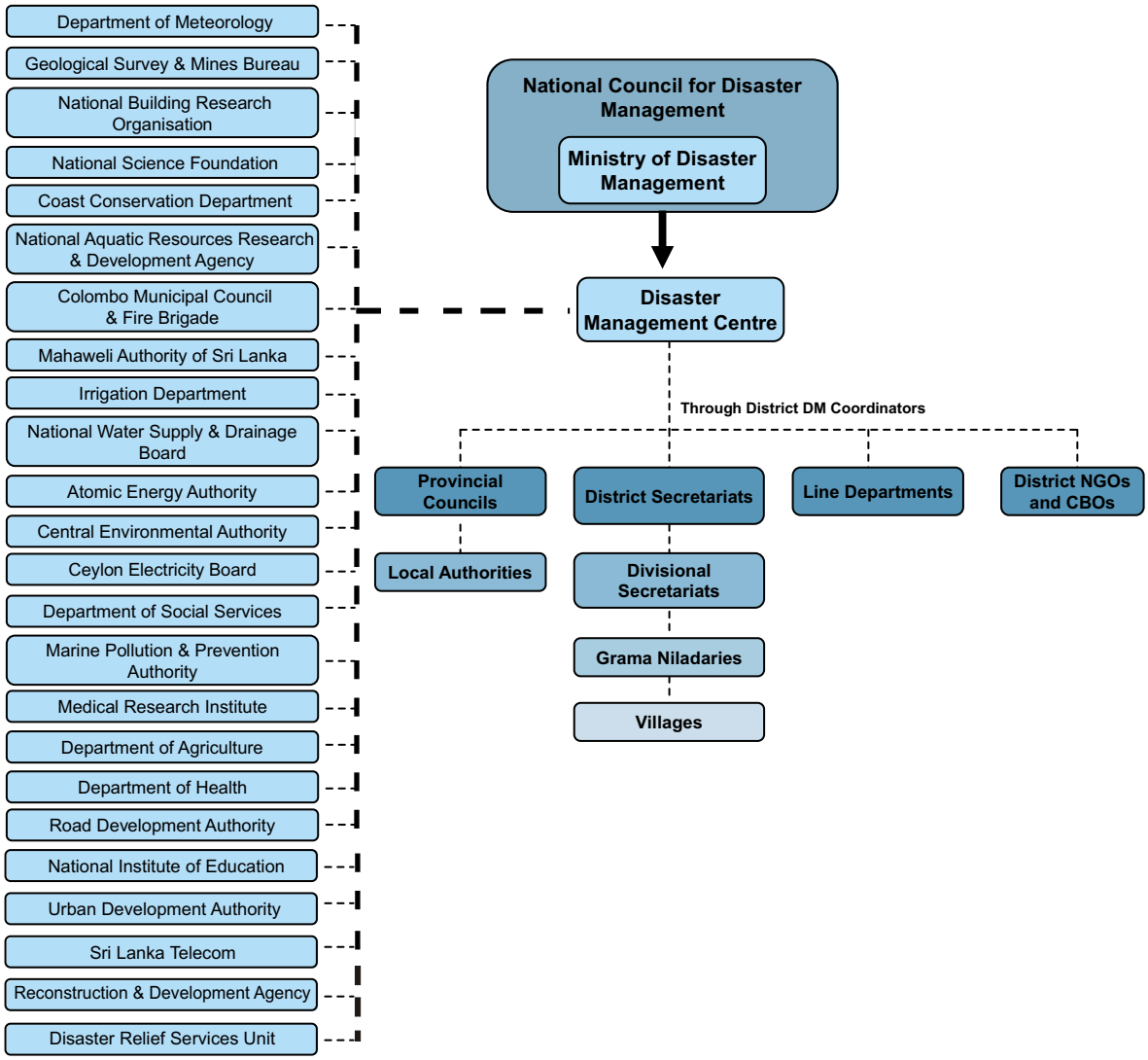


1.3 Key Opportunities and Challenges

After the tsunami, the Sri Lankan government, civil society organizations and international agencies have recognized the urgent need for comprehensive risk management in the country. Non-government organizations and international agencies have been actively involved in coordinating efforts for reconstruction and introducing systems for DRM towards sustained risk reduction in Sri Lanka, some of which have often overlapped. Hence the need to coordinate efforts of various government agencies and the offers of support by international agencies has been increasingly acknowledged.

Various gaps have also been recognized by stakeholders involved in DRM activities after the tsunami. For instance, the need to strengthen information management functions that track the existing and emerging patterns of disaster risk have been highlighted. Also, there is a need for strong information coordination systems for emergency response to enable optimal utilization of emergency response resources available in the country. Significant technical capacity presently exists within the country on various aspects of natural disaster risk management (*see Annex 2* for details of some institutions engaged in DRM). However, this capacity is yet to be fully harnessed into a nationwide multi-tiered, multi-sectoral system that would address all aspects of DRM. Such a nationwide system will not only improve the efficiency of post-disaster response but also ensure that developmental policy and practice works towards reducing future disaster risks. One of the key challenges is to develop a culture of safety among communities as well as among law enforcement agencies such as local government bodies to control interventions that increase risk.

Fig. 5: Coordination Mechanism for Stakeholders in DRM



1.4 The DRM Framework

Disaster Risk Management (DRM) has been defined as the 'systematic process of using administrative decisions, organization, 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. 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' (ISDR Secretariat, 2004).

DRM systems must be the responsibility of the government. However, coordinating such systems successfully also depends on the participation of all involved stakeholders from the broad range of households, volunteers, local governments, specialists and policymakers including the

international community, in managing community and national disaster risks. Policy direction and legal foundations assure legitimacy but professional and human resources have an important role to play.

Based on recent consultations, it is agreed that the DRM framework in Sri Lanka would focus on addressing the following components:

Strategic,Policy and Institutional Context: The DRM framework will enable the different partners to identify why disaster risks are increasing, who can lead the responsibility to assess and manage the present and future situation, and through what strategic measures can this system be consolidated to form a sustainable institutional basis for DRM in Sri Lanka.

Risk Identification: The broad objective in Sri Lanka's context will be to identify the probability of occurrence of specified hazards such as floods, landslides, tsunamis, drought, seismic activities, cyclones in a specified future time period, as well as the intensity and area of impacts. Risk assessments include detailed quantitative and qualitative information and understanding of risk, its physical, social, economic, and environmental factors and consequences.

Risk Evaluation: This requires the improvement of broad stakeholder capacity to receive timely early warning (EW) messages, act proactively and respond more effectively when warning is provided. Risk communication is closely related to capacities for timely evaluation of risks. Multi-hazard Early Warning Systems have thus been identified as an urgent requirement in Sri Lanka. The key objectives of the EWs are to generate advance warnings and thus improve the capacity of decision-makers to take the required action even prior to the occurrence of a disaster. It consists of the collection, consolidation, analysis and dissemination of the information to the right decision-makers and vulnerable communities at the right time to minimize the possible, adverse impacts of a hazard event.

Risk Management: Priority measures that the stakeholders have considered to reduce disaster risks center around:

- Planning for preparedness and emergency response
- Mainstreaming disaster reduction into development processes
- Community-based DRM

Risk Communication: Programmes and activities that sustain public awareness and stakeholder commitment to disaster reduction.

A Mechanism for Monitoring and Evaluation: Must include agreement on specific risk reduction indicators, means of gathering information, measurement of progress, evaluation and feedback to above mentioned elements.

Chapter 2

Road Map for a 'Safer Sri Lanka'

2.1 Road Map for a 'Safer Sri Lanka'

2.1.1 Key Objectives

In the aftermath of the tsunami there has been a renewed attempt to institutionalize a DRM framework in Sri Lanka. The need has been felt to complement the ongoing policy and legislative efforts with risk identification and reduction strategies. National and local level institutions must be strengthened while paying due attention to Community-based Disaster Risk Management (CBDRM). While formulating national and provincial level action plans for poverty alleviation and infrastructure development, there is also a need to consider the different nature of hazard risks and vulnerabilities across the country. This will enable the strengthening of local, national governance structures and emphasize national and community-based environmental resource management for long term risk reduction.

In acknowledging these present needs, the Ministry for Disaster Management proposes a comprehensive framework which will identify and coordinate multiple stakeholder efforts in the next 10 years through a holistic strategy or 'Road Map' towards building a 'Safer Sri Lanka'. The plan will be implemented by identifying 'priority projects' across different areas for action.

2.1.2 The Consultation Process

The Road Map is broadly focused on seven thematic components which are consistent with ongoing and past efforts in the field of DRM and development planning in Sri Lanka. The strategy proposed by the DRM framework seeks to cover the following areas:

- Policy, Institutional Mandates and Institutional Development
- Hazard, Vulnerability and Risk Assessment

- Multi-hazard Early Warning System
- Planning for Disaster Preparedness and Response
- Disaster Mitigation and Integration into Development
- Community-based DRM, and
- Public Awareness, Education and Training

These components have been developed through a consultative process for the identification of gaps, needs, priorities and strategies for implementation. The strategies and priorities for particular projects have been developed by Working Groups constituted from relevant stakeholder agencies. These groups comprised of multiple stakeholders, representing all sectors involved in DRM. The resulting conclusions and priorities for action have been made consistent with the DM Act. The framework will work towards implementing the provisions of this Act, in collaboration with all relevant stakeholder agencies over the next 10 years.

2.2 Policy, Institutional Mandates and Institutional Development

Key Issues

The objective of this component is to 'establish a culture of safety against disasters through policy support and strengthening of institutional mandates and capacities'. For ensuring a coordinated approach to risk reduction and disaster preparedness, individual institutions have to perform in accordance with their current mandates while also taking on additional responsibilities. This might require formulating legislations and developing institutional capacities in priority areas across various levels.

To achieve this, the projects under this component will broadly focus on:

- Development of a national policy on DM;
- Enhancing capabilities through policy support and institutional development of DMC (the focal point for DM in Sri Lanka);
- Enhancing capabilities through policy support and institutional development of all relevant agencies for DM in Sri Lanka.

Strategy

i. Implementing Provisions of the Sri Lanka DM Act:
Sri Lanka has enacted a number of policies, ordinances and legislations that have had a bearing on DRM and associated issues. The recent Sri Lanka DM Act provides a strong footing for coordinating all such ordinances and legislations with the relevant ministries and agencies.

ii. Reviewing and Formalizing Institutional Mandates:

Currently the line agencies perform various functions under their mandates, and DRM is just one of their many responsibilities. NBRO, GSMB, Agriculture department etc. are some examples of agencies which do not have mandates for the scope of activities they presently handle. As a result, there are gaps and many DRM-related activities do not receive attention. The DMC has to strengthen the mandates of these institutions and bring them together to work in a coordinated manner. DM plans of these different agencies should conform to the National Disaster Management Plan and the Emergency Operation Plan of the DMC. In addition, the DMC must support provincial and local government set ups to develop similar plans. Capacities of district and local level agencies in disaster response are limited and hence it is necessary to strengthen these capacities.

iii. Institutional Mandates, Capacities developed:

There is also an urgent need to develop the mandates and capacities of some institutions involved in DRM. A case in point is the Landslide Studies and Services Division (LSSD). It was established under the NBRO to provide services for human settlements planning and the construction sector. However in the last 10-15 years the functional requirement of the LSSD has changed considerably. It is necessary to review it under the present DM framework to meet the current and future challenges of landslide risk mitigation in Sri Lanka. It should be granted wider responsibility and mandate, exceeding the functional responsibilities of a research organization to efficiently undertake mitigation, preparedness, early warning, recovery and rehabilitation of landslide prone areas. If deemed necessary, LSSD could be restructured as a separate agency under the Ministry of Disaster Management, to be able to take on the functional responsibilities of design and control of mountain development activities (similar to the Sri Lanka Land Reclamation and Development Corporation or SLLRDC).

Similarly, the agricultural sector is affected by some hazards to a considerable extent; especially drought, but agriculture is not included in the list of subjects in Clause 3 (1) (d) of the Act. Furthermore, there is no lead agency responsible for mitigation of drought hazard. A policy recommendation is necessary to include the subject of agriculture in the list of subjects in Clause 3 (1) (d) of the Act by gazette notification, or as appropriate.

Further, it is important to highlight that since the DMC has been established as per the Sri Lanka DM Act of 2005, there should be no other agency assigned with similar responsibilities and functions. To avoid confusion amongst stakeholders, the general public, donor agencies and the international community, no other department or institution should exist under the same name or a similar name as the DMC; eg: NDMC within the former Ministry of Social Welfare and the proposed National Disaster Management Centre of the Sri Lanka Red Cross Society (SLRCS). The above agencies and any others could be re-designated to avoid confusion and duplication of functions. Sections of the DM Act have provisions to take necessary remedial steps for such situations.

In addition to formalising new mandates, capacities to implement these mandates need to be developed on a priority basis. Developing capacities will include support to the DMC's role as the lead agency for DRM and emergency operations in the country. The DMC will require resources and infrastructure support to execute its newly established mandate. Furthermore the disaster response capacities, especially those concerning search and rescue/ fire fighting are limited to only certain pockets in Sri Lanka, and are dependent on the limited resources available with local authorities. In response, the MoDM would need to enhance these resources to strengthen the present capacities.

iv. Community-based DRM Policy:

Well-prepared communities are the first line of defense against disasters and a key to reducing vulnerability and increasing disaster resilience. Having a well-resourced and sustainable programme to advance Community-based Disaster Risk Management (CBDRM) is therefore a key strategy to achieve a safer Sri Lanka. This can be facilitated by institutionalizing the CBDRM process at the grass-roots level, in activities of the different line agencies. This can be supplemented by the involvement of SLRCS and other NGOs.

v. Incorporation in National Planning Policies:

Disaster Risk Assessment is not always considered in project formulation stages at present, hence posing a challenge to mainstreaming DRR efforts. Integrating DRM in National Planning Policies will make Disaster Risk Assessment mandatory for agencies in formulating and approving projects.

Component 1: Policy, Institutional Mandates and Institutional Development

To establish a 'culture of disaster safety' through policy support and strengthening of institutional mandates and capacities

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Implementation of Provisions of Sri Lanka Disaster Management Act			
Provisions of the Sri Lanka DM Act, No.13, 2005 implemented	**Outputs**: i. National policy on DRM prepared ii. Advisory Committees established iii. National Disaster Management Plan for Sri Lanka prepared iv. DM Plans for Ministries, Line Agencies, Corporations prepared **Activities**: - Develop a National policy on DM through consultative process Constitute an Expert Group representing various DM practitioners, professionals, academics, SLRCS, NGOs, Development agencies etc. - Study the recommendations given in the Report of the Parliamentary Select committee and other relevant documents and reports - Obtain approval of the NCDM - Prepare DM plans at the national, ministry and agency levels as required	0.52 (S)	**DMC** with guidance from NCDM, and relevant agencies such as the UNDP.
2. Institutional Mandates Reviewed			
Hazard-specific institutional mandates for line agencies to perform or support relevant disaster related activities reviewed and strengthened	**Outputs**: i. Institutional Mandates for relevant line agencies established or clarified ii. New Regulations enacted as required **Activities**: - Identify relevant functions which are not assigned to any institutions -Identify institutions without appropriate mandates to function in various capacities -Address the gaps in institutional functions through provision of mandate by issue of appropriate gazette notifications -Introduce responsibility and accountability for assigned function	0.01 (S)	**DMC**, with relevant agencies or line Ministries
Institutional Mandates for Provincial councils, local government agencies formalized and operationalized	**Outputs**: i. Establishment of Institutional Mandates for Provincial councils, local government agencies, SLRCS and NGOs to perform or support relevant disaster related activities	0.01 (S)	**DMC** with guidance from NCDM

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	Activities -Address the gaps in institutional functions of Provincial councils and local government agencies, through provision of mandate to function. -Issue appropriate gazette notifications -Introduce provisions of accountability and responsibility		
3.Developing Institutional Mandates and Capacities			
Institutional capacities corresponding to new mandates developed Roles and Responsibilities of various agencies clarified Capacity of DMC developed for emergency operations and as lead agency for DRM	**Outputs**: i. Develop institutional capacities corresponding to new mandates ii. Physical facilities for DMC including HQ building provided **Activities**: - Development of institutional framework for ministries, departments, agencies, SLRC and national & International NGOs to function corresponding to new mandates provided to Provincial councils, local government agencies, DM line agencies - Identification of needs and gaps in manpower, equipment and offices -Training and capacity-building of sections/divisions in the respective organization dedicated to function as a DM line agency - Institutionalized cooperation and coordination structures facilitated as needed - Head office building for DMC with EOC, communication etc	3.50 (Total) 1.50 (S) 1.0 (M) 1.0 (L)	**DMC** and respective DM line agencies, and local agencies
4. Formulation of CBDRM Policy			
Capacity of the community to play an active role in DRR utilized and enhanced	**Outputs**: i.CBDRM recognized as a tool for risk reduction at local levels, especially for line agencies and ministries **Activities**: - Recognize and provide legal basis for CBDRM groups at the village level - Clear linkage established and roles identified for Community DRM groups, as well as for NGOs in DM plans at GN Division, divisional and district level - Create national mechanism for coordination between DMC and NGOs in promoting CBDRM - Development of common approaches and methodologies to CBDRM - Registration system for disaster response volunteers created	0.10 (S)	**DMC** with relevant lines ministries and agencies, SLRCS, NGOs and CBOs

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
5. Enforcement of policies			
Implementation of existing policies towards risk reduction optimized	**Outputs**: i. Enhanced enforcement of relevant existing ordinances, acts, regulations **Activities**: - Review of existing ordinances, acts, regulations - Identify gaps and causes for inadequate enforcement, - Clarify and resolve areas of overlap or contradiction - Develop capacities or resources needed as identified for effective enforcement	0.10 (M)	**DMC** with relevant line ministries and agencies

2.3 Hazard, Vulnerability and Risk Assessment

Key Issues

The objective of a hazard assessment is to *identify the probability of particular hazards* occurring in a specified future time period, as well as *gauging the intensity and area of impacts*. Risk assessments include collecting detailed quantitative and qualitative information and understanding risk; its physical, social, economic, and environmental factors and consequences. It is a necessary first step for any disaster reduction measure or strategy for Sri Lanka.

Though many institutions have begun mapping hazard risks in Sri Lanka, there is no unified methodology or agreement in producing information. The practical problems of data exchange and scale of mapping have to be resolved. There is also a need for technical assistance from specialized training agencies to support such institutions to develop their own cadre of specialists. Training for all related agencies in systems such as GIS, remote sensing capabilities, is required. Further, there is a need for all maps and other data bases to be made available on digitized formats to agencies involved in DRM efforts.

Multi Hazard Risk and Vulnerability Assessments are extremely important in the design and setting of engineering facilities and in zoning for land use planning. Such multi-hazard, vulnerability and risk assessments should be taken into account in planning the development of hazard prone areas.

Strategy

The suggested programme of activities under the Hazards, Vulnerability and Risk Assessment theme, encompasses the systematic use of available information to determine the likelihood of certain events occurring and the magnitude of their possible consequences. As a systematic approach, it includes the following activities:

- Identifying the nature, location, intensity and probability of risk
- Determining the exposure and degree of vulnerabilities to the threat
- Identifying the capacities and resources available
- Determining acceptable levels of risk

In order to formulate a comprehensive strategy to carry out the assessments in the short, medium and long term, a three pronged approach has been suggested on a priority basis for the proposed activities over the next 10 years:

i. The DMC will coordinate with all lead agencies for DM to work on arrangements by which resources can be shared and common agendas/ programmes drafted.

ii. Data from satellites should be made available to all institutions engaged in risk management activity as a priority in the short term. This information can be exchanged between agencies working on different aspects of risk assessment in Sri Lanka.

iii. The hazard information should be freely available. The maps and other documents should be loaded onto the DMC website as well as be put together in a vulnerability atlas. The maps should also be revised regularly and detailed maps can be made available in a virtual database with restricted access.

Key Interventions

The programme components under the theme of Hazard, Vulnerability and Risk Assessment include the following:

- Flood simulation models for all major river basins; development of flood inundation maps for urban areas frequently affected by flooding, as well as for downstream areas of main dams;
- Development of tsunami hazard zonation maps;
- Landslide hazard zonation mapping for landslide prone districts of Sri Lanka;
- Seismic zoning for areas vulnerable to seismic/ micro-seismic activities;
- Development of drought prone area maps;
- Development of wind zoning maps for cyclone prone areas;
- Development of Vulnerability Atlas for Sri Lanka and the establishment of Disaster Risk Management Information Systems.

In the short term, several projects have been identified as being of 'high' priority for Sri Lankan agencies involved in risk mapping and assessments:

i. Landslide hazard zonation mapping for landslide prone areas:
Since 10 districts of Sri Lanka are increasingly prone to landslides, there is an urgent need to support the landslide hazard zonation activities of the NBRO. This will enable an identification of the most vulnerable areas as a first step to put in place a decision making tool that guides future physical planning in those areas.

ii. Flood Simulation Models for Major River Basins
It is necessary to develop flood simulation models for the major river basins in Sri Lanka (Kelani, Gin, Nilwala, Mahaveli in the short term and in Walawe, Bentara, Kalu and other river basins in the medium–long term). This exercise will generate flood simulation tools as a decision-making tool for development plans. It will also feed into the development of flood inundation maps for urban areas frequently affected by floods.

iii. Flood Inundation Maps for Downstream areas of Reservoirs to Assess the Flood Situation due to Sudden Release of Water or Dam breaches

Large reservoirs located in the central and north-central regions also contribute to flood vulnerability due to the potential for sudden releases from spillways and possible dam breaches. A 'high' priority in this sector is to identify highly vulnerable areas in the downstream areas for 10 pre-identified high risk dams in the short term and for all other dams through medium term plans. This will also help improve the capacity for surveillance and monitoring of about 210 medium and large dams in the country.

iv. Supporting Interventions in the Short Term

To enable efficient flood inundation and dam break flood inundation mapping of the country as a priority in the short-medium term, specific interventions will be required from concerned agencies, ministries and the government:

- An airborne survey (LIDAR) of river basins is a basic requirement in the identification of physically vulnerable basin areas
- Need to make post tsunami studies by USGS, Universities, CCD and others available in a common format for involved agencies
- Share information across all other risk areas amongst partners included in Sri Lanka's risk management framework.

Component 2: Hazard, Vulnerability and Risk Assessment

To identify the probability of occurrence of various hazards in a specified future time period, as well as the intensity and area of impacts.

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Landslide Hazard Zonation Mapping in Landslide Prone Districts of Sri Lanka			
Landslide hazard zonation mapping at 1: 50,000 scale for Badulla Nuwara Eliya, Rathnapura, Kegalle Kandy Matale, Galle, Matara, Kalutara, Hambantota Landslide hazard zonation maps for vulnerable local government areas in scale 1:10,000 Detailed mapping of landslide prone urban areas at larger scales	**Outputs**: i. Detail landslide hazard maps for urban areas (Ratnapura and Nuwaraeliya) - (S) ii. Same for other areas (M) **Activities**: -Field mapping & collection of field data -Acquisition of satellite data development of GIS maps for delineation of vulnerable areas - Upgrading computer hardware and software used for GIS mapping - Development of GIS database and delineation of vulnerable areas - Dissemination of map information - Geological and geotechnical investigation for collection of necessary field data - Data analysis and delineation of associated risks - Development of risk maps and disaster response maps - Dissemination of maps and proposed mitigatory measures.	3.95 (Total) 1.57 (S) 0.89 (M) 1.49 (L)	**NBRO** (long term) Irrigation Department
2. Establishment of DRM Information System at DMC			
GIS based DRM Information System at DMC made available for the benefit of all involved stakeholders	**Output**: i. GIS based system established at DMC **Activities**: - Establishment of a GIS unit in DMC; Core functions of the GIS/IT unit in DMC GIS & Remote sensing; Managing DMC web portal; Managing spatial & non-spatial databases; Managing risk information systems hardware/equipments at DMC & NEOC; - Coordination with other agencies for risk information management; Integrate all information systems to build a comprehensive 'Risk Information Management System' for the country - Development of spatial database for LGAs in relation to general aspects such as administrative boundaries, population, human settlements etc, - Integration for hazard zonation maps into spatial database - Making data available on line	0.50 (S)	**DMC**

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
3. Flood Risk Assessment			
Flood simulation models for major river basins (Kelani, Kalu, Gin, Nilwala, Mahaveli, Walawe, Bentara etc) made available as a decision-making tool Development of flood inundation maps at scale 1:10000 (for Urban local government areas frequently flooded) Identification of highly flood prone basins, Districts & Divisions	**Outputs**: i. Flood hazard maps (Digitized and hard copies) in Nilwala, Gin, Kelani and Mahaweli rivers ii. Flood hazard maps for Kalu and other river basins **Activities**: - Development of digital elevation models (DEM) including data collection -Rainfall data analysis -Development of appropriate simulation models -Enhancement of prediction and EW capacity -Collection of field data on historical events such as the May 2003 floods -Digitization of topographic data of DEM -Development of GIS maps for most vulnerable urban LGAs -Assess the performance of existing flood protection works for improvement	3.55 (Total) 1.05 (S) 1.30 (M) 1.20 (L) Short term (Basin) (Kelani, Kalu, Mahaweli Basins) Medium Term- (Other Priority Basins) (Gin, Nilwala, Walawe, Bentara)	**ID, MASL** CEB, NWS & DB Urban local Governments
4. Coastal Vulnerability Assessment & Risk Analaysis			
Development of Tsunami hazard zonation maps and coastal erosion maps for urban local government areas & all coastal areas at the scale of 1; 10,000 made available as a decision making tool to increase coastal protection & to advance shoreline management practices	**Outputs**: i. Tsunami hazard maps for coastal belt (S) ii. Physical and socio-economic maps in tsunami-vulnerable areas **Activities**: - Identification of urban coastal & other communities vulnerable to tsunami events - Collection of field data & use of models - Digitization of topographic data - Development of GIS maps -Monitoring & assessment of physical ecological & socio-economic status of marine & coastal habitats /resources susceptible to coastal & marine hazards (Short term and Long term) - CCD strengthened with greater responsibilities for vulnerable areas/ risk assessment in association with the Survey Department	0.50 (Total) 0.30 (S) 0.20 (L) (See footnote)[2]	**Coast Conservation Department** /Survey department, Meteorological dept, Statistics Dept, DSs, PCC, UDA, GSMB NARA & NHD
5. Development of Drought- prone Area Maps of LGA at the scale of 1:10,000			
Drought-prone area maps made available as a decision making tool	**Outputs**: i. Micro-climatic maps (M) ii. Drought vulnerability maps (M & L)	0.20 (Total)	**Meteorological Department** in collaboration with **Agriculture Department**,

[2] CCD has developed a project proposal for this item amounting to a total cost of US $ 5 million. The cost mentioned here in the matrix is only for pilot project

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	Activities: -Analysis of historical records of rainfall, surface runoff data, land use patterns, soil types, population density, water use patterns -Review classification of drought prone areas -Mapping of areas prone to droughts & identifications of drought prone districts & divisions -Assess the risk of possible impacts -Development of GIS maps	0.10 (S) 0.10 (M)	Irrigation, MASL, Agriculture & Agrarian Services Department
6. Dam Safety & Risk Assessment			
Development of dam break flood inundation maps for downstream areas of main dams for identification of areas vulnerable due to sudden discharge from reservoirs	**Outputs**: i. Dam Break Flood Inundation maps a) For 10 identified high risk dams (S) b) For all other dams (M) **Activities**: -Identification of critical reservoirs that may have high impact due to sudden discharge. -Development of inundation maps -Dam Break Modelling & Failure Mode Analysis	0.70 (Total) 0.20 (S) 0.50 (M) (Short Term on River basins from Kotmale to Manampititya)	**Irrigation Department Mahaweli Authority of Sri Lanka**, CEB, Survey, Provincial Councils
7. Vulnerability & Risk Assessment for Local Government Areas			
Guidelines for classification & mapping of physical vulnerability & risk levels made available as a decision making tool	**Outputs**: i. Guidelines for physical vulnerability and risk assessment **Activity**: - Constitute a committee of experts to refine classification of physical vulnerability & risk assessment in Sri Lankan context & develop guidelines & use in high risk districts, division & urban local government agencies	0.05 (S)	**DMC** /DM line agencies UDA
8. Vulnerability Atlas			
Information on spatial distribution of various types of natural hazards & vulnerable areas made available as a compendium for use as a decision making tool for preparedness & mitigation programmes.	**Output**: i. Vulnerability Atlas for Sri Lanka (at the scale of 1:50,000) **Activities**: - Compilation of maps related to settlements population density, land use LGA areas etc - Consolidate with line zonation maps on most frequent hazards and historical records on impacts. - Identification & rating of districts & divisions on multi-hazard risk scale - Compilation of Vulnerability Atlas for Sri Lanka & update every 10 Years. - Preparation of a detailed historical referral database on disasters	0.20 (S),(M)	**DMC** Survey Department /DM agencies, Dept of Statistics, Survey Dept All agencies involved in preparing & updating Hazard maps

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
9. Development of Wind Zoning & Storm Surge Maps for Cyclone-prone Areas in 1:50,000			
Zoning maps for areas prone to cyclones & storm surges made available as a decision-making tool	**Outputs**: i. Updated wind zoning maps (S) ii. Storm surge hazard maps (M) **Activities**: - Review of cyclone wind zoning maps developed after 1978 cyclone; publication of wind zonation & storm surge inundation maps (Technical assistance required)	0.4 (Total) 0.20 (S) 0.20 (M)	**Meteorological Department, CCD**, NARA Survey Dept.
10. Seismic Zonation Maps for Sri Lanka			
Accurate information on seismic zones & hazard potential available to all stakeholder institutions (especially the construction industry)	**Outputs**: i. Seismic stations as required (S) ii. Seismic Zonation maps for entire country (M) **Activities**: - Enhancement of the present seismic monitoring & data capturing capacity to International standards & Establishment of a seismic monitoring unit at GSMB. - Development of seismic zonation maps	0.15 (Total) 0.10 (S) 0.05 (M)	GSMB
11. Integrated Epidemic Risk Assessment			
An integrated epidemic risk assessment for high risk geographical areas for different epidemics & vulnerability population established	**Outputs**: i. Epidemic Surveillance systems **Activities**: - To identify and collect historical records and analysis (such as Dengue, Malaria, Japanese Encephalitis, Diarrhea , Avian Flu, etc) - To develop a data base using the above information	0.20 (M)	**Minstry of Health,** Agriculture, Regional Health Dept, Irrigation, NWS&DB, Municipalities, M/Women Affairs,
12. Major Transportation/ Industrial Accidents			
Database for application of mitigatory measures related to transportation accidents developed	**Output** i. Database on transportation accidents **Activity**: - To identify the risk levels: Collection of historical data, analysis of risk, (rail, highways)	0.15 (M)	CEA, **RDA**, Police Dept., Municipal councils/Fire Brigades, Health Dept. Provincial Councils, RDA – lead agency
Database for application of mitigatory measures related to industrial/ occupational accidents developed	**Output**: i. Data base on occupational hazards ii Data base on hazardous materials **Activities**: - To identify the risk levels (Collection of historical data, analysis of risk) - To develop an inventory for hazardous materials, industries etc.	0.15 (M)	Dept of Labour, CEA, ITI, IDB, PCC, MC, CEB, Petroleum Corporation

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
13. Terrorism and Human-made Disasters			
High risk areas for application of precautionary measures identified	**Output**: i. Database on high vulnerable locations **Activity**: - Identification of risk areas/locations and assess the hazard impacts	–	Police and other Forces, DM line agencies

2.4 Multi-hazard Early Warning (EW) System

Key Issues

The primary objective of a multi-hazard Early Warning (EW) Systems is to generate advance warnings and thus improve the capacity of decision-makers to take appropriate action even prior to the occurrence of a major hazard event. It consists of the collection, consolidation, analysis and dissemination of risk information. Setting up an effective Multi-hazard EW system requires concerted planning, organizing and controlling of relevant information. It also requires influencing all concerned stakeholders to ensure that information is disseminated to the right decision-makers and vulnerable communities, at the right time.

Current efforts at institutionalization of EW systems have come as a response to the impacts of the recent tsunami disaster in 2004. The proposed tsunami EW arrangements must be integrated into existing warning systems to promote a multi-hazard approach to make the system sustainable. Although there are various ongoing efforts to develop tsunami EW capacities, but only few to improve existing capacities for other more frequent hazards. The multi-hazard EW system needs to be end-to-end, linking hazard detection systems with warning communication, with a feedback mechanism that allows post-event assessments.

Also, it is important to note that agencies in Sri Lanka are organized according to specialized tasks for different hazards, without much information sharing or partnerships with other agencies. It is these gaps that the DMC's EW division seeks to address by bringing together all concerned agencies. Another key issue that needs to be addressed is the lack of communication lines and especially their unavailability during times of emergency communication.

Strategy

The strategy is to focus on hazards that frequent Sri Lanka the most, like floods, landslides, cyclones, and droughts, while also providing for measures to tackle a low-frequency but high impact hazard like the 2004 Tsunami. It follows that the coastal areas, which are vulnerable to not just a tsunami, but also cyclones, storm surges, and floods would be the priority geographical areas. The floods affecting many of these coastal areas are caused by the seasonal rainfall, and an improvement in meteorological observation and prediction capabilities will enable efficient EW System for not just these annual floods but also cyclones and lightning strikes. This coupled with landslide prediction will enable timely warnings to communities at risk across 10 districts of Sri Lanka.

There is consensus amongst relevant departments responsible for detection and EW that particular hazards should be the responsibility of one and only one institution, to avoid overlaps in mandates and appropriate actions. The dedicated units or sections established in relevant institutions would be the sole authority for the issue of warnings as needed. Every effort would be made to use the existing communication channels within the government's administrative set up, in addition to the three major channels of communication already being used for mass dissemination: popular media, such as television, newspapers, radio etc; the Wireless Communication system of the Police; and military communication channels of the Joint Operation Command. Also, the relevant agencies could explore the option of communication networks of SLRCS in particular and NGOs in general, to help multiply the reach of these warnings to the communities at risk. This warning dissemination activity will be covered by projects formulated under the 'Public awareness, Training and Education' component.

Key Interventions

The following programmes have been prioritized to consolidate multi-hazard EW systems across various agencies in Sri Lanka:

i. Establishment of the EW Centre

Sri Lanka as part of the Regional Tsunami Early Warning Systems is required to maintain an EW Centre. This EW Centre while initially focused on the Tsunami should adopt a multi-hazard approach since the systems of communication or dissemination of warning for different hazards are similar.

At present, issues with regard to weather-related natural disasters are handled by the Meteorology Department while those related to seismological and ocean wave activities are handled by Geological Survey and Mines Bureau and National Aquatic Resources Research and Development Agency respectively. Similarly different institutions handle issues with regard to different natural disasters. A good networking facility connecting all the relevant institutions is vital for proper coordination during disasters. The Government of Sri Lanka has identified the need to establish a multi-hazard EW Centre as a matter of urgency. This centre has to be equipped with state-of-the-art facilities to be able to communicate directly with international as well as national agencies during emergencies.

ii. Improvement in Meteorological Observation and Prediction Capabilities

At present, it is necessary to install a number of automatic weather stations at crucial locations in Sri Lanka and connect them to a central hub at the departmental head office in Colombo. A proper all-weather communication system should be developed to link these stations. In addition, data processing, display and archival systems are to be installed at the National Meteorological Centre of the Department to keep real time track of the weather situation in the country.

iii. Flood Monitoring and forecasting

In parallel to the improvements in meteorological observation capacities, the existing hydrometric network for flood monitoring and forecasting needs enhancement to provide an effective flood early warning mechanism.

iv. Improvement of Landslide Prediction and EW Capabilities

The proposal is to develop a mechanism for establishing threshold limits for landslide occurrence and development of landslide EW systems based on the same criteria for high risk areas. Such mechanisms have to be established for the benefit of at-risk communities with their active involvement. This EW mechanism should be introduced as a real time forecasting system in most areas vulnerable to landslides and mass (soil) movements.

v. Development of Effective Cyclone Tracking, Storm Surge and Coastal Flood Warning System

It is proposed to implement a storm surge model and develop a coastal flood warning system for the entire coastal belt of Sri Lanka. With regard to the tracking of tropical cyclones and other low-pressure weather systems that develop in the Bay of Bengal, more cooperation is required among countries in the region.

vi. Development of Long and Medium term Drought Forecasting and Monitoring System for Agriculture and Associated Sectors

Even though the agricultural sector is the most vulnerable to frequent droughts in Sri Lanka, adequate attention has not been given to rainfall monitoring in drought prone areas, drought forecasting and EW. In order to launch an effective drought-preparedness programme, the existing agro-meteorological observation network has to be upgraded along with communication facilities to transfer real time data to the central station. A crop-weather watch group should be formed in order to interpret the information received from field and other line agencies. As the crop-weather relationships are currently being handled by different divisions, it is imperative to bring them together to ensure effective and useful information generation and dissemination.

vii. Development of a Unified Seismic Monitoring, Data Processing and Archival Network

As a matter of urgency, it is necessary to develop and strengthen the capabilities of the Geological Survey and Mines Bureau (GSMB) to enable them to locate earthquake risks at the earliest. The GSMB would need to connect this network to the proposed Central Data Processing and Archiving Unit (CDPA).

Due to lack of necessary expertise and software at the GSMB, seismic data acquired by existing stations has not yet been processed and interpreted locally. A micro-seismic monitoring network which will monitor reservoir-induced seismicity was operational around the cascade of dams built on Mahaveli river during 1982-1991. However, no significant micro seismic activity was monitored except for some settlement tremors along the Mahaweli Shear Zone.

viii. Development of Oceanographic Monitoring System

The local coastal topography, oceanography and marine meteorology are the critical parameters which determine the magnitude and the period of high-frequency ocean waves like tsunamis or storm surges. Thus, oceanographic/ marine meteorological buoys need to be deployed in order to gather real-time data on local coastal topography, oceanography and marine meteorology. Mapping of sensitive habitats such as coral reefs, mangroves, sea grass, tidal flats, estuaries, etc are vital to generate data for mitigation, preparedness and planning for vulnerable coastline areas in Sri Lanka.

ix. Establishment of an EW system for Nuclear Accidents and Monitoring of Environmental Radiation

Various types of ionizing radiation sources are widely used in industrial, medical and agricultural fields and for other research purposes for Sri Lanka. The sources used for different activities range from a few Kilo Becquerel to thousands of Giga Becquerel. The loss or misuse of ionizing radiation sources could result in radiation exposure of workers and members of the public and can also lead to environmental contamination. In extreme cases the exposure can be lethal, while lower levels of exposure could lead to long-term adverse effects on a population.

Component 3: Multi-hazard Early Warning (EW) System

To generate advance warnings and thus improve capacity of decision-makers to take needed action prior to the occurrence of a disaster

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Early Warning Centre			
Timely and end-to-end Early Warning (EW) on potential natural disaster events provided	**Outputs**: i. Establishment of the Early Warning Centre **Activities**: - Establishment of the Multi-hazard EW Division of DMC at Department of Meteorology (DoM) premises. Managerial arrangements to be decided by DG/DMC, DG/DoM and by other stakeholders. - Institutionalizing of inter agency arrangements for national early warning with relevant lead agencies - Establishment of coordinating mechanism with improvement/ establishment of a proper communication system for dissemination of warnings - Formalized dissemination arrangements through parallel SLRCS radio communication	0.28 (S)	**DMC,** DoM, GSMB, NBRO, MASL, NARA, ID, CEB, CCD, AEA, Defence and other relevant stakeholders such as SLRC
2. Meteorological Observation and Forecasting			
Better weather and storm forecasting provided	**Outputs**: i. Improved meteorological observation and prediction capabilities **Activities**: - Development of 35 new automatic weather observation stations with data processing and display system at DoM, Colombo linked with a real-time communication system - Enhancement of prediction capabilities for coastal floods	2.2 (Total) 1.0 (S) 1.2 (M)	**DoM**
3. Flood Monitoring and Forecasting			
Flood monitoring and prediction capabilities in flood-prone river basins enhanced	**Outputs**: i. Improvement of hydrometric network for enhancing flood monitoring and forecasting capabilities **Activities**: - Establishment of effective flood hazard EW system for priority basins, which includes development of 25 new stations with telemetry facilities - Enhancement of communication and dissemination capabilities	0.865 (Total) 0.36 (S) 0.50 (M)	**ID,** CEB, MASL, DoM

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
4. Landslide Prediction and Early Warning			
Landslide prediction and EW capabilities developed and established for communities at-risk	**Outputs**: i. Improvement of landslide prediction and EW capabilities **Activities**: - Development and Establishment of a landslide forecasting system (S) - Validation and fine-tuning of the system (M) - Development of an evaluation and dissemination programme (L)	0.17 (Total) 0.08 (S) 0.045 (M) 0.045 (L)	**NBRO,** DMC, DoM
5.Drought Monitoring and Forecasting			
Information on potential events of drought/ inconsistencies in rainfall made available to agriculture and associated sectors as an advanced decision support mechanism	**Output**: i. Yield forecast of major food crops in each growing season with a sufficient lead time (S,M) ii. Development of long and medium term drought forecasting and monitoring system for agriculture and associated sectors (S,M) **Activity**: - Establishment of a crop weather watch group/ forecasting unit - Enhancement of drought prediction capacity - Development of drought EW dissemination and end-to-end feedback and response system - Upgrading and provision of communication facilities	0.27 (Total) 0.21 (S) 0.06 (M)	**DOA,** ID , MASL, Dept. of Agrarian Services, DoM
6. Cyclone Tracking, Storm Surge			
Effective mechanism for cyclone tracking and storm surge warning established to facilitate timely EW	**Output**: i. An effective cyclone tracking, storm surge warning system **Activities**: - Enhancement of collaborative arrangements with neighboring countries for cyclone tracking (S) - Enhancement of prediction capabilities for storm surge (M)	0.21 (Total) 0.01 (S) 0.20 (M)	**DoM**
7. Seismic Monitoring			
Enhanced seismic monitoring capacity	**Output**: i. Development of a Unified Seismic Monitoring and Data Processing and Archival Network **Activities**: - Networking of local seismographic stations (University network and proposed seismographs of major dams) - Improvement of broadband seismic network - Establishment of a seismic data processing and archival unit - Enhancement of monitoring and data capturing	2.62 (Total) 0.75 (M) 1.87 (L)	**GSMB**, DMC

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
8. EW Systems for Major Dams			
EW for hazards associated with major dams provided	**Outputs**: i. Establishment of EW Systems for major dams ii. Computerized data gathering system iii. Improved Surveillance & Monitoring (S&M) of 210 medium & large dams in the country **Activities**: - Establishment of Supervisory Control and Data Acquisition (SCADA) system	0.5 (M)	**MASL**
9. Oceanographic Monitoring System			
Oceanographic monitoring - recording of sea level fluctuations constantly monitored and alertness increased	**Outputs**: i. Development of oceanographic monitoring system- Real time data on oceanographic parameters ii. Bathymetric data and Nautical Chart iii. Simulation of tsunami's characteristics (height and run-up) along the coast of Sri Lanka and risk assessment for different areas along the country's coastline. iv. Inundation and sensitive coastal habitat maps **Activities**: - Base line survey and gap analysis - Establishment of effective sea level monitoring network of 12 automatic tide gauges - Enhancement of communication, processing and archival systems - Networking of system to transmit real time sea level data to EW Division - Enhancement of coordination mechanism	2.0 (M)	**NARA,** DMC
10. Nuclear / Radiological Monitoring			
Timely and coordinated response to nuclear/radiological accidents ensured	**Output**: i. Establishment of an EW/ response system for nuclear accidents and monitoring of environmental radiation (S,M,L) **Activities**: - Establishment of monitoring stations - Purchase of required monitoring and measuring equipment - Data collection and analysis - Environmental sample analysis	0.46 (Total) 0.39 (M) 0.06 (L)	**AEA**

2.5 Preparedness and Response Plans

Key Issues

The objective of disaster preparedness plans is to minimize the adverse effects of a hazard through effective precautionary actions and adequate responses to ensure the timely and coordinated delivery of relief and assistance following a disaster.

Preparedness involves the development and regular testing of warning systems (linked to multi-hazard EW Systems) and plans for evacuation or other measures to be taken during a disaster alert period. It also involves the education and training of officials, intervention teams and communities. Establishment of policies, standards, organizational arrangements and operational plans to be applied following a disaster are also crucial. Effective plans also consider securing resources, possibly including stockpiling supplies and earmarking funds. These plans are being supported through the provisions of the DM Act.

Some of the key issues arising from the interactions and planning arrangements for response and preparedness plans centre around organizing funding capacities for immediate response; and systematically building capacity across all levels. They also include clearly defining the roles for involved agencies in order to avoid mismanagement, overlaps and gaps in response to disasters and emphasizing the coordination of all such recognized agencies. It is also important to ensure reliable lines of communication as well as alternative lines for emergency communications; sensitize the media to the importance of correct information and ensure informant mechanisms for the same. The logistics channel is to be kept geared for an immediate impact, with needs assessment in the aftermath of a disaster; and a clear role for nation-wide NGOs such as the SLRCS is to be defined in government response plans.

Strategy

The identified issues and needs for this theme can be addressed through the following suggested strategies in the short-medium term:

- Provisions in annual budgets of respective line ministry/ agency through the DM Plan.
- Identification of skills / knowledge required and developing an HRD plan.
- Provide equipment and train staff/ volunteers to use them.
- Mapping of available resources and materials with public and private sector.
- Regulations in place to utilize such equipments as desired by the DM Plan
- Develop and enforce / gazette standard operating procedures for all activities.

- Drills and simulation, to check the system.
- Incident Command System should be well defined.
- Bring clarity about roles and responsibility amongst various actors.
- All stakeholders are aware of each other's role and responsibilities.
- Declaration and dissemination of disaster situation at various levels.
- Legal provisions to ensure ownership of media actions.
- Government body to provide standard communication messages.
- One government body to specify items, describe quantities required and expected date of delivery.
- Develop specifications of emergency items, as may be required under different disaster situations.
- Gazettes notification/ incorporation of institutional mandate.
- Inclusion of SLRCS for specified duties/ responsibilities under Standing Orders.
- Inclusion of NGOs/I-NGOs for specified duties/ responsibilities under Standing Orders/ response plans.

Key Interventions

The following components have been identified as key to developing a comprehensive action plan for disaster preparedness at the national, sub national and local levels:

- Development of DM (preparedness and response) plans by each ministry/ department and districts/ divisions;
- Developing emergency response capacities at Provincial, Municipality and Urban council level;
- Establishing a competent cadre of emergency response & DM coordinators at all levels to extend support to DMC/ District Emergency Operations Rooms;
- Development of district level emergency services network; Establishment of Hospital Emergency preparedness mechanism;
- Resource network for emergency response
- Procedure for sharing of information, manpower and resources

In addition, the following have been prioritized for immediate attention in order to situate longer term activities within a sustainable framework:

i. Developing and Maintaining a National Emergency Preparedness and Response Plan

Development of a National Disaster Response Plan will help various line ministries, departments and agencies, to collaborate in providing needs-based efficient responses to those in need. This will also help identify a role for organizations like SLRCS, and International NGOs, in various stages of disaster management, by defining the mandates of DMC and concerned line ministries,

departments, agencies and other organizations, in managing various disasters. The plan will define functional roles and responsibilities to each of these ministries and departments, through the different stages of disasters. Further, this will allow response plans to be prepared for each district, division and vulnerable community, to be linked to the National Disaster Response Plan (NDRP). Since there are various levels of operation and administration, this plan will formulate Standard Operating Procedures (SoPs), defining the control and directions in managing the disaster response.

ii. Establishing National Emergency Operation Centre and District Emergency Operation Rooms

This will involve the setting up of an institutional framework for a Response Operation, from triggering action, providing direction and control, up till service delivery through existing ministry departments/ agencies. Similarly, EOC at district level will form a decentralized mechanism for response operations, while maintaining a standard approach. This will also emphasize development of Standing Orders/ Standard Procedures, to provide legal status to concerned agencies in order to carry out tasks, while working under EOC authority.

Component 4: Preparedness and Response Plans

To minimize the adverse effects of a hazard through effective precautionary actions and adequate response to ensure the timely, appropriate and effective organization and delivery of relief and assistance following a disaster

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Hazard Specific Response Plans			
Coordination and control mechanism to provide directions, leadership and optimize utilization of resources developed DM specific structures linked with service delivery structures i.e. EOC with emergency service networks Linkages between institutional response and community based response established	**Outputs**: Hazard Specific Response Plans are in place at National level, with appropriate linkages with Provincial, District, Divisional and Village / Community level plans for: a. Floods b. Tsunamis c. Cyclones d. Landslides e. Droughts f. Lightning and Thunderstorms g. Tornadoes h. Sea Erosion Activities: - Set up technical advisory committees for each type of hazard, SoPs. - Facilitate meetings to develop risk profile and risk management approach/ strategy. - Share guidelines for development of draft for district, divisional and local authority level response plans. - Develop a draft plan based on, and linking response plans at various levels (District, Divisions, Local Authorities) and link with the working group developing SoPs. - Field test and finalize the plan.	0.50 (S)	**DMC**, Provincial Councils, District/ Divisional Secretariats, LAs, GNs, NGOs, CBOs
2. National Rapid Response Team			
Timely, effective and efficient disaster response support provided	**Outputs**: i. National Specialized Rapid Response Team operational for deployment during disaster situations. **Activities**: - Identification of specialized skill sets required and establishment of a team, with a definite legal mandate. - Organize capacity building, including equipping the team members and training. - Standard command and control procedures developed. - Link with contingency plans. - Public dissemination of availability of such teams. - Develop telephone directory for such team members.	0.10 (S)	**Ministry of Disaster Management**, DMC, Police, Fire-Search & Rescue Services, Health and related Ministries, Line Agencies

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
3. Emergency Operation Centres			
Timely activation and coordination of emergency response services	**Outputs**: i. Emergency Operations Center Operational ii. Incident Command System at DMC and district levels **Activities**: - Specific role for this center are defined and adopted. - Infrastructure is provided and equipped. - SoPs / institutional tools are made available to the center. - Field testing and regular drills. - National EOC at DMC linked to each district - Provision for financial resources to activate any response / contingency plans, together with 24X7 monitoring.	0.35 (S)	**DMC**, District/Divisional Secretariats, P.Cs
4.Hazard Specific Contingency Plans			
Operational capacities of identified departments/ agencies strengthened to activate the respective contingency plan Linkages with emergency service networks established	**Output**: i. Hazard specific/ contingency plans in place with various line ministries, departments and government agencies, as required by Sri Lanka Disaster Management Act 2005. a. National Oil Spill Contingency Plan. b. National Industrial and chemical hazard management permit. c. National Radiological and Nuclear Emergency Management Plan. d. Forest Fire Management Plan. e. Dam related hazards. f. Biological Hazard Management Plan. g. Urban Fire Suppression and Management Plan. h. Road Traffic Accident Management Plan. i. Epidemics. j. Explosion/ Bomb blasts. **Activities**: - Each ministry, department, agency starts mapping of capacities and risk exposure to its service establishments. - Develop institutional safety plans to protect/ limit damage to its own infrastructure/ facilities. - Develop contingency plans to maintain its organizational readiness, to be in a position to offer services as and when required. - Develop public warning/ awareness system for each type of contingency. - Provide legal base for self compliance to contingency plans. - Establishing and strengthening monitoring capacities of responsible government / private sector entities. - Improve social protection/ safety net through insurance.	0.75 (S), (M)	**DMC**, **Line Ministries**, Departments, Governmentt agencies and relevant stakeholders

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
5. Emergency Service Networks			
Strengthening of emergency services in urban areas, provinces and districts Scale and type of community needs under different disaster scenarios assessed and institutional framework developed to provide services as and when necessity arises	**Outputs**: i. Emergency Service Networks (Warning, Evacuation, Mass Care, Disaster Victim Identification (DVI)/ Tracing & Family Re-union Health & Medical Care, Public Warning etc) in place at provincial, district, municipal and urban council levels. **Activities**: - Set up in a phased manner emergency services in all areas not currently covered - Upgrade existing services (manpower, skills and equipment) to meet the risks faced. - Set up a Technical Advisory Committee to identify scale and type of community needs under different emergency scenarios and of focal departments/ bodies to carry out/ provide services under these sectors. - Identify team leader for each sectoral service agency/ department at national/ district level - Establish operational linkages / mechanisms EOC/ DMC for role under response and contingency plans. - Dissemination existence of such focal bodies, respective mandates and operational mechanisms.	1.0 (Total) 1.0 (S) 1.0 (M)	**DMC**, PCs, District/ Divisional Secretariats, LAs and Line agencies, Australian expertise, SLRCS
6. Knowledge Management System			
Efficacy of response operations improved constantly	**Outputs**: i. Knowledge Management System, to update the National Response plans, incorporating lessons learned. **Activities**: - DMC carried out post disaster lessons learned exercises, to get feedback and improve response plans/ response strategies. - Mitigation/ prevention project data/ CBDM updates are analyzed for change in vulnerability profiles and changes in response plans.	0.025 (M)	**DMC** with relevant stakeholders

2.6 Mitigation and Integration of DRR into Development Planning

Key Issues

The aim of a mitigation strategy is to reduce losses in the event of potential hazard occurrences. The primary aim is to reduce the risk of death and injury to the population. Secondary aims include reducing damage and economic losses to public sector infrastructure and reducing private sector losses in as far as they are likely to affect the community as a whole. The objectives are likely to include encouraging people to protect themselves as far as possible.

Any mitigation strategy is likely to include a range of measures. A set of actions that includes some engineering measures, some spatial planning, and a degree of economic, management and societal inputs will be needed to bring about effective mitigation. A mitigation programme that concentrates solely on any one of these five aspects will be unbalanced and is unlikely to achieve its aims.

Disaster Mitigation investment has to be seen in terms of the price of protecting existing and future infrastructure. Spending a bit more on a new facility to build it a little stronger and protect it against a future threat is usually seen as prudent. The level of investment that is justified to protect society, its economic activities and its built environment is a matter of political decision making, and the economics of risk. Decision making on appropriate levels of investment in disaster mitigation depends on how likely the hazard is to occur, and what would be the impact of the hazard if it does occur. The costs and benefits of alternative investment strategies need to be carefully evaluated. The use of a systematic framework of risk assessment to establish which hazards are most likely to occur and the probable effects will help define the priorities of mitigation programmes.

Strategy

In order to mitigate disasters and integrate DRR into development plans, identified activities are categorized into five main areas after consultations amongst the working group:

- Organizational and legal interventions
- Demonstration projects
- Physical interventions through projects and programme
- Research and development
- Awareness and training programmes

Activities proposed under the area of organizational and legal interventions are: the establishment of DRM committees; the development, regular review and update of DRM plans; and the development and review of guidelines, bylaws, regulations, procedures etc. to include DRM (mitigation) aspects.

There is a need to review the by-laws and approval procedures of local governments to reduce inappropriate construction and land use practices in hazard prone areas. Physical interventions through projects would include the implementation of Coastal Management Plan in 15 identified locations in coastal areas to minimize coastal erosion; implementation of dam safety programmes to mitigate floods and minimize damages in the downstream of dams; construction of upstream reservoirs across three major rivers, Kalu Ganga, Kelani Ganga and Nilwala Ganga; and the introduction of drought tolerant agricultural methods including micro irrigation facilities, seeds etc in drought prone areas.

Landslides often take place in mountainous regions, and in particular, in urban areas due to wrong practices, unavailability of retaining structures, cutting and filling operations etc. The demonstration projects can be implemented to showcase appropriate practices and also to train artisans and technicians in relevant construction techniques. In order to achieve the above, there is a need to undertake research activities through universities and other institutes to arrive at the most suitable methods of stabilizing landslide prone areas and genetic engineering research to develop drought resistant seeds. Training and awareness programmes will also be conducted to achieve the outlined objectives.

Key Interventions

In view of the above strategy, the projects prioritized for the next 10 years under this component entail:

- Review and revise the building approval procedures adopted by local government agencies to reduce the impact of natural disaster events.
- Integrate disaster risk mitigation into development processes through disaster mitigation plans, specific allocation for mitigation in all development budgets.
- Integrate disaster risk mitigation into development processes through disaster mitigation plans, and specific allocation for mitigation in all development budgets.
- Mitigate impact of drought and reduce drought risk through improved seed materials and introduction of micro-irrigation.
- Mitigate impact of landslides and reduce risk through improvements and recommendations for structural mitigation.
- Protect against and control floods through improvements and new protection systems.

- Reduce disaster risk in all physical planning processes by integrating DRR in decision making on national land use and physical planning policy.
- Protect against storm surges/ sea/ coastal flooding through green belt and incorporation of disaster risk considerations in coastal zone management.
- Increase disaster resilience in housing and other critical infrastructure through revisions in building codes and bylaws.
- Reduce dam-related hazard risks through appropriate dam safety regulations.

The following projects will be prioritized in the short to medium term:

Minimize Loss of Life and Property Damage due to Floods

This project will be executed in major cities and villages in the downstream of KaluGanga in order to adequately protect Ratnapura and Kalutara districts from floods.

Mitigate and Stabilize Slopes in High Risk Landslide and Rockfall Sites

The objective is to stabilize rockfall and landslide sites from Haldumulla to Haputale and Kahagolla to Haputale respectively.

Component 5: Mitigation and Integration of DRR into Development

In the event of a future occurrence of a hazard, to reduce damage and economic losses, risk of death and injury to the population.

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Landslide Mitigation in Risk-prone areas			
Areas (slopes) categorized as moderate and high risk zones (landslides, slope failures, rock fall) stabilized	**Output**: i. Mitigation and Slope Stabilization programmes in High & Moderate Risk Land Slide Areas. ii. Updated Landslide Hazard Zoning (LHZ) maps with respect to land use pattern. **Activities**: - Locate High Risk and Moderate Risk sites within the landslide prone areas - Undertake detail studies to identify most suitable and economical mitigation measures - Implementation of Mitigation measures in 10 districts (M) - Undertake risk assessment in rock fall site at Haldumulla to Haputale and in landslide site at Kahagalla to Haputale (S) - Implement recommendations to minimize hazard due to rock fall and landslides (M)	3.44 (Total) 0.01 (S) 0.38 (S) 2.0 (M) 0.05 (S) 1.0 (M)	**NBRO**, Ministry of Highways &other relevant organizations NBRO -Ministry of Highways, PC, DS,LA NBRO, DS, PC,LA RDA, PC, LA, DMC
2. Flood Protection for Major Cities			
Cities down stream of Kalani, Kalu and Nilwala rivers protected from floods	**Output**: i. Less flood damages in major cities (Colombo, Rathnapura, Galle, Matara and Kalutara districts) **Activities**: - Construction of upstream reservoirs across major rivers - Kalani, Kalu and Nilwala - Study alternative options to mitigate floods in rivers	85.5 (L) (Only for Kaluganga Project) 0.4 (M)	**ID,** CEB ID, other stakeholders
3. Disaster Mitigation Action Plans			
DM (Mitigation) action plans developed, regularly updated and implemented at all levels of government (Provincial Councils, Local Authorities and all public sector institutions.	**Outputs**: i. DRM Plans and Projects developed and implemented to mitigate the disaster in Local Authorities and Provincial Council areas **Activities**: - Establishment of DRM committees at all levels. - Develop a methodology to prepare DRM plans (S) - Conduct awareness programmes for Heads other relevant officers of Institutions & organizations (S) - Develop & implement DRM (mitigation) plans considering the multi-hazard environment (M) - Develop and review regulations, bylaws and	0.054 (Total) 0.02 (S) 0.005 (S) 0.002 (S) 0.005 (M)	**DMC** District/ Divisional Secretaries, Provincial councils, LAS and SLRC. **MDTU** with DMC

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	approval procedure relating to all development projects and introduce appropriate disaster reduction measures (S) - Develop guidelines to integrate risk management options in land use plans (M) - Integrate mitigation budget line item in annual budget of all governments (initially preferably to have 5% of the annual budget allocated for mitigation interventions) - Reviewed and revised with feedback planned by DRM once a year	0.012 (S) 0.01(M)	Provincial councils and Local Authorities with DMC **SLILG**, PCLG, UDA, DMC, few selected LAA DS, UDA, NPPD, SLLR&DC, land use Planning division, WRB, ID, LA DRM Committee
4. Integrating Disaster Impact Assessment (DIA) into all Development Projects			
DIA integrated into approval process of all development projects	**Outputs**: i. Procedure in place for integrating DIA into approval process of all development projects is in place. ii. Guidelines developed to categorize projects needing DIA integration into EIA iii. Hazard prone areas, reservation boundaries of rivers, and lands with steep slopes, landslide effected areas identified as special areas and published in the gazette. iv. A total of 1250 persons trained in the DIA integration process **Activities**: - Prepare guidelines to categorize development projects that need to undertake DIA - Demarcate and publish in gazette hazard prone areas, reservation boundaries of rivers, and lands with steep slopes, landslide effected areas etc. within jurisdiction of Local Govt areas to discourage construction - Development of guidelines for integrating DIA into planning & approval process of all development projects - Establish procedure for project approval following DIA and incorporating reduction measures. - Capacity building of the personnel involved in project formulation, assessment & approval. - Implement DIA in the EIA process for selected projects with effect from Jan 2006	0.298 (Total) 0.008 (S) 0.15 (S) 0.12 (S) 0.012 (S) 0.008 (M) (S)	**DMC** with CEA, ID other relevant agencies **ID, NBRO**, Survey Dept DMC, CEA**, UDA**, All Projects Approving Agencies, NBRO, ITI, Universities. CHPB, SLIDA, with DMC and other relevant organizations PC and DS
Provisions established for mainstreaming risk management as a component of development	**Outputs**: DRR sector/cluster is established in the national and regional development plans **Activities**: - Discussions with National Planning Department for plan implementation. - Provide information relevant to implementation (such as Road map for DM and milestones to be achieved under the achieved under the National DRM plan	(M)	**Department of National Planning and Plan Implementation** under Ministry of Finance and DMC

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
5. National Land Use and Physical Planning Policy			
Disaster Risk considerations integrated into national land use and physical planning policy and decision making	**Outputs**: i. Physical planning policy in place ii.20 Urban Plans in disaster prone areas developed **Activities**: - Discussions with the National Physical Planning Department and Land use policy planning. - Development of physical planning policy and guidelines to integrate DRM into preparation of structure plans, urban land use plans etc. - Train Planning Officers and other relevant personnel to integrate DRM in to preparation of structure plans, urban land use plans etc. - Develop a structure plan incorporating DRR as a pilot project in 7 districts prone to natural disasters. - Develop 20 Urban plans incorporating DRR as a pilot project in 7 districts prone to landslides and floods.	0.19 (Total) (S) 0.01 (S) 0.03 (S) 0.05 (S), (M) 0.10 (S), (M)	NPPD and Land use policy planning Depts, **UDA**, DMC, University LA **NPPD, UDA** LAs and DMC **SLILG,** CHPB with UDA, LAS, **NPPD** **MDTU**, UDA, NPPD, SLLRDC, NBRO, ID, LA,PC DMC **UDA**, LA, PC, **NPPD**
6. Coastal Zone Management (CZM)			
Disaster Risk considerations integrated in CZM policy and in decision making	**Outputs**: i. Implementation of Priority Risk Management Projects under CZM Plan 2004 to reduce impact of coastal hazards ii.Coastal Zone Management plans implemented in 15 locations **Activities**: - Discussions with the Coast Conservation Department and other stakeholder organizations such as NARA, fisheries department etc - Development of CZM policy with considerations on reduction of impact of coastal hazards through a consultative process with other stakeholders - Implementation of identified DM activities in CZM plan	4.10 (Total) (S) 0.1 (S) 3.0 (M)	**DMC** in collaboration with Cost Conservation Department **CCD**, Dept. of Fisheries, PC, , LAA 12months CCD ,Ministry of Fisheries, NARA LA, PC
Natural barrier along the coast created and coastal erosion reduced	**Outputs**: i. Selected trees are planted on 1000 ha in high risk coastal land **Activities**: - About 1000 ha of coastal land will be planted with selected plant species to control sea flooding (Green belt Project) - Selection of worst effected coastal areas - Select suitable plants in consultation with Dept of Forest and local communities, - Arrange nurseries of selected species of plants in suitable locations - Develop a tree planting & maintenance programme with PC, LAA, Education Dept. NGO and CBO	1.0 (M)	**CCD,** PC.LAA, Forest Dept. Agricultural Dept, Schools, SLRC

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
7. Development Controls, Building Bye-laws			
Disaster resilience through proper planning and safer housing construction in hazard prone areas	**Outputs**: i. Building codes/guidelines to increase hazard resilience ii. Revised byelaws of local government sector and provincial councils to increase resilience **Activities**: - Formation of Expert Group - Develop or introduce revisions to building codes/guidelines for construction in hazard prone areas - Study the existing bye- laws in local government sector and introduce revisions for construction in hazard prone areas	0.030 (Total) 0.015 (S) 0.015 (S)	**DMC,** NHDA, ICTAD, NBRO, SLLRDC, PC, LA , IESL, IASL, SSE, other professional bodies **PC, SLILG**, PCLGS, LAA, NBRO, UDA, DMC
8. Housing, Education, Tourism and Infrastructure facilities			
Disaster risk vulnerability reduced by adopting mitigation measures in planning and construction of government housing schemes, industrial estates, tourist hotels	**Outputs**: Programme for planning & construction of housing schemes, industrial estates, tourist hotels by state and private sector in hazard prone areas to higher standards hazard resilience **Activities**: - Formation of an expert group. - Development of planning guidelines and building code/guidelines for settlements. - Implementation of guidelines and codes for hazard resistant construction for government housing scheme, industrial estates - Develop and introduce incentive programme for private housing - Technical and financial support to construction for higher standards of hazard resilience prescribed in the guidelines.	2.60 (Total) (S) 0.20 (S) 0.20 (S) 1.0 (M) 1.20 (S)	**DMC,** CEB, CECB, NBRO, LLRDC and IESL, IASL, CHPB, UDA NHDA, Ministry of Housing, PC, UDA BOI, IDB,
Disaster risk vulnerability reduced by adopting mitigation measures in planning and construction of high voltage towers, communication towers	**Outputs**: Guidelines for planning & construction of High voltage towers, Communication towers **Activities**: - Formation of Expert Group - Development of planning guide lines, building code/guidelines for the Construction of hazard resistant High voltage towers, Communication towers in hazard prone areas	(S) 0.035 (S)	**DMC,** TRC, Ministry of Information, UDA, CEB, LA, Telecom Agencies
Schools and hospitals in hazard prone areas planned and constructed to higher standards of hazard resilience	**Outputs**: Programme for construction of all new schools and hospitals in hazard-prone areas to higher standards of hazard resilience	0.014 (Total)	Education, Health Ministries, Dept. of Buildings

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	Activities: - Identify all new school and hospitals to be constructed in hazard prone areas - Review standard plans & design for adequacy of construction. - Conduct training programme for Engineers, Planners & Technical Officers.	0.001 (S) 0.003 (S) 0.01 (S)	IESL, **UDA,** School Works Division, DMC PC, CHPB, Universities **CHPB**, with DMC
Disaster risk vulnerability around gas, fuel and chemical storage facilities reduced	**Outputs**: i. List of vulnerable sites ii. People are made aware of risk **Activities**: - Review safety precautionary measures adopted. - Identify vulnerable areas near facilities. - Conduct awareness programmes for people residing close by.	0.017 (Total) 0.001 (S) 0.001 (S) 0.015 (S)	CPC. Shell Gas, Laugfs gas, IOC, Ministry of Power & Energy, CEA, UDA DMC with SLRC
Increased disaster resilience through provision of safer critical infrastructure in hazard prone areas	**Outputs**: i. A set of guidelines to increase hazard resilience for construction of Critical Infrastructure in hazard prone areas. **Activities**: - Identify critical infrastructure to be provided in hazard prone areas - Develop guidelines for construction of infrastructure in hazard prone areas - Review construction programmes to ensure adoption of hazard mitigation measures.	0.03 (Total) 0.005 (S) 0.025 (S) (M)	DMC, govt. sector institutions responsible for critical infrastructure development projects with IESL, UDA and professional bodies. Ministry of DM, **Relevant Agencies, DMC,** PC
9. Drought Mitigation in Select Districts			
Crop failures minimized by introducing and promoting distribution of quality seeds, in time, to farmers in remote villages in drought prone districts	**Output**: i. Drought tolerant agricultural methods in use. ii.Ground Water Assessment maps **Activities**: - To promote research to develop drought tolerant crops and research on Genetic Engineering (M) - Train extension officers to transfer the research findings to farmers in 50 villages (M) - Develop a procedure to obtain quality seeds and distribute to farmers in time.(M) - Identify potential ground water sources in 500 villages in drought prone districts and promote ground water for irrigation (M) - Strengthen extension service to assist farmers in remote villages of drought prone districts that have limited access to quality seeds to ensure better growth by providing seeds in time. (M)	2.0 (Total) 2.0 (M)	**Department of Agriculture (DOA)** Universities **WRB**

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
Soil rehabilitation programme promoted in drought prone areas.	**Output**: i. Soil rehabilitation programme **Activities**: Develop and implement a programme to encourage farmers through an incentive scheme to produce and apply organic manure to rejuvenate the soil, reduce moisture stress and thereby reduce the crop loss	1.0 (M)	**DOA,** Dept of National Planning DS, GN, Farmer Organizations
Use of micro irrigation facilities by farmers in drought prone areas promoted	**Output**: i. Micro-irrigation scheme **Activity**: - Develop a scheme to provide micro irrigation facilities along with agro-wells and other appropriate water resources.	1.0 (M)	**Irrigation Department**, Water Resources Board
Drinking water demand and supply management is improved	**Output**: i. Minimum level of drinking water supply is sustained **Activities**: - Formation of user groups to control local water resources/ tanks, including hand pumps - Promotion of water conservation awareness - Augment water supply through bowsering/ dugwell - Promote community/ household rain water harvesting structures, for local drinking water security.	(M)	**GA**, DS, Pradeshiya Sabhas, WRB, NGOs, SLRC.
10. Dam Safety Enhanced			
Dam safety ensured through a proactive approach for regular M&E process.	**Output**: i. Database on main dams, which can create flood vulnerability due to sudden release of water. ii. List dams classified according to risk available iii. Procedure for dam inspection and monitoring of reservoir induced landslides & earth quakes **Activities**: - Constitute an expert group for dam inspection and monitoring. - Development of database on dams which can create floods due to sudden release of water - Develop procedure for dam inspection and monitoring of dams and areas around the reservoir - Assess all dams for spillway adequacy & other structural failures - Undertake periodic dam inspection and monitor mitigation programme and recommend further safety measures	1.795 (T) (S) 0.08 (S) 0.004 (S) 0.001 (S)	**Irrigation Department / MASL** and **CEB** **ID, MASL, CEB, ID** ID,MASL,CEB

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	- Prepare inundation maps for down stream areas of all major reservoirs and identify risk areas. - Develop and introduce a proper warning mechanisms - Conduct awareness programme for relevant officials, residents & children in vulnerable areas - Introduce Rubber gates instead of flash boards presently used at Castlereigh reservoir.	0.5 (M) (M) 0.01 (M) 1.2 (M)	ID, MASL, CEB ID, MASL, CEB, PC, CEB
11. Risk Transfer Mechanisms			
Effective economic & financial tools for reducing losses/ damages through increased participation of private sector in risk management activities made available	**Outputs**: i. Risk transfer mechanisms and safety nets (Insurance and Incentive schemes) established to reduce losses **Activities**: - Organize periodic seminars for banking sector, insurance sector and micro-credit facilitators. - Develop a resource group for developing schemes for government sector institutions to suit the audience in Sri Lanka - Facilitate participation of stakeholders in international networking events - Improve microfinance for DM	0.018 (Total) 0.01 (M) 0.008 (M)	**Lending institutions and Insurance sector** with DMC SLRCS
12. Research & Development in DRR			
Technical and scientific institutions and universities encouraged to undertake R & D activities in DRR	**Outputs**: i. Programme for Research and Development for DRR **Activities**: -Identification of needs -Undertaking priority research and development programs	0.01 (M)	**DMC, Universities**, Scientific and Technical Institutions
13. Health Risk due to Polluted Groundwater			
Reduce the health risk of people in identified villages in North Central province due to the use of hazardous groundwater for drinking	**Outputs**: i. Capacity of WRB enhance to forecast hazardous ground regimes ii. Hazardous ground water areas in NCP identified iii.People are made aware of the effect of polluted ground water on health and the possible preventive actions **Activities**: - Enhancing the forecasting capability on hazardous aspect of ground water regimes (S) - Identification of hazardous ground water areas in North Central Province (S) - Conduct awareness programmes to make the people aware of drinking water quality health effect of dissolved chemicals and preventive measures (S & M) - Issue water purification kits to 1000 most affected families (M &L)	0.405 (Total) 0.145 (S) 0.085 (S) 0.025 (M) 0.15 (M)	**WRB**, MOH, LA, PC, WRB, MOH, LA,PC, GN MDTU, WRB, MOH, LA PC MOH, WRB, LA

2.7 Community-based Disaster Risk Management

Key Issues

Communities bear the primary impact of disasters, yet the first and continued response to disasters comes from community members. Well prepared and protected communities are the first line of defence against disasters and a key to reducing vulnerability and increasing disaster resilience. Having a well resourced and sustainable programme to advance Community-based Disaster Risk Management (CBDRM) is therefore a key strategy to achieve a safer Sri Lanka.

However, so far there has been insufficient coordination between the efforts of the Government at district and divisional level action planning and the interventions of NGOs at the community level. After the devastating tsunami, there is significantly greater acceptance within the country (and among international donors) of the country's relatively high vulnerability to disasters. A result of this is a greater willingness to invest resources in pre-disaster preparedness and mitigation, especially at the community level. This represents a significant opportunity for initiating and undertaking a national programme on CBDRM.

Strategy

Sri Lanka has 25 districts, 325 divisions, about 14016 Grama Niladhari Divisions (GNDs) and about 40,000 villages. Several districts and divisions face multiple hazard risks. Over 50 percent of these communities are prone to one or more natural hazard risks.

The component aims to establish a sustained national programme to build the resilience and community level capacity for response and DRM in each community at risk from hazards in the country.

This will be achieved in a phased manner over the next 10 years through establishing:

- Community DRM teams in 20,000 villages over 2500 GN divisions
- An effective national network of local level volunteers for DRM
- Effective coordination mechanisms between Government and NGOs at the national, provincial, district, division and GN division level
- CBDRM resource centers in 25 districts
- Shared methodologies for CBDRM implementation and training
- Small grants programme for community teams to support community level DRM projects

- Development of micro finance schemes for vulnerability reduction and mitigation
- Applied research grants for community level programmes

Priority programmes to be taken up in the first 2 years (2006-2007) are:

- Community DRM teams in 5,000 villages over 500 GN divisions with a network of volunteers; Estimated budget : USD 5 million
- CBDRM resource centres in 10 districts; Estimated budget : USD 2 million
- Small grants programme awarding up to 500 grants to community teams to support community level DRM projects; Estimated budget : USD 6 million

To implement a programme on this scale, a range of stakeholders is required, primarily NGOs working with local Government and community authorities. It is expected that the primary responsibility for supporting the establishment of Community DRM teams and implementing CBDRM programmes will lie with NGOs, CBOs and the SLRCS working closely with local agencies. It will also provide suitable opportunities for Government institutions, technical agencies and universities to undertake CBDRM applied research work. The anticipated role of the DMC is to facilitate coordination of geographical areas for undertaking programmes, supporting linkages between CBDRM teams and NGOs with GN Division, the division and district officials and plans, as well as to establish and administer the small grants programme and applied research grants programme.

The government is implementing a strategy of poverty alleviation through the SAMURDI programme and the risk management approaches can be integrated with community-based infrastructure projects, micro-credit schemes, and cash for work programmes initiated by the SAMURDI movement. One of the key strategies would be to identify areas where CBDRM practices can be integrated into SAMURDI programme activities.

Key Interventions:

i. Community DRM Teams in 20,000 Villages over 2500 GN Divisions

This sub component seeks to establish community teams for DRM in a phased manner in all at-risk communities in the country. These community DRM teams will be responsible for EW, preparedness, response and mitigation.

The subcomponent will support the establishment of these teams, provide initial orientation and training, support undertaking of village level hazard, vulnerability and capacity assessments, the preparation of response and evacuation plans, and identification of micro projects on mitigation. The teams will be provided periodic training and will be expected to conduct periodic drills and rehearsals.

An effective linkage of CBDM groups will be established with divisional and Grama Niladhari DM committees and DM plans. The first phase of the programme over a 2 year period of 2006 to 2007 will target 5000 villages in 500 GN divisions in 10 districts.

ii. An Effective National Network of Local Level Volunteers for DRM

This sub component seeks to establish a national scheme of community disaster response volunteers. These volunteers will support dissemination of early warning, assist in evacuation, search and rescue, provide first aid and medical first response, and support the running of camps. They will be active members of the CBDRM groups. The component will support registration of volunteers in a database available at the GN Division, DS Division and District offices and also the maintenance of this database. A suitable scheme for providing recognition, probably in the form of certificates and identity cards will be established. A standardized curriculum and large scale programme of training of these volunteers is to be undertaken. The sub-component will build on the ongoing efforts of DMC to deploy District DM coordinators and identify community leaders to take the lead in EW dissemination and evacuation, as well as the well established Red Cross Volunteer framework of SLRCS, where a major expansion is planned.

iii. Establishing CBDRM Resource Centres in Each District

This sub component will establish CBDRM resource centers in each district. These resource centres are expected to play the role of facilitator of CBDRM activities and teams in the district, provide technical support, support the District Secretaries in maintenance of data base, as well as undertake documentation and dissemination of CBDRM experience. It is proposed to identify agencies at district level (universities, technical institutions, NGOs, Divisional Secretary's offices, SLRC Branch offices) who are willing to take on this role and support them in strengthening their capacities to serve this function. In some districts, these may need to be set up afresh. The subcomponent will fund the establishment of these centres and provision of staff and equipment and some initial funding for activities.

iv. Small Grants Programme

It is planned to create a CBDRM Small Grants Programme to support the implementation of priority community **p**reparedness and mitigation projects by community DRM teams in high risk villages and GN Divisions. Priority projects are expected to cover assessment of local hazards, vulnerabilities, and capacities, preparedness planning, procurement of response equipment, resource mobilization, capacity building and implementing small mitigation projects. It is expected that 500 grants would be awarded in the first two years.

v. Applied Research Grant Scheme for Government Agencies to Implement Community Level Risk Management programmes

It is planned to establish a fund in the DMC to award annual applied research grants to Government institutions, local government institutions, universities, academic institutions, professional bodies to implement mitigation and risk management programmes at the community level in partnership with at-risk communities.

vi. Develop a Micro Finance Scheme to Reduce Vulnerability at Household Level and Promote Alternative Livelihood Options

This sub-component will work with Sri Lankan micro finance institutions to support the establishment of schemes to enable vulnerable communities in hazard prone locations to identify and take up alternate and additional livelihood options, as well as invest in mitigation measures to improve the disaster resilience of household and livelihood assets.

Component 6: Community Based DRM

To reduce risk and thus disaster impacts through participatory approaches at the community level

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Promoting CBDRM Volunteerism			
Increased participation of volunteers and commitment of at-risk communities in risk reduction interventions Community DRM teams established in all at-risk communities. Volunteer database established and maintained for use in emergencies	**Output**: i. Promoting community disaster response volunteers and establishing community teams for DRM in a phased manner in all at-risk communities. ii. Registration of volunteers and maintenance of database. iii. Volunteer skills, training and motivation. **Activities**: - Community DRM teams constituted in each at-risk community to undertake village level activities of EW, preparedness, response and mitigation. Identification and Selection of volunteers to serve during disaster events (SAR parties, first aid responders, , camp maintenance, etc) - Developing Volunteer Facilitators.Capacity building and training for volunteers.Conduct periodic drills and rehearsals- Link with SLRCS. Establishing revolving fund at community level. -Establishment of database of volunteers at national level, in each district and Grama Niladhari areas and local government level. - Provide Identity Cards for better recognition - Introduce an incentive scheme (reward system) to encourage volunteers	45.0 (Total) [For 4500 GN] 5.00 (S) [For 500 GN] 10.00 (M) [For 1000 GN] 30.00 (L) [For 3000 GN]	**DMC/District secretaries**/ District DM Coordinators and DM Committees in collaboration with CBOs and NGOs, SLRCS
2. Establishing Resource Centres			
Increased access to information on community based initiatives for sharing of experience and lessons learned CBDM Resource Centers established in each district	**Output**: i. Establishing CBDM resource centers in each district. ii. Maintaining effective linkage of CBDM groups with divisional and GN committees. **Activities**: - Identify agencies at district level (technical institutions, Universities, NGOs, district/ division sect, SLRC Branch offices) willing to take on the role of facilitator, technical support provider, and support for maintenance of database, as well as documentation and dissemination of experience. - Provide recognition and support to these agencies. - Involve leaders in DM committees set up at	5.0 (Total) 2.00 (S) (For 10 districts) 2.00 (M) (For 10 districts) 1.00 (L) (For 5 districts)	**DMC/ District Secretaries in** collaboration with CBOs and NGOs, Universities, SLRCS, technical institutions

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	various levels. - Organize periodic networking events and joint drills. - Development of database through a registration system of CBOs, NGOs and community teams for effective networking - Organize exchange programmes for sharing experience among volunteer groups within the district, within the country and worldwide.		
3. Preparedness and Mitigation Through Small Grants Programmes			
Community DRM teams actively implementing preparedness and mitigation projects - Small grants programme implemented through DMC	**Output**: i. Priority Community Preparedness and Mitigation projects by community DRM teams in High Risk Villages and GN Divisions through small grants programmes **Activities**: - Establish small grants programme for community teams - Undertaking pilot projects in High Risk Villages based on proposals from community - Pilot projects to cover assessment of local hazards, vulnerabilities, and capacities, preparedness planning, resource mobilization, capacity building and implementing small mitigation projects.	16.0 (Total) 6.00 (S) [For 500 Projects] 10.00 (M) [For 750 Projects]	District DM Coordinators GN Divisions NGOs and CBOs SLRC
4. Micro Finance Schemes			
Micro Finance facilities for capacity building of the vulnerable people and to introduce alternative livelihood options available. Micro finance for house hold level mitigation measures possible.	**Output**: i. Develop a scheme to provide people micro finance facilities. **Activities**: - Introduce new alternative livelihood options for vulnerable communities. - Organize micro finance facilities through community centered organizations. - Increase the capacity of the people to face a disaster effectively.	0.30 (M)	Aid agencies in collaboration with Banks. DMC is to monitor the whole process.
5. National CBDRM Programme			
National CBDRM Programme well coordinated	**Output**: i. National coordination mechanism between DMC and NGOs to promote CBDRM. **Activity**: - To have periodic meetings to establish common methodologies , common training curriculum on CBDRM	(M)	DMC

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
6. Applied Research Grant Scheme for CBDRM			
Increased participation of at-risk communities in risk reduction activities through the implementation of CBDRM projects with technical support from technical, academic and local government institutions.	**Output**: i. Develop an annual applied research grant scheme to implement risk management projects at the community level by Government institutions, local government institutions, universities, academic institutions, professional bodies in partnership with at-risk communities. **Activities**: - Develop a Scheme for selection and grant of awards including criteria for selection and approval of projects. (indicative size of grant SL Rs 0.5 million to 5 million) - Organize sharing opportunities among participants to enhance the effectiveness. Develop case studies based on the lessons learned for wider dissemination.	2.00 (M)	DMC in partnership with local government agencies and technical institutions.

2.8 Public Awareness, Education and Training

Key Issues

An important aspect of any disaster preparedness programme is to anticipate the requirements for disaster related public awareness, education and training. The planning process will only be effective if those who are the ultimate beneficiaries know how to respond in times of disasters and develop capacities to cope in their aftermath. For this reason, an essential part of a disaster preparedness plan is the education of those who may be threatened by potential disaster events.

At present, many government organizations, NGOs and CBOs conduct DRM related training. Efforts are often duplicated and training is conducted without appropriate resources (in terms of training materials and tools). Moreover, there is no apparent coordination with regard to the relevance of training and consistency of content.

There is no proper needs analysis and systematic target audience segmentation, and hence no customized training to bring out relevant learning outcomes amongst people who serve in different capacities. There is currently no local capacity enhancement initiative for trainers in DRM and a general lack of coordinated allocation of available regional training opportunities to sustain capacity enhancement of trainers.

Strategy

Probable solutions in the short - medium term are as follows:

i. There is a need to formulate a policy which brings together all DRM trainings under the supervisory role of the DMC and creates a corresponding need for MOUs with partner organizations to implement training.

ii. A mechanism for quality assurance of DRM training can be ensured and the evaluation of effectiveness could be made mandatory as an institutional endeavor to be achieved by partners undertaking this activity for the sector.

Key Interventions

Establishment of the 'National Disaster Safety Day' annual commemorations as a high level event in the annual government calendar is one of the approaches that can bring about a coordinated and effective public awareness campaign. It can be an annual event organized by the DM ministry and all stakeholders including school children and community members can

actively participate in such an event. In establishing an integrated educational training programme, it should be recognized that education is often a two-way process in the field of disaster preparedness. The main programmes identified under the theme of public awareness, training and education are:

i. *Promote Public Awareness at National Level*
   This can be done through effective implementation of a National Public Awareness Programme for disaster preparedness.

ii. *Promote Awareness among School Children*
   This can be achieved through the introduction of DM related subjects in school curriculum, and through awareness and resource materials in all 3 languages .

iii. *Promote Awareness and Train University Graduates through Integration of DRR in University Curriculum*
   The integration of DM subjects in university education of various disciplines in courses such as urban planning, civil engineering, architecture would help promote awareness.

iv. *Increased Awareness of DM Related Subjects among School Children*
   DM would not be a new subject area in the curriculum. Instead the content will be integrated into existing subjects as relevant. The DM curriculum integrated to the (AL). Geography Syllabus in 2004 as a joint venture between NIE and SLUMDMP may need re-visiting at this point.

v. *Promote Awareness among Professional Groups, Key Decision Makers through Training and Short Courses*
   This would involve training on disaster preparedness and reduction in entry level, refresher and in-service training of government employees at various levels.

vi. *Increase Capacity among Key Institutions through Training of Officials and Training Aids/tools*

vii. *Integrate DM Training Curriculum in Continuing Education*
   DM has to be integrated into development initiatives. Professionals who are involved in planning, implementation, financial management etc. need to understand the implications of DM to sustain development efforts.

viii. *A National Event Under the Patronage of the President and Council Members of the NCDM to Launch Countrywide Awareness Programmes*

Component 7: Public Awareness, Education And Training

To create awareness amongst communities and personnel from government and non-government sectors and train them in means to reduce disaster losses

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
1. Awareness through Disaster Safety Day			
Nationwide awareness of the importance of DM through a National Disaster Safety Day	**Output**: i. "National Disaster Safety Day" annual commemorations established as a high level event in the government calendar **Activities**: - Issue a Gazette notification on establishment of an annual "National Disaster Safety Day" event. - Institute a National Committee for the event convened by the DMC. - Organize annually "National Disaster Safety Day" to create awareness under the patronage of HE the President and NCDM. - Implement a National Award Scheme for DM initiatives and best practices at various levels (such as school competitions, institutional initiatives for preparedness, mitigation and response. - Evaluate year round activities for national awards.	0.21 (Total) 0.05 (S) 0.06 (M) 0.10 (L)	**DMC,** Ministries, Media Institutions, Police and Armed Forces, Fire Brigade, GOs and NGOs in DM
2. National Public Awareness Programme			
Effective implementation of a National public awareness programme to build a culture of safety from disasters focused on a multi-hazard scenario	**Output**: i. Establishing national public awareness programme for disaster preparedness, mitigation and response. **Activities**: - Carry out a needs analysis and effect audience segmentation to formulate a public awareness campaign or several campaigns as necessary. - 2006 – 2008: Implement campaign(s) in a time staggered manner across priority geographical areas. - 2009: Evaluate campaign and identify future needs, formulate follow-up campaign. 2010 – 2015: Implement follow-up campaign. - 2015: Evaluate campaign and identify future needs.	1.45 (Total) 0.50 (S) 0.45 (M) 0.50 (L)	**DMC**, Media Channels, NSF, Ministries and Government Agencies, NGOs, Samurdhi Network, Private Sector, and SLRCS
3. Awareness through schools and school curriculum			
Increased awareness of DM related subjects among school children.	**Output**: i. Incorporating disaster reduction into school curriculum **Activities**: - Through NIE and Ministry of Education, DM	0.76 (Total)	**NIE**, **MoE**, GTZ, DMC, ADPC, ADRC, SLRCS

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
	content will be integrated into existing subjects as relevant. - Revisit Disaster Management curriculum integrated to the (A.L).Geography Syllabus in 2004 by NIE and SLUMDMP. - Collate Print and video materials available with UN, USAID, GTZ, ISDR, FEMA, ADRC, ADPC, Red Cross, CARE, WorldVision and other disaster management institutes and screen for suitability of use within schools. - Training of Teacher Trainees for Disaster Management teaching. - Include Disaster Management as a topic for developing projects by students at GCE(AL) - Conduct teacher training, awareness creation and School Emergency Response Plan implementation in selected schools - Propose school risk management clubs and activities under extra curriculum activities.	0.20 (M) 0.01 (M) 0.05 (M) 0.50 (L)	
Awareness among younger generation and Community Animation through school children	**Output**: i. Public awareness programme targeted at children **Activities**: - Community animation through school children (eg: SLUMDMP). - School based community outreach through school societies. - Production of pamphlets, posters, brochures. - Production of appropriate videos and interactive CDs for awareness and instruction. - Conducting training courses, seminars, workshops for school children and teachers.	0.55 (Total) 0.05 (S) 0.20 (M) 0.30 (L)	**DMC,** National Science Foundation (NSF), Water Resources Board, UNICEF, other NGOs, SLRCS and partner agencies
4. Awareness through Continuing / University Curriculum			
Increased awareness of DM related subjects among university graduates	**Output**: i. Establishing graduate and post graduate specializations which integrate DM subjects in various disciplines in such as Urban planning, Civil engineering, Architecture, Geography, Geology, Oceanography. **Activities**: - Discussion with the UGC and university authorities on integration of DRM subjects in existing under-graduate level courses. - Development of short courses or integration of course material in existing courses. - Provide resource inputs. - Post graduate / post doctoral studies for capacity building in Disaster Preparedness, GIS in disaster zones, Seismology, Modeling, Oceanography, Marine biology, Coastal engineering, and other health related issues	0.50 (Total) 0.20 (M) 0.30 (L)	**DMC** in collaboration with UGC and **Universities** and National Institute of Social Development (NISD)

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
Increased awareness of DM related subjects among professional groups	**Output**: i. Integrate DM training curriculum in continuing education/professional education courses offered for a cross section of target groups in professional training institutes. **Activities**: - Discussion with the authorities. - Development of short courses or integration of course material in existing courses. - Provide resource inputs.	0.20 (Total) 0.10 (M) 0.10 (L)	DMC in collaboration with professional training institutes
5. Training for Government Employees			
Increased awareness of DM related subjects among officials in government agencies, semi-government agencies, local governments and private sector.	**Output**: i. Training on disaster preparedness , mitigation and response at entry level (induction), refresher and in-service training of government employees at various levels **Activities**: - Add modules in in-service training of all government officials. - Develop partnership with Regional DM institutions and conduct TOT. - Adopt material in local context. - Develop new training modules to meet additional demands.	0.20 (Total) 0.10 (M) 0.10 (L)	Use Management Development & Training Centers (MDTC) of PCs **DMC** with National Training Partners- CHPB, SLIDA, SLILG etc., Service Training Institutes of various Ministries, MDTUs, NGOs, SLRCS
6. Training for Emergency Preparedness and Response			
Officials trained in emergency preparedness and response Multi-disciplinary fire & rescue training center established	**Output**: i. Establishing training systems for Emergency Preparedness and Responders **Activities**: - Establishing national training center for emergency response. - Training courses for operational staff including Fire brigades outside Colombo. - Training of public / private sector organizations and Volunteer Emergency -Response Teams.	0.70 (Total) 0.50 (S) 0.10 (S) 0.10 (S)	DMC in collaboration with donors
7. Enhancing Training Capacities			
Increased capacity of faculty members to obtain knowledge on the state- of- the- art technology and skills related to DRM subjects	**Output**: i. Enhance training capacities of existing training organizations. **Activities**: - Discussion with international training and capacity building institutions for more training opportunities. - Develop a fellowship scheme for developing a competent cadre of trainers. - Regular TOT programmes. - Enhance resources for training	2.0 (M)	DMC in collaboration with Donor Agencies, ERD, Ministry of Foreign Affairs and bilateral assistance

Outcomes	Outputs/ Activities	Budget (USD million) Time frame 1-2 Short (S) 3-5 Medium (M) 6-10 Long (L)	Partners (Lead Agency in Bold)
8. Special Awareness Programmes			
Increased awareness on infrequent potential high consequence events based on Hazard Management Plans	**Output**: i. Development of special awareness programmes on infrequent potential high consequence events (such as forest fires, oil spills including inland and marine oil spills, radiological emergencies, nuclear disasters, air and maritime hazards, Pandemics, Epidemics etc) **Activities**: - Constitute a specialist group to obtain information on various aspects of avoidance of infrequent potential high consequence events. - Development of guidelines for transportation, storage, handling of sources (chemicals, gas, explosives, radio-active elements, etc). - Create public awareness. - Develop module on industrial safety, to be used in various training and capacity building programmes.	0.15 (Total) (M), (L)	**DMC**, Ministry of Environment, CEA, UN Agencies and programmes such as APELL, Regional DM Training Institutions

Chapter 3

Implementation Arrangements

3.1 Introduction

The success of the Road Map for DRM in Sri Lanka will depend on the adoption of effective arrangements for implementation and monitoring. With the technical support of the DMC, the Ministry of DM will take the overall responsibility for the implementation of the Road Map under the guidance of the NCDM. The relevant line ministries, departments and agencies, the provincial authorities, the United Nations system, the other international organizations, the SLRC, civil society and the private sector will support the implementation of the Road Map in accordance with their specific mandate and area of specialization.

3.2 Implementation Arrangements

The Road Map will be rooted in and adhere to the principles of good governance. Key elements of the implementation arrangements include the following:

3.2.1 National Steering Committee

An oversight mechanism in Colombo in the form of a Steering Committee will provide strategic guidance and advice to oversee and monitor results, and to ensure that lessons are captured. The committee will meet once in two months. Committee members will include representatives from line ministries, provincial government, the UNDP, the SLRCS, the private sector and civil society.

3.2.2 Technical Advisory Committee

The Technical Advisory Committee will include the Government (central and provincial) and representatives from academia and national research institutes. The Committee will have experts on all the seven thematic areas covered in the Road Map and will provide technical inputs to the DMC for the implementation of the Road Map.

3.2.3 Implementing Bodies

Implementation of the Road Map, which covers a wide range of activities related to DRM will require flexibility and partnerships with a range of national and international institutions. Emphasis will be placed on implementation structures with key partners taking responsibility for the ultimate success of the Road Map. For each of the seven thematic areas in the Road Map a lead agency will be identified. The DMC on behalf of the Ministry of Disaster Management will provide the overall coordination and information management support. The emphasis will be placed on achieving timely and efficient implementation combined with capacity development at all levels to sustain DRM efforts in the country over the longer term.

3.2.4 Financial Management

The Road Map's financial resources will be managed through a series of controls at various levels. All financial transactions will be monitored, recorded, analyzed and reported through transparent financial systems. UN-assisted projects will be subject to annual audits, normally done by the Government's finance and development agency or in some cases the finance audit agency. Implementing agencies can engage with third party organizations and institutes to monitor aid effectiveness, and to generate information on how funds channeled by them are translating into impacts for affected populations and local institutions on the ground. This information will feed into the Road Map's development and refinement, and will complement the monitoring system.

The External Resources Division of the Ministry of Finance will coordinate and manage international funds received in support of the Road Map. Analysis of assistance provided to different thematic and geographical areas will be produced from time to time as required. This will ensure greater donor alignment and harmonization with the priorities identified in the Road Map.

3.3 Monitoring and Evaluation

A monitoring and evaluation mechanism will ensure effective multi-stakeholder monitoring of activities supported under the Road Map. It will also foster accountability and transparency in the

use of Road Map resources. Monitoring activities will include on-site surveillance, regular reporting, and financial expenditure tracking. Results indicators will be developed jointly by Road Map partners. The overall progress of the Road Map activities will be regularly reviewed by the National Steering Committee and reported by the Ministry of Disaster Management to NCDM. In addition, teams of national and international United Nations Volunteers (UNVs) will support the DMC in effective monitoring at the district and division levels.

Implementation of the Road Map will entail the regular collection and processing of information and analysis on key outputs. The DMC website will post the Road Map document, related programme documents, progress reports and briefs on best practices. The website will be regularly updated and linked with the websites of partner agencies. ICT and printed materials will be prepared for different target groups (e.g. government, the public, practitioners, experts and donors) on lessons learned and other aspects of Road Map implementation.

Annex 1

Sri Lanka Disaster Management Act No.13 of 2005

PARLIAMENT OF THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

SRI LANKA DISASTER MANAGEMENT ACT, No. 13 OF 2005

[Certified on 13th May, 2005]

Printed on the Order of Government

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Sri Lanka Disaster Management Act, No. 13 of 2005

[Certified on13th May, 2005]

L. D. —O. 56/90.

AN ACT TO PROVIDE FOR THE ESTABLISHMENT OF THE NATIONAL COUNCIL FOR DISASTER MANAGEMENT; THE DISASTER MANAGEMENT CENTRE; THE APPOINTMENT OF TECHNICAL ADVISORY COMMITTEES; THE PREPARATION OF DISASTER MANAGEMENT PLANS; THE DECLARATION OF A STATE OF DISASTER; THE AWARD OF COMPENSATION AND FOR MATTERS CONNECTED THEREWITH OR INCIDENTAL THERETO.

Preamble.

WHEREAS human life, property and the environment of Sri Lanka is being threatened and endangered due to certain disasters taking place within the territory of Sri Lanka:

AND WHEREAS it has become necessary to protect human life and property of the people and the environment of Sri Lanka from the consequence of these disasters, by effectively dealing with them from a national perspective by the preparation of a national policy and a plan and by the appointment of centrally co-ordinated committees and institutions to give effect to such policy and plan :

NOW THEREFORE be it enacted by the Parliament of the Democratic Socialist Republic of Sri Lanka as follows :—

Short title.

1. This Act may be cited as the Sri Lanka Disaster Management Act, No. 13 of 2005, and shall come into operation on such date (hereinafter referred to as the "appointed date") as the Minister may appoint by Order published in the Gazette.

Establishment of the National Council for Disaster Management.

2. (1) There shall be established a body called the National Council for Disaster Management (hereinafter in this Act referred to as the "Council").

(2) The Council shall by the name assigned to it by subsection (1), be a body corporate and shall have perpetual succession and a common seal and may sue and be sued in such name.

2 – PL 000093 — 5650 (02/2005)

Constitution of the Council.

3. (1) The Council shall consist of —

(*a*) the President, who shall be the Chairman of the Council (hereinafter referred to as the "Chairman");

(*b*) the Prime Minister, who shall be the Vice-Chairman of the Council;

(*c*) the Leader of the Opposition;

(*d*) the Ministers in charge of the following subjects :—

(i) Social Welfare ;
(ii) Rehabilitation and Reconstruction ;
(iii) Environment ;
(iv) Home Affairs ;
(v) Health ;
(vi) Science and Technology ;
(vii) Housing ;
(viii) Coast Conservation ;
(ix) Irrigation ;
(x) Power ;
(xi) Defence ;
(xii) Police ;
(xiii) Finance ;
(xiv) Land;
(xv) Fisheries and Aquatic Resources ;
(xvi) Foreign Affairs;
(xvii) Water Supply;
(xviii) Highways;
(xix) Urban Development
(xx) Education;

(*e*) the Chief Ministers of every Provincial Council established by Article 154A of the Constitution :

Provided that in case where the Provincial Council is not elected for any Province, the Governor appointed for such Province; and

(*f*) the persons referred to in subsection (3).

(2) The Council shall appoint a person to be the Secretary to the Council, and the person so appointed shall also be a member of the Council.

(3) The Speaker shall in consultation with the Leader of the Opposition, nominate five persons from amongst the opposition Members of Parliament to be members of the Council.

(4) The Council may from time to time co-opt as a member of the Council, any Minister in charge of any other subject for such period as it may consider necessary.

(5) Where a subject referred to in subsection (1) is a subject which the President has assigned to himself or is a subject which has been assigned to the Prime Minister, a person nominated by the President or the Prime Minister, as the case may be, shall represent the President or the Prime Minister at the Council.

Functions of the Council.

4. The functions of the Council shall be—

(*a*) to formulate a national policy and program on the management of disasters which shall provide for —

(i) the protection of life of the community and environment from disaster and the maintenance and development of disaster affected areas ;

(ii) the effective use of resources for preparedness, prevention, response, relief, reconstruction and rehabilitation ;

(iii) the enhancement of public awareness and training to help people to protect themselves from disasters ;

(iv) capacity building, among persons living in areas vulnerable to disaster, in relation to risk management and the application of disaster management and mitigation practices ; and

(v) pre-disaster planning, preparedness and mitigation while sustaining and further improving post-disaster relief, recovery and rehabilitation capabilities ;

(*b*) to prepare and formulate the National Disaster Management Plan and the National Emergency Operation Plan based on the national policy and program formulated under paragraph (*a*), in order to ensure —

(i) preparedness for disasters and any other emergencies ;

(ii) risk prevention ; and

(iii) the prevention and mitigation of disaster ;

(*c*) to monitor the implementation of the National Disaster Management Plan and the National Emergency Operation Plan and to submit such plans to the Cabinet of Ministers for its approval ;

(*d*) to facilitate emergency response, recovery, relief, rehabilitation and reconstruction in the event of any disaster ;

(*e*) where it considers appropriate, to take all steps necessary to counter any disaster or impending disaster, in accordance with the National Disaster Management Plan or in accordance with such measures as may be decided by the Council for such purposes ;

(*f*) to direct, co-ordinate and monitor the activities of the Disaster Management Centre established under section 8 and the appropriate organizations designated under section 21, and to ensure that available resources are used effectively by such Centre and organizations in the discharge of their functions ;

(*g*) to ensure that adequate publicity is given to the National Disaster Management Plan and the National Emergency Operation Plan;

(*h*) to specify guidelines to be complied with by every Ministry, Government Department and public corporation in the preparation of Disaster Management Plans under section 10;

(*i*) to facilitate and support local and community self reliance in the event of any potential or actual disaster ;

(*j*) to promote public awareness campaigns relating to disaster management and funding of research and development on disaster management ;

(*k*) to facilitate liaison with organizations and persons pursuing hazard, vulnerability and risk reduction studies and implementing action programmes and commissioning such studies and action programmes;

(*l*) to assign functions and responsibilities to the Disaster Management Centre established under section 8;

(*m*) to initiate programmes relating to prevention and mitigation of disaster and the provision of relief, rehabilitation and reconstruction;

(*n*) to appraise the Cabinet of Ministers on all relevant matters connected with any potential and actual disasters;

(*o*) to recommend the allocation of funds for disaster management from the relevant authorities and bodies and the Reconstruction and Rehabilitation Fund, established by the Reconstruction and Rehabilitation Fund Act, No. 58 of 1993.

Meeting of the Council.

5. (1) The Council shall meet as often as may be necessary, but not less than once in every three months.

(2) The Chairman shall, if present preside at all meetings of the Council. In the absence of the Chairman from any such meeting of the Council, the Vice-Chairman shall preside at such meeting.

(3) Where both the Chairman and the Vice-Chairman are not present at any meeting of the Council a member elected by the members present at the meeting from among themselves, shall preside at such meeting.

Quorum at meetings.

6. (1) The quorum for any meeting of the Council shall be one-third of its total membership.

(2) The Council may regulate the procedure in regard to the meetings of the Council and the transaction of business at such meetings.

Seal of the Council.

7. (1) The seal of the Council shall be determined and devised by the Council and may be altered in such manner as may be determined by the Council.

(2) The seal of the Council shall be in the custody of the Secretary to the Council.

(3) The Seal of the Council shall not be affixed to any instrument or document except with the sanction of the Council and in the presence of two members of the Council who shall sign the instrument or document in token of their presence.

(4) The Council shall maintain a register of the instruments and documents to which the seal of the Council has been affixed.

Establishment of Disaster Management Centre.

8. (1) There shall be established for the purposes of this Act, a Disaster Management Centre headed by a Director-General and such number of other directors as may be determined by the Council. The Director-General and other Directors shall be appointed by the Council in consultation with the Minister.

(2) The functions of the Centre established under subsection (1) shall be as assigned by the Council, and shall include the following :—

(*a*) assisting the Council in the preparation of the National Disaster Management Plan and the National Emergency Operation Plan and proposals for upgrading the same when it becomes necessary ;

(*b*) taking responsibility for the implementation of the National Disaster Management Plan and the National Emergency Operation Plan, and upon the declaration of a state of disaster to direct and co-ordinate the implementation of the National Emergency Operation plan;

(*c*) ensuring that the various Disaster Management Plans prepared by Ministries, Government Departments or public corporations conforms to the National Disaster Management Plan ;

(*d*) based on Disaster Management Plans prepared by various Ministries, Government Departments and public corporations under section 10, preparing and implementing programmes and plans for disaster preparedness, mitigation, prevention, relief, rehabilitation and reconstruction activities and coordinating of organizatins which implement such

programmes and plans and obtain financial assistance form the Treasury for such activities and release the same to the relevant regions and monitor and evaluate these activities ;

(*e*) issuing instructions and guidelines to appropriate organizations, non-governmental organizations, district secretaries and divisional secretaries on activities relating to disaster management and initiating and implementing work programmes in co-ordination with such organizations and secretaries ;

(*f*) promoting research and development programmes in relation to disaster management and setting up and maintaining a data base on disaster management; and

(*g*) submitting reports to the Council from time to time and whenever required by the Council in regard to its activities.

Appointment of Technical Advisory Committees.

9. (1) In the discharge of their functions under this Act, the Council and the Disaster Management Centre shall be assisted by such number of Techincal Advisory Committees as shall be deemed necessary by the Council, consisting of professionals and experts having expertise in relation to the respective functions and responsibilities, as the case may be, of the Council.

(2) The members of the Technical Advisory Committees shall be appointed by the Council.

(3) The Chairmen of the Technical Advisory Committees constituted under subsection (1), shall be appointed by the Council.

Disaster Management Plan.

10. (1) It shall be the duty of every Ministry, Government Department and public corporation to prepare a Disaster Management Plan with respect to such Ministry,

Government Department, or public corporation, to counter any disaster or impending disaster, based on the National Disaster Management Plan and in accordance with such guidelines as may be specified by the Council.

(2) The Disaster Management Centre shall, if requested by a Ministry, Government Department or public corporation referred to in subsection (1), extend all necessary assistance to such Ministry, Department or Corporation, as the case may be, in the preparation of its Disaster Management Plan.

(3) Every Ministry, Government Department and public corporation shall on or before such date as shall be determined by the Council by Order published in the Gazette, submit to the Centre, a detailed Disaster Management Plan relating to the disaster counter-measures proposed to be taken by such Ministry, Government Department, public corporation, as the case may be, to counter any disaster or impending disaster.

(4) The Centre shall submit every Disaster Management Plan received by such Centre under subsection (3), to the Council for its approval.

Declaration of state of disaster.

11. (1) If at any time, the extent or severity of a disaster or impending disaster is or is likely to be so great, that any counter-measures that may become necessary to counter such disaster or impending disaster are beyond the resources or means normally available to the administration, the President may, on President's own motion or on the advice of the Council, by Proclamation declare that a state of disaster exists, either in respect of any area or areas specified in such proclamation, or of the whole country.

(2) Subject to the provisions of subsection (3), a Proclamation made under subsection (1) shall come into force on the date on which such Proclamation is made and shall, remain in force for a period of two months from the date of the making of the Proclamation, and may thereafter, if necessary, be extended for further periods not exceeding two months at a time.

(3) A Proclamation made under subsection (1), shall be placed before Parliament at its first sitting immediately after the date of declaration of the Proclamation, to be approved by a resolution of Parliament.

(4) If Parliament does not approve any Proclamation placed before it, such Proclamation shall, immedately upon such disapproval, cease to be valid and have no force in law, but without prejudice to anything lawfully done thereunder.

Procedure to be followed upon the declaration of a state of disaster.

12. (1) Upon the declaration of a state of disaster by the President, the President shall direct any one or more appropriate organizations designated by the Council under section 21, to take immediate action to —

(*a*) direct, co-ordinate and use all available resources as may be necessary within the area or areas in respect of which a Proclamation has been made under subsection (1) of section 11, to counter the efffect of the disaster or the impending disaster or to mitigate the effect of such disaster or impending disaster ;

(*b*) direct, co-ordinate and use additional resources, if and when they become available, in accordance with such arrangements as may be made in respect of its allocation ; and

(*c*) take all necessary measures provided for in the National Disaster Management Plan or the National Emergency Operation Plan as the case may be, and in accordance with such directions that may be issued to such appropriate organzation by the President.

(2) Notwithstanding the provisions of subsection (1), upon the declaration of a state of disaster by President under section 11, it shall be the duty of every Ministry, Government Department or public corporation, to take all measures necessary for the immediate implementation of their Disaster Management Plans prepared under section 10 within their respective Ministry, Department, or Corporation, as the case may be.

Council to obtain assistance of non-governmental organizations.

13. (1) Notwithstanding the provisions contained in section 12, where a state of disaster is declared under section 11, the Council may, wherever it considers necessary or appropriate, obtain the assistance of any Non-Governmental organization, being a non-governmental organization whose activities are not detrimental to national independence and sovereignty, to assist any appropriate organization in the discharge of its duties under section 12.

(2) Where any assistance is obtained under subsection (1) from a non-governmental organization, such organization shall act in accordance with instructions issued by the appropriate organization it is assisting and shall, for service rendered be paid by the Council out of the Fund of the Council, such amount as shall be determined by the Council.

Duties of an appropriate organization.

14. (1) It shall be the duty of an appropriate organization directed to take any action under section 12, to —

(*a*) enter any place where such appropriate organization believes on reasonable grounds that it is necessary to enter for the purpose of saving human life or for the prevention of injury to human life or for the rescuing of persons whose lives are endangered or to facilitate the carrying out of any other urgent measures with respect to relief from suffering and distress of affected persons ;

(*b*) evacuate people, property and animals from affected or vulnerable areas ;

(*c*) close traffic on any road, street (whether public or private) right of way or in any public place, for the implementation of disaster counter-measures until the police and the armed forces arrive ;

(*d*) remove any obstruction impeding the implementation of disaster counter-measures with the assistance of the police or the armed forces ; and

(*e*) do any other act as such appropriate organization may consider reasonably necessary for the purpose of implementing effectively any disaster counter-measures or to perform any act preliminary or incidental to any action directed to be taken by such appropriate organization under section 12.

(2) The duties entrusted under subsection (1) on any appropriate organization shall be performed by such organization only within the area or areas in which such organization has been authorized to operate by the Council, in performing its duties under subsection (1) of section 12.

Award of compensation.

15. (1) Any person who suffers loss or damage to his or its property by reason of any act, omission or default in taking any action by an appropriate organization under subsection (1) of section 12 or in the perfomance of its duties under section 14 or by a non-governmental organization assisting an appropriate organization under section 13, or a police officer or member of the armed forces, shall be entitled to compensation in respect of any loss or damage caused, of an amount determined by the Divisional Secretary of the Division within which such property is situated.

(2) The Divisional Secretary may, for the purpose of determining the compensation payable under subsection (1), obtain the assistance of a government assessor.

(3) The amount of compensation paid for any loss or damage caused to property shall, in case of dispute, be determined by the District Court within the jurisdiction of which the property is situated, on application made in that behalf by the person who suffered such loss or damage, by way of summary procedure.

16. The initial capital of the Council shall be ten million rupees. The amount of this initial capital shall be paid out of the Consolidated Fund and shall be credited to the Fund established under section 17.

Capital of the Council.

17. (1) The Council shall have its own Fund. There shall be credited to the Fund of the Council—

Fund of the Council.

(*a*) money received from the Consolidated Fund, as initial capital of the Council ;

(*b*) all such sums of money as may be received by the Council in the discharge of its functions ; and

(*c*) all such sums of money as may be received by the Council by way of loans, donations, gifts or grants from any lawful source whatsoever, whether in or outside Sri Lanka.

(2) There shall be paid out of the Fund of the Council all such sums of money as may be required to defray any expenditure incurred by the Council in the discharge of its functions under this Act.

18. (1) The financial year of the Council shall be the calendar year.

Accounts and audit.

(2) The Council shall cause proper books of accounts to be kept of the income and expenditure, assets and liabilities and all other transactions of the Council.

(3) The provisions of Article 154 of the Constitution relating to the audit of the accounts of public corporations shall apply to and in relation to the audit of the accounts of the Council.

19. The provisions of Part II of the Finance Act, No. 38 of 1971, shall *mutatis mutandis*, apply to the financial control and accounts of the Council.

Application of Part II of the Finance Act, No. 38 of 1971.

Staff of the Council.

20. (1) The Council may appoint such number of officers, servants and agents as it considers necessary for the discharge of its functions and for the administration and implementation of this Act.

(2) The officers, servants and agents appointed under subsection (1) shall be remunerated in such manner and at such rates and shall be subject to such conditions of service as may be determined by the Council.

(3) At the request of the Council, any officer in the public service may with the consent of that officer and the Secretary to the Ministry of the Minister in charge of the subject of Public Administration, be temporarily appointed to the staff of the Council for such period as may be determined by the Council with like consent or be permanently appointed to such staff with like consent.

(4) Where any officer in the public service is temporarily appointed to the staff of the Council, the provisions of subsection (2) of section 14 of the National Transport Commission Act, No. 37 1991 shall, *mutatis mutandis*, apply to and in relation to him.

(5) Where any officer in the public service is permanently appointed to the staff of the Council, the provisions of subsection (3) of section 14 of the National Transport Commission Act, No. 37 of 1991 shall, *mutatis mutandis*, apply to and in relation to him.

(6) Where the Council employs any person who has entered into a contract with the Government by which he has agreed to serve the Government for a specified period, any period of service with the Council by that person shall be regarded as service to the Government for the purpose of discharging the obligations of such contract.

Designation of appropriate organizations.

21. (1) Whenever the Council considers it appropriate, the Council may designate any Ministry, Government Department, Public Corporation or the Disaster Management

Centre as an appropriate organization (in this Act referred to as an "appropriate organization") which will be required to carry out and implement the National Disaster Management Plan or the National Emergency Operation Plan, as the case may be, and generally assist the Council in the discharge of its functions.

(2) Notwithstanding the provisions of subsection (1), an appropriate organization shall also be required to perform any duties that it may be called upon to do under subsection (1) of section 12, and in general to assist the Council in the discharge of its functions under this Act.

(3) The Council shall determine and specify the functions which an appropriate organization should discharge in order to carry out and implement the respective plans referred to in subsection (1), and where necessary issue guidelines for the same.

(4) Where an appropriate organization is designated by the Council under subsection (1), the Council shall by Order published in the Gazette, specify the area or areas in which each such appropriate organizations, shall carry out its implementation activities.

(5) An appropriate organization may exercise its powers under this Act, only through such of its officers as are especially assigned in writing in that behalf by such organization.

Delegation of powers, duties and functions by the Chairman.

22. (1) The Chairman may, subject to such conditions as may be specified in writing delegate all or any of his powers, duties or functions under this Act to any member or officer of the Council.

(2) Notwithstanding any such delegation under subsection (1) , the Chairman may exercise, perform or discharge any power, duty or function so delegated.

(3) A member or an officer of the Council to whom any power, duty or function has been delegated under subsection (1) shall, in the exercise, performance or discharge of such power, duty or function, comply with such directions or conditions as the Chairman may from time to time communicate in writing to such member or officer, as the case may be.

(4) A member or an officer of the Council to whom any power, duty or function has been delegated under subsection (1) shall have the power to do, all acts and things that are incidental to the power, duty or function that is so delegated.

Protection for action taken in good faith.

23. No suit shall lie against a member of the Council or any appropriate organization authorized by the President under section 12, or police officer or a member of the armed forces for any action which is done in good faith, in the performance of any duty imposed upon such member, appropriate organization, police officer or a member of the armed forces as the case may, under this Act.

Offences and penalties.

24. Every person who assaults, obstructs, threatens, intimidates, abuses or insults any person exercising any power or discharging any duty conferred on or imposed on such person by this Act, shall be guilty of an offence under this Act and shall on conviction after summary trial before a Magistrate be liable to imprisonment of either description for a term not exceeding two years or to a fine not exceeding twenty five thousand rupees, or to both such imprisonment and fine.

Interpretation.

25. In this Act, unless the context otherwise requires —

"disaster" means the actual or imminent ocurrence of a natural or man-made event, which endangers or threatens to endanger the safety or health of any person or group of persons in Sri Lanka, or which destroys or damages or threatens to destroy or damage any property, and includes—

(*a*) a landslide;
(*b*) a cyclone;

(*c*) a flood;
(*d*) a drought,
(*e*) an industrial hazard;
(*f*) a tsunami (seismic wave);
(*g*) an earthquake;
(*h*) an air hazard;
(*i*) a maritime hazard;
(*j*) a fire;
(*k*) an epidemic;
(*l*) an explosion;
(*m*) air raids ;
(*n*) civil or internal strife ;
(*o*) chemical accident;
(*p*) radiological emergency;
(*q*) oil spills including inland and marine oil spills;
(*r*) nuclear disaster;
(*s*) urban and forest fire;
(*t*) coastal erosion; and
(*u*) tornados, lightening strikes and severe thunder storms;

"disaster counter-measures" means measures that are necessary or desirable to avert, minimize or counter the effect of an impending disaster or consequent to a disaster, to mitigate the effect of such disaster on members of the public or any property belonging to an individual or the State, and includes the conduct of, or participation in, training for such purposes ;

"public corporation" means any corporation, board or other body which was or is established by or under any written law with funds or capital wholly or partly provided by the Government from the Consolidated Fund by way of grant, loan or otherwise; and

"resources" includes manpower or animals, vehicles, boats, plant, appratus, implements, earthmoving eqipment or other equipment of any kind, finance, storage facilities, movable and immovable property considred essential for the life of the community.

Sinhala text to prevail in case of inconsistency.

26. In the event of any inconsistency between the Sinhala and Tamil texts of this Act, the Sinhala text shall prevail.

Annex 2

Institutional Profiles

1. Landslide Studies and Services Division, (NBRO)
2. Medical Research Institute (MRI)
3. Ministry of Health and Nutrition (MHN)
4. Atomic Energy Authority (AEA), Ministry of Science and Technology
5. Department of Meteorology (DoM)
6. Sri Lanka Land Reclamation & Development Corporation (SLLR&DC)
7. Colombo Municipal Council (CMC)
8. Geological Survey and Mines Bureau (GSMB)
9. Central Environmental Authority (CEA)
10. Sri Lanka Institute of Local Governance (SLILG)
11. Water Resources Board (WRB)
12. Urban Development Authority (UDA)
13. Irrigation Department (ID)
14. Sri Lanka Red Cross Society (SLRCS)

Landslide Studies and Servises Division, National Building Research Organization (NBRO) 1

Status

Semi Government Organisation

Parent Ministry/ Organisation

Ministry of Housing and Construction

Broad Mandate

To foster, promote and sustain research and development work and provide technical services to the housing building and construction sectors, with a view to improve the quality of life.

Details of Activities Specific to DRM

- Preparation of landslide hazard zonation maps at 1:50000 scale and at 1:10000 scale covering the mountainous region in Sri Lanka
- Introduction of standard guidelines and codes of practices for human settlement planning and site selection in hilly areas vulnerable to landslides
- Foster community participation in creating public awareness about causative factors of landslide and provide training in the aspect of landslide disaster management
- Coordinating with the Meteorology Department for issuing early warning on possible landslide threats.

Areas of Involvement in DRM

- Risk, Vulnerability Mapping
- Early Warning
- Research & Development
- Awareness

Other Relevant Details

For mitigation of unstable sites, relocation of affected communities, EIA, and IEE, provide consultancy services to the government and private sector in respect of landslide investigations (instrumentation and monitoring), slope stability analysis, geo-technical testing and design of preventive and corrective measures.

Contact Details

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NBRO

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2 Medical Research Institute (MRI)

Status

Government Department

Parent Ministry

Ministry of Health

Broad Mandate

Establishing health sector emergency management mechanism

Details of Activities Specific to DRM

Preparedness and response plans and programmes regarding health issues. e.g.; surveillance of probable disaster related health issues

Areas of Involvement in DRM

- Risk, Vulnerability mapping
- Early warning
- Response
- Research and development
- Awareness

Contact details

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Head of Department
Acting Director
Medical Research Institute
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3 Ministry of Healthcare and Nutrition (MHN)

Status

Government Ministry

Parent Ministry

Ministry of Healthcare and Nutrition

Broad Mandate

To contribute to social and economic development of Sri Lanka by achieving the highest attainable health status through promotive, preventive, curative and rehabilitative services of high quality made available and accessible to people of Sri Lanka.

Details of Activities Specific to DRM

Risk assessment, vulnerability mapping and early warning related to biological hazards and epidemics

Areas of Involvement in DM

- Disaster preparedness
- Search and rescue
- Management of mass casualties
- Disposal of dead bodies
- Management of displaced populations
- Prevention and control of epidemics following disasters
- Provision of health services to affected populations
- Rehabilitation.

Contact Details

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Director General of Health Services
Head of Department
385, Rev. Baddegama Wimalawansa Thero Mw.
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4 Atomic Energy Authority (AEA)

Status

Statutory Authority

Parent Ministry

Ministry of Science & Technology

Broad Mandate

- Promotion and execution of research & development using radioisotopes and radiation methodologies for socio-economic development of Sri Lanka and provision of related services.
- Prevention of radiation workers and general public from being exposed to ionizing radiation and to prevent environmental contamination to the maximum extent that is reasonable and practicable subjected to the internationally accepted maximum levels.

Details of Activities Specific to DRM

- Establishment of environmental radionuclide monitoring stations at several parts of the country for identification of abnormal radio nuclides in the environment due to nuclear accidents in neighboring countries.
- Collecting and analyzing of environmental samples for assessment of radio nuclides deposited in the environment. Decision of protective actions will be based on the results of environmental sample analysis and food analysis.
- Developing Radiological Emergency Response Plan.
- Establishment of well equipped Radiological Emergency Response Unit at AEA.
- Training of all relevant personnel.

Areas of Involvement in DRM

- Early Warning
- Response to nuclear and radiological emergencies

Contact Details

Chairman
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Wellampitiya

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Email : srlaea@slt.lk
Website : www.nsf.ac.lk/aea

5 Department of Meteorology (DM)

Status

Government Department

Parent Ministry

Ministry of Science and Technology

Broad Mandate

To provide meteorological, aviation meteorological, climatological, marine meteorological, hydrometeorological, agrometeorological and astronomical services for national needs and to fulfill international obligations.

Details of Activities Specific to DRM

Provision of Early Warning Services

Areas of Involvement in DRM

- Early Warning
- Awareness

Any Other Details

Functioning as the Tsunami Early Warning Centre of Sri Lanka

Contact Details

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Colombo 07
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Website : http://www.meteo.slt.lk

6 Sri Lanka Land Reclamation & Development Corporation (SLLRDC)

Status

Corporation

Parent Ministry

Ministry of Urban Development & Water Supply

Broad Mandate

Formed under Act No. 15 of 1968 & No. 27 of 1979 & No. 52 of 1982 as amended. Reclamation and development of land while ensuring a flood free habitat and improving the environment by rehabilitating, creating and maintaining pollution free inland water bodies and engage in engineering services and creation of buildable lands.

Details of Activities Specific to DRM

Mitigation & integration of disaster risk reduction into development

Areas of Involvement in DRM

- Research & Development

Contact Details

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General Manager
Sri Lanka Land Reclamation & Development Corporation
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Welikada
Rajagiriya

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Website : http://www.urbanlanka.lk/LR&DC/lr&dc.html

7 Colombo Municipal Council (CMC)

Status

Local Government/Local Authority

Parent Ministry

Provincial Council (Western Province)

Broad Mandate

Service provider on Health, Infrastructure, Fire Control, Veterinary, Social Welfare, Sports and Recreation, Library etc. for Colombo City.

Details of Activities Specific for DRM

- Preparation of Emergency Management Response Plan
- Establishing a Crisis/Disaster Management Committee in 1999
- Active Involvement in Managing Disasters in the City
- Assist Local Authorities and other institutions in Colombo suburbs and Western Province in Fire Control
- Social Welfare facilities to citizens during a Disaster
- Drainage improvement to mitigate floods

Areas of Involvement in DRM

- Search and Rescue
- Preparedness and Response
- Public Awareness

Any Other Details

- Ambulance service under Tel. 110 is in operation within the city free of charge. Four ambulances are presently functional. 30 Firemen were trained as paramedics and have been deployed to the ambulance service.
- Colombo Fire Department Head Office functioning as the Emergency Operation Centre in an Emergency.

Contact Details

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Colombo.7

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Website : www.colombocity.org
: www.cmc.lk

8 Geological Survey and Mines Bureau (GSMB)

Status

Bureau

Parent Ministry

Ministry of Agriculture, Mahaweli Development and Environment

Broad Mandate

To promote and manage the mineral resources of the country. GSMB seeks to ensure that this mineral potential is realized for the benefit of Sri Lanka and that minerals are extracted in an efficient, safe and environmentally sound way. The bureau provides impartial advice to all parties- large or small, local or international on all matters concerning the geology and mineral resources of the country.

Details of Activities Specific to DRM

- Monitoring of earthquake activities and tsunami conditions that could affect Sri Lanka
- Site inspections are carried out whenever required to monitor possible landslide conditions
- Site inspections are carried out whenever required to monitor all accidents and disastrous impacts concerned with mining activities.
- Conducting awareness programmes in natural disasters reduction.

Areas of involvement in DRM

- Early warning
- Awareness concerning possible Seismic and
- Tsunami hazards.

Any Other Details

A twenty four hour monitoring of earthquake waveforms of the Indian Ocean region is carried out at the GSMB (SATAC center) in order to gain an awareness of possible Tsunami threats.

Contact Details

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Geological Survey and Mines Bureau
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Website : www.gsmb.slt.lk

9 Central Environmental Authority (CEA)

Status

Statutory Body

Parent Ministry

Ministry of Environment and Natural Resources

Broad Mandate

Protection, Management and Enhancement of the environment through regulation, maintenance, and control of the quality of the environment for the Prevention, Abatement and Control of Pollution.

Details of Activities Specific to DRM

Improving safety and preparedness against Industrial and Chemical hazards by making the development of preparedness plans by the industries compulsory under the provisions of NEA.

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Contact Details

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Director General
Central Environmental Authority
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Battaramulla

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E- mail : mervyng@cea.lk.
Website : www.cea.lk

10 Sri Lanka Institute of Local Governance (SLILG)

Status

Semi Government

Parent Ministry

Ministry of Local Government and Provincial Councils.

Broad Mandate

Provide training and consultation services for Local Authorities and Provincial Councils of Sri Lanka.

Details of Activities Specific to DRM

Conducting of Awareness and Training Programmes related to natural disasters and physical planning.

Areas of involvement in DRM

- Awareness Programme
- Training Programmes

Contact Details

Director
SLILG
No 17 , Malalasekara MW
Colombo - 07

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Website: www.slilg.gov.lk

11 Water Resources Board (WRB)

Status

Government Statutory Board

Parent Ministry

Ministry of Agriculture, Irrigation and Mahaweli Development

Broad Mandate

Development and Management of Ground Water Resources.

Details of Activities Specific to DRM

Ground water exploration and extraction to provide water for drinking purposes in drought period.

Areas of involvement in DRM

- Preparation of ground water potential maps to identify potential water resources for drought period.
- Monitoring ground water in vulnerable areas for risk assessment.

Contact Details

Chairman
Water Resources Board
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+94-11- 2694835
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12 Urban Development Authority (UDA)

Status

Semi Government Authority

Parent Ministry

Ministry of Urban Development and Water Supply.

Broad Mandate

Major physical planning public agency for development in urban area.

Details of Activities Specific to DRM

Preparation of urban development plans including zoning plans, land use plans and physical planning implementation in the urban areas.

Areas of Involvement in DRM

- Planning Implementing in Disaster prone areas
- Developing physical planning guidelines in disaster-prone areas.

Contact Details

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Urban Development Authority
6th Floor, Sethsiripaya
Battaramulla
Telephone: +94-11-2875916

Irrigation Department (ID) 13

Status

Government Department

Parent Ministry

Ministry of Agriculture, Irrigation and Mahaweli Development

Broad Mandate

Regulation and control of Inland water bodies

Details of Activities Specific to DRM

- Planning, design, construction and operation of infrastructure facilities required to harness the surface water for land development
- Integrated natural resources management in major irrigation systems in order to increase productivity
- Assessment of water resources in river basins for river basin planning and development, inclusive of stream flow forecasting and warning
- Providing drainage facilities to low lying coastal areas and prevention of flooding and salt water intrusion

Areas of Involvement in DRM

- Risk, Vulnerability mapping
- Early Warning of river and reservoir floods
- Early Warning of water shortages in Irrigation sector
- Response
- Research and Development
- Awareness, Training

Contact Details

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Website : http//www.irrigation.gov.lk

14 Sri Lanka Red Cross Society (SLRCS)

Status

Humanitarian Society

Broad Mandate

Humanitarian Activities

Details of Activities Specific to DRM

Community based Disaster Plans, Vulnerability & Capacity Assessment, Volunteer capacity building, Rain water harvesting, First Aid training

Areas of Involvement in DRM

All the components of the DRM cycle

Contact Details

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