

# SRI LANKA

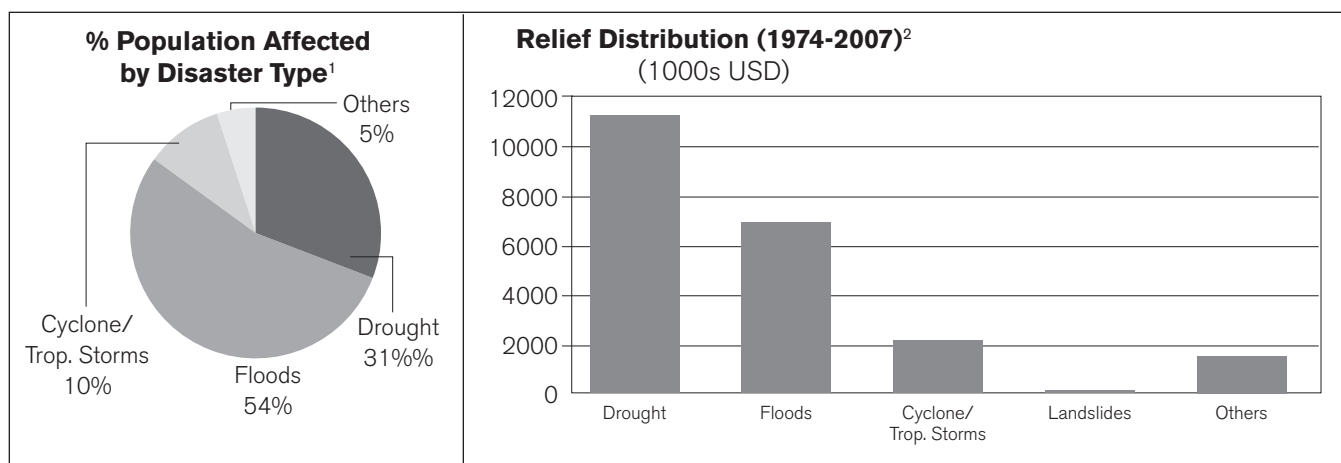
To prepare the Country DRM Note, consultations were undertaken with members of the World Bank's Sri Lanka Country team. Meetings were held with the Ministry of Disaster Management & Human Rights (MoDMHR) and with the three departments contained within the ministry—Disaster Management Centre (DMC), the National Building Research Organization (NBRO) and the Sri Lanka Meteorological Department (Met). The team also met with the Ministry of Disaster Relief and Resettlement, Ministry of Nation Building & Estate Infrastructure Development and Ministry of Education. In addition, the team discussed the proposed GFDRR grant funding proposal with bilateral agencies and other relevant stakeholders including the UNDP, UN OCHA, WHO, GTZ and JICA.

The matrix of priority areas and actions for DRM and estimated budget allocations were discussed and cleared at a debriefing meeting held on May 6, 2009 with participation of stakeholders from Government, donors, and NGOs. There is strong support and ownership and endorsement by the MoDMHR for the matrix of priority areas and actions.

## 1. DISASTER RISK PROFILE

Sri Lanka is an island country located in the Indian Ocean in the equatorial zone. The principle topographic feature is an anchor-shaped mountain massif in the south-central part of the island, thus creating three zones, the central highlands, the plains and the coastal belt. With a population of more than 19 million people within a total area of 65,000 sq. km., the country has a densely populated coastal belt.

The most frequent natural hazards that affect Sri Lanka are droughts, floods, landslides, cyclones and coastal erosion. Tsunamis are infrequent but the 2004 Asian Tsunami caused severe damage.



Over the past 30 years floods have affected more than 10 million people while droughts have affected more than 6 million. During the last two decades, the severity of landslides has increased in the highland regions through a combination of heavy rains, geological changes in the hill country and human activity including indiscriminate clearance of steep slopes.

1 EM-DAT: OFDA/CRED International Disaster Database, catholic university of Louvain, Brussels, Belgium, [www.emdat.net](http://www.emdat.net)

2 Historical Disaster Information System in Sri Lanka, Desinventar Disaster Inventory database, 2007

3 World Bank, Natural Disaster Risks in Sri Lanka: Mapping Hazards and Risk Hotspots, DRM Series No. 6, 2006

Cyclones affect the northern region of the country and though historically, their severity has been comparatively mild, increasing climatic changes could result in increased frequency and magnitude of cyclones and all other climate-related disasters. The 2004 tsunami claimed more than 39,000 lives in Sri Lanka. Historically, though the risk of earthquakes has been relatively mild, recent understanding of the tectonics of the Indian Ocean region points to an increasing risk of earthquakes.<sup>3</sup>

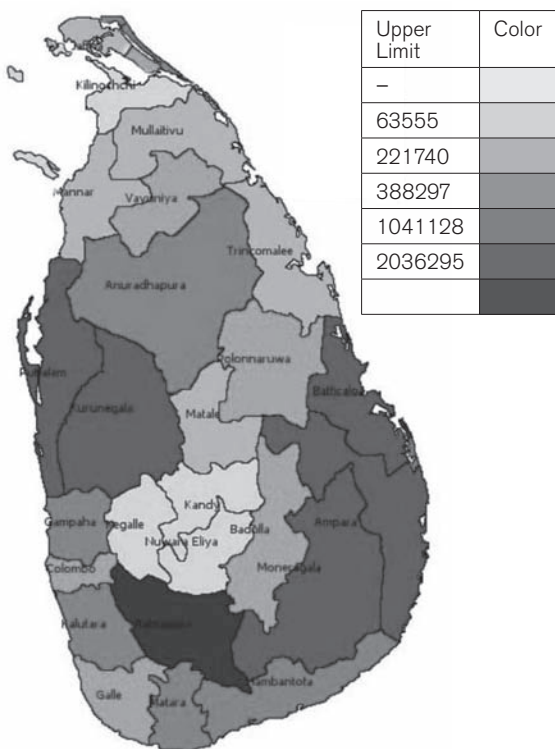
### Exposure and Vulnerability

The south-west monsoons (May to September) cause severe flooding in the western and south-western provinces while the north-east monsoon (December – February) causes flooding in the eastern, northern and north-central provinces.

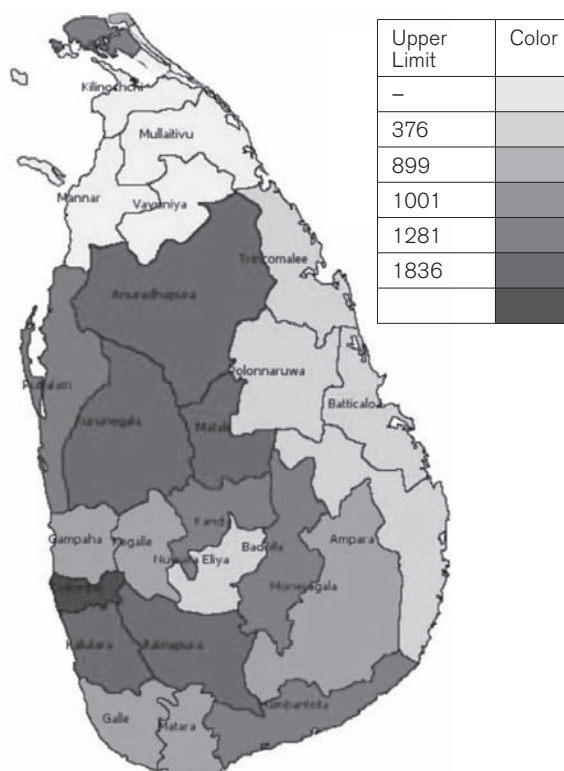
Though Sri Lanka receives an average of 1,800 mm of rainfall annually, it is distributed unevenly both spatially and temporally. Therefore, a large part of the island is drought prone from February to April and, if the subsidiary rainy season from May to June is deficient, drought may continue into September.

Landslides, in Sri Lanka, are caused by a combination of natural and human-induced triggers. The districts of Badulla, Nuwara Eliya, Ratnapura, Kegalle, Kalutara, Kandy and Matale are the most prone to landslides. The eastern and north-eastern parts of Sri Lanka are highly vulnerable to cyclones especially in the months of November and December. The effects of coastal erosion are largely felt in the west, south-west and southern coastal belt. About 50% of Sri Lanka’s population lives in villages and towns in the coastal areas. Coastal erosion severely affects infrastructure facilities and economic activities along the coast<sup>4</sup>.

**No. of People affected by District**  
(1974 – 2007)



**Frequency of Disaster Events (all) by District**  
(1974 – 2007)



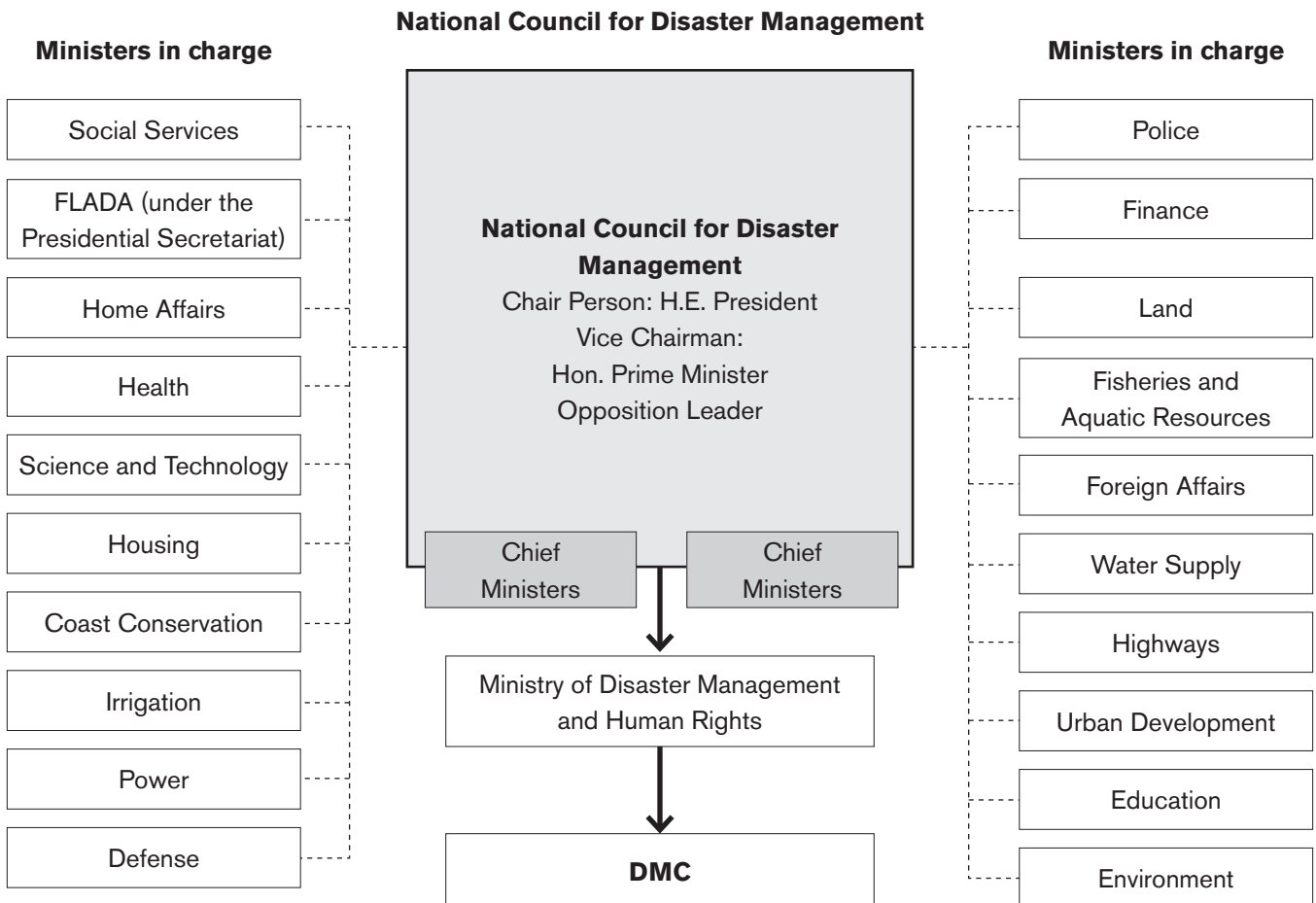
4 Towards a Safer Sri Lanka: Road Map for Disaster Risk Management, Ministry of Disaster Management, 2005

Colombo, Kalutara and Gampaha are the most populated districts in Sri Lanka. Unplanned patterns of human settlement, development and land use have resulted in severe encroachments into flood plains and unstable slopes, further exacerbating the risks of disasters. A poverty level of 23% and a substantial number conflict related internally displaced people (IDPs) add to peoples' vulnerability to disasters.

## 2. DISASTER RISK MANAGEMENT FRAMEWORK

In the immediate aftermath of the Tsunami, a Select Committee established by the Sri Lankan Parliament investigated the country's preparedness to meet emergencies and to recommend steps to be taken to minimize the damage caused by similar natural disasters. Based on the Select Committee's Recommendations<sup>5</sup>, the Sri Lanka Disaster Management (DM) Act, No. 13 of 2005 was enacted in May 2005. The National Council for Disaster Management (NCDM) was established as the national body for disaster risk management coordination and monitoring in Sri Lanka as per the DM Act. The Ministry of Disaster Management & Human Rights as the leading Ministry and the Disaster Management Center (DMC) as the executing agency for disaster risk management (DRM) were established in implementing the directives of NCDM.

One of the important outcomes of this institutional development process is that the DMC became the national level nodal agency to formulate national and local level disaster risk management programs and to align them with sector development programs. DMC is primarily responsible for managing the risk management process: disaster risk mitigation



5 Sri Lanka Parliament Select Committee Report on Natural Disasters, August 2005

policies and plans – damage assessments – rescue and relief operations – rehabilitation and reconstruction as part of the recovery programs in coordination with other line departments. The DMC is also the nodal agency to coordinate disaster management initiatives with Non Government Organizations for achieving timely, effective and efficient management of the resources during the emergency and reconstruction operations.

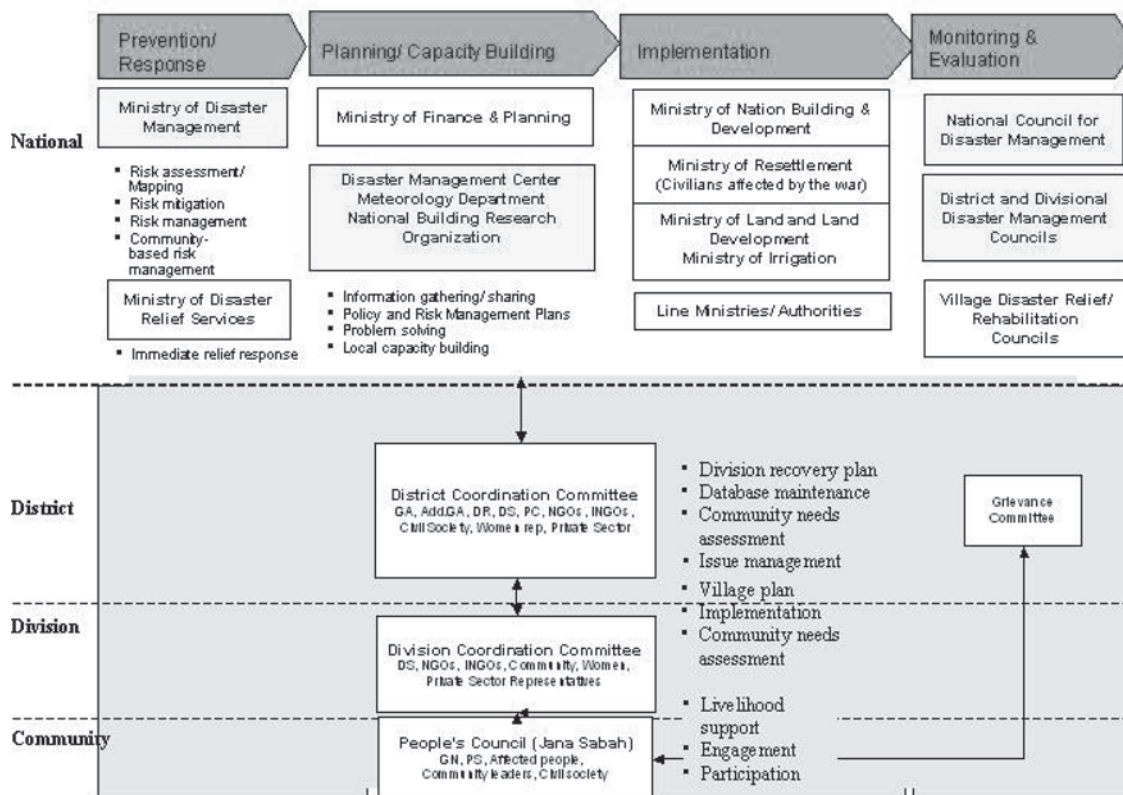
The Sri Lanka DRM framework is based on two critical aspects of managing risk reduction and mitigation and streamlining the roles and responsibilities of DMC.

*Risk Management:* This component entails the following priority activities:

- Preparedness, Planning Emergency Response and Recovery, which would entail activities such as: Formulation of DRM Strategies, identification of various risks and formulation of mitigation interventions; and
- Risk Evaluation: This requires the improvement of broad stakeholder capacity to receive timely early warning messages, act proactively and respond effectively when warnings are provided. Risk communication is an important component of the risk evaluation and mitigation process.

*Early Warning Systems:* One of the main responsibilities of the DMC is to capture risk and hazard early warning information, evaluate the intensity of the risks and communicate them to the various stakeholders through effective communication and early warning mechanisms. A mechanism for monitoring and evaluation, which includes agreement on specific, risk reduction indicators and means of gathering information, delivering the early warnings and guide evacuation of people from the risk prone is being streamlined.

### Disaster Risk Management Mechanism



### 3. ACTIVITIES UNDER THE HYOGO FRAMEWORK OF ACTION

#### **HFA Priority # 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation**

The Sri Lanka Disaster Management (DM) Act, No. 13 of 2005 was enacted in May 2005. The National Council for Disaster Management (NCDM) was established as the national body for disaster risk management coordination and monitoring in Sri Lanka as per the DM Act. The Ministry of Disaster Management & Human Rights as the leading Ministry and the Disaster Management Center (DMC) as the executing agency for disaster risk management (DRM) were established in implementing the directives of NCDM. In December 2005, the Disaster Management Center developed "Towards a Safer Sri Lanka: A Road Map for Disaster Risk Management."

However, coordination with the various line departments engaged in the disaster management activities as part of their responsibilities such as the Ministry of Irrigation and Water Management and Ministry of Agricultural Development for Flood Risk Management; Ministry of Urban Development and Ministry of Land Development, Ministry of Housing, and Ministry of Environment and Natural Resources for Landslide Management; Ministry of Fisheries and Aquatic Resources and Ministry of Housing for mitigating Cyclone / Sea Surge Risk Management, and Ministry of Plan Implementation for designing and implementing integrated disaster mitigation plans, etc is weak.

Inadequate institutional capacity of the Ministries and District administrations to manage the resources mobilized for disaster response and recovery programs after a national disaster has been observed after the 2005 tsunami.

The establishment of a Sri Lanka Disaster Management Fund was called for in the Sri Lanka Disaster Management Act (no. 13 of 2005). The Act stated that the Fund shall be constituted with the moneys received from the Consolidated Fund of the GoSL and 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 (DM Act, clause 17). However, at present a Fund has not been established. The World Bank, through funding from the Global facility for Disaster Reduction and Recovery (GFDRR) has been initiating the process for developing a Disaster management Fund framework.

#### **HFA Priority # 2: Identify, assess, and monitor disaster risks – and enhance early warning**

The National Building Research Organization (NBRO) has developed national level hazard maps for landslides. Also, local level hazard maps have been prepared by communities affected by the tsunami. However, national level maps for any of the other hazards have not been created.

The DMC has developed a database on disasters in Sri Lanka from 1974 until 2007 with the support of the UNDP. This database is based on Desinventar. A Sri Lanka Disaster Resource Network Database (SLDRN) is being developed and will be updated by district level organizations. Any organization within the network will be able to access the website.

A nationally based early warning system for floods, tsunami, cyclone, landslides and sea surges is being developed. Focal points for formulation of warning messages have been identified. The DMC will be responsible for dissemination of early warning messages up to the last mile. Community level early warning systems have been made operational in select sites on a pilot basis.

Sri Lanka does not have financial capacity to acquire and maintain equipment for data collection and technical expertise for analysis and forecasting of natural hazards. Regional sharing of information is also weak.

### **HFA Priority # 3: Use of knowledge, innovation, and education to build a culture of safety and resilience at all levels**

Training programs have been conducted for district and divisional officers for analysis / assessments of disaster risks in their respective districts/divisions and developing projects for disaster risk reduction.

The Ministry of Education and Ministry of Disaster management & Human Rights with support from German Development Cooperation have developed “Towards a Disaster Safe School: National Guidelines for School Disaster Safety” in 2008.

District level school DRM awareness and training programmes with special focus towards tsunami were conducted along coastal belts and mock drills were practiced in all schools identified as being vulnerable to a tsunami hazard. However, there is severe shortage on trained personnel at the government level and lack of coordination towards development of training modules amongst different line ministries.

### **HFA Priority # 4: Reduction of the underlying risk factors**

There exists a need for development of institutional resources and technical expertise for better risk assessment, forecasting and management. The Department of Meteorology has been developing its short-to-medium range forecast capabilities but requires additional technical capacity and investments for implementing a medium term forecast strategy. Similarly, the National Building Research Organization requires additional technical and financial assistance to improve the landslide predictability and for scaling up the preparation of the risk hazard maps on 1:10,000 scale.

Land use policies are being developed in consultation with stakeholders. Currently land use plans are almost non-existent and available in only a few areas. The impact of poor land use and lack of enforcement has led to serious increase in the number of landslides in the central highlands region.

Buffer zones have been declared in coastal areas to prohibit unauthorized constructions. Establishment of natural dense vegetation along coastal belts has been completed in several districts to prevent against high winds and wave surges.

Progress is being made in identifying and supporting vulnerable and low income populations through “Samurdhi” and “Gamidiriya” micro financing and social protection programmes.

Insurance schemes for protecting against disaster losses are not popular in Sri Lanka due to high premiums. A pilot project is being implemented involving CBOs as insurance agents and some finance agencies acting as re-insurers.

### **HFA Priority # 5: Strengthen disaster preparedness for effective response at all levels**

The government has identified disaster preparedness as a priority in the Disaster Management Policy. However, there is a need for capacity strengthening towards disaster risk reduction, preparedness and an overall “proactive” approach for disaster management.

Certain communities, especially those affected by the tsunami, have developed risk maps, developed village level volunteer teams who have been given adequate trainings, and have their own community level early warning dissemination systems. However, these need to be expanded to other areas of the country as well as for multiple-hazard risks.

The DMC has established a 24x7 Emergency operations Center to coordinate emergency response and early warning dissemination activities. Warehouses for providing emergency supplies are ill-equipped and do not have basic emergency and relief supplies. Only one warehouse maintained at the national level.

An intra-government network has been established with assistance from JICA to connect Irrigation department, NBRO, the Meteorological department, DMC, Police communications, Media networks and 7 district offices most vulnerable to disasters. The plan is for this network to facilitate sharing of GIS maps and other data to better coordinate response and relief operations.

#### 4. KEY DONOR ENGAGEMENTS

Some of the ongoing DRM initiatives are supported by multilateral assistance. These initiatives are listed below:

**JICA:** From 2006 onwards, JICA has been actively involved in the design and implementation of DRM programs in the country. JICA program covers: Technical Assistance for the DMC primarily for preparing disaster management plan (Flood Management Master Plan) and operational mitigation strategies and Designing and Piloting Early Warning Systems (Weather Stations) in the Country. The technical supports also included capacity building of government officials through in-house and foreign training and development of community based disaster response plans. The design and implementation of early warning and evacuation systems and streamlining these systems through pilot programs are some of the successful projects implemented by the government through the JICA technical assistance. The JICA program ended on 31<sup>st</sup> March 2009, and it is designing the second phase of the DRM program, which would be primarily driven by the governments proactive approach and identified needs.

**UNDP:** In relation to disaster risk management, UNDP Sri Lanka is actively assisting in the development of a legal and institutional framework on disaster risk management; promotion of efforts to decentralize DRM; streamlining of various local DRM efforts under a common platform; strengthening end-to-end early warning systems and incorporating DRM into national development planning.

UN OCHA is also currently assisting the DMC in the areas disaster database and Geographical Information System and hazard mapping. As part of this initiative, OCHA has supported DMC to procure baseline satellite imageries (UNOSAT) and digital evaluation models useful for disaster risk mapping and disaster management planning. Two UN OCHA staff members positioned at DMC are currently providing technical support in the development of disaster management database and risk and hazard mapping.

**International Center for Emergency Techniques (ICET):** An agreement signed by the Ministry of Disaster Management and ICET to establish emergency communication system at the DMC to facilitate uninterrupted communication to the stakeholders at District and Divisional levels as to respond to emergencies is an important step forward. The system consists of VHF Radio Communication and HF and Satellite Communication. Besides, construction of nearly 50 Multi Hazard Early Warning Towers will be done in vulnerable locations for effective early warning and evacuation communications.

**Disaster Emergency Warning Network:** The early warning communication system has been further enhanced with the initiation of the Disaster Emergency Warning Network (DEWN) in collaboration with the Sri Lanka Dialog Telekom. An agreement to provide private virtual networking facility to the DMC to communicate with Disaster Risk Management Units at the District and Divisional levels and with other stakeholders responsible for rescue and relief operations has enhanced the early warning capability of the DMC significantly.

**Sri Lanka Red Cross Society:** The Sri Lanka Red Cross Society with support from the IFRC and other national Red Cross Societies (American, Danish) has been actively engaged in community based disaster risk management since 2006.

## 5. GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY (GFDRR): ACTION PLAN

### Ongoing GFDRR Funded Activities

Ongoing GFDRR funded activities	Partnerships	Budget	HFA priority area(s)
Improving Sri Lanka's response and recovery in the aftermath of natural disaster including supporting the preparatory steps for implementation of the Disaster Management Fund	Ministry of DM & HR, UNDP	\$ 200,000	HFA Priority 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation

### Indicative New Program Areas and Projects for GFDRR Funding

#### INSTITUTIONAL STRENGTHENING AND BUILDING TECHNICAL EXPERTISE

The Ministry of Disaster Management and Human Rights (MDM&HR) is comprised of its operating agencies the DMC, Meteorology Department and the National Building Research Organization (NBRO). The institutional mechanism and technical capacity of these three departments to implement disaster risk mitigation plans and to guide the emergency assistances/resources mobilized after national disasters are weak and require strengthening. There is requirement for both in-house training and training in foreign institutions in specialized technical fields and better DRM skills.

#### FLOOD MANAGEMENT PROJECT - GAMPAHA DISTRICT

The Road Map for Safer Sri Lanka and the comprehensive disaster management plan and flood management master plan prepared with the technical assistance from JICA has identified flood risks across the country. Gampaha district suffers floods almost every monsoon season. Floods impact majority of the 2.1 million people living in the district (in 2006, 12 of the 13 divisions in the district were impacted by floods). Gampaha is also an industrial and manufacturing hub and floods cause huge economic losses for the district and the country overall.

Based on analysis of the flood management master plan produced by JICA for the Gampaha district, the project proposes working with vulnerable communities living along the canals in Gampaha towards risk preparedness, canal management and waste disposal programs and flood early warning dissemination.. The project also proposes strengthening livelihoods through piloting flood resistant paddy cultivation in Gampaha. A risk financing pilot will be initiated for farmers as well as the private industry vulnerable to flood impacts.

The DMC will spearhead the Flood management project in collaboration with the Irrigation department, the Agrarian services department, JICA, relevant district and division local government bodies and other relevant stakeholders.

#### LANDSLIDE MANAGEMENT PROJECT: NUWARA ELIYA DISTRICT

According to the landslide risk assessments done by the NBRO, nearly 20,000 km<sup>2</sup> in ten major districts have been identified as landslide prone. However, three districts; Nuwara Eliya, Badulla and Ratnapura are the highly landslide prone areas. Major landslides occurred during the past two decades have taken thousands of lives, made nearly 175,000 families homeless and incurred heavy economic loss.

The project will strengthen overall capacity of the NBRO in mitigating landslide risks through risk mapping, development of landslide mitigation and reduction plans, formulation of land use guidelines and land development regulations, establishment of appropriate land development regulatory systems in landslide prone areas, and establishment of monitoring mechanisms and early warning systems. The NBRO will also undertake a community awareness and landslide safe construction campaign across the different landslide prone districts. These activities will be piloted in Nuwara Eliya district in collaboration with relevant line ministries, local government bodies, other relevant stakeholders and vulnerable communities.

#### ENHANCING WEATHER FORECAST FOR DISASTER PREPAREDNESS

Presently, the Sri Lanka meteorological department has limited capabilities in making weather forecasts beyond 24 hours with acceptable accuracy. New Numerical Weather prediction (NWP) systems with higher resolution model outputs in global scale can be down-scaled to regional and even tailored to local conditions for better probabilistic or quantitative forecasting. The meteorological department needs to build capacity on NWP techniques for more reliable 1-5 day weather forecasts. Need has also been identified for a High Resolution Picture Transmission (H RTP Cloud imagery) receiver for detection of meso-scale features such as intense rains and potential fishing information for fishermen etc. The Meteorological department in collaboration with the DMC will also undertake a lightening safety national campaign to reduce deaths and damage from lightening strikes.

#### PROGRAM MANAGEMENT AND OPERATIONALIZING THE DISASTER MANAGEMENT FUND

The DM Act mandates the Ministry of Disaster Management and Human Rights to establish a disaster management fund as part of emergency response and recovery strategy. Presently, a GFDRR funded initiative is focusing on developing the institutional structure and operational framework of the Disaster Management Fund. As part of this initiative, the World Bank has agreed to a request from the Ministry of Disaster Management to engage a technical consultant to undertake this study.

The Fund is envisioned to allow for a comprehensive strategy towards both *ex ante* and *ex post* disaster and social risk management (DSRM) activities as they pertain to natural disasters in terms of both high impact but infrequent “geophysical” disasters such as tsunami-type events, as well as low impact but frequent “hydrometeorological” hazards such as droughts and rainfall related floods. This would entail having the following five funding windows that would address the following activities:

##### *Ex ante Disaster Risk Mitigation*

- (i) Mitigation and preparedness
- (ii) Risk transfer arrangements
- (iii) Capacity Development and Technical Assistance

##### *Ex-Post Disaster Recovery*

- (iv) Relief /early recovery and safety nets
- (v) Emergency response and reconstruction

The following are some options to consider as to who would be able to access and use resources from the Fund:

- Government agencies could be the principal users of the Fund to support risk reduction activities of the Ministry of Disaster Management and Human Rights, relief and resettlement operations of the Ministry of Disaster Relief Services and Resettlement, social protection programs of the Ministry of Nation Building such as Samurdhi and Gama Neguma, social care services of the Ministry of Social Services and Social Welfare, and reconstruction investments by various line ministries.

- Non-governmental actors could also receive support from the Fund. These would include local and international NGOs (with support from the NGO Secretariat and the Consortium for Humanitarian Assistance), international organizations such as UN agencies and the Red Cross, and the private sector for interventions such as risk insurance and micro-finance.
- Partnerships of Government agencies and non-governmental entities could be financed by the Fund to jointly develop and implement disaster management activities.

#### Fund Financing and Governance

The size of the Fund could initially be supply driven based on government commitment and the extent of interest from donors. Based on the performance of the Fund it could then be leveraged to become a demand driven financing mechanism which is able to meet identified gaps in overall disaster and social risk management activities. Some of the potential sources of financing for the Fund include:

- Sole or partial financing from domestic revenues such as the Government's voted budget, special levies, a portion of lottery earnings, private and charitable contributions, and so forth.
- Additional external grants from development partners, including bi- and multilateral donors, international NGOs, foreign foundations, United Nations' initiatives such as flash appeals, international organizations such as the Red Cross, and multinational companies.
- Standby financing from concessional loans such as the World Bank's Catastrophic Deferred Drawdown Option (CAT DDO) for which the Fund could pre-qualify.

#### SCHOOL EMERGENCY PLANNING AND SAFETY INITIATIVE

The Ministry of Education (MoE) has identified the need for upscaling the work done on the "National Guidelines for School Disaster Safety", which were developed by the MoE with support from GTZ and ADPC.

## Indicative Program and Budget for GFDRR Funding

Indicative new program areas and projects for GFDRR funding	Partnerships	Indicative Budget for GFDRR funding	HFA priority area(s)
<b>Institutional Strengthening and Building Technical Expertise</b> <ul style="list-style-type: none"> <li>- DRM skill training for DMC staff</li> <li>- Damage &amp; needs assessment methodology training</li> <li>- Specific training for NBRO staff regarding landslide risk assessment &amp; landslide early warning systems</li> <li>- Specialized training for Meteorology department scientists (to PAGASA in Philippines)</li> <li>- Relevant exposure visits and trainings for MDM&amp;HR officials and technical staff</li> </ul>	DMC, Met Dept., NBRO, UNDP, PAGASA Philippines, relevant international DRM training organizations	\$ 750,000  (3 years)	HFA Priority 1: Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation  HFA Priority 3: Use of knowledge, innovation, and education to build a culture of safety and resilience at all levels
<b>Flood Management Project - Gampaha District</b> <ul style="list-style-type: none"> <li>- Community preparedness and flood early warning dissemination Strengthening livelihoods through flood resistant paddy cultivation</li> <li>- Risk financing pilot initiative</li> </ul>	DMC, Relevant line ministries, JICA	\$ 1,200,000  (3 years)	HFA Priority 2: Identify, assess, monitor disaster risks, enhance early warning  HFA Priority 4: Reduction of the underlying risks  HFA Priority 5: Strengthen disaster preparedness for effective response
<b>Landslide Management Project: Nuwara Eliya District</b> <ul style="list-style-type: none"> <li>- Risk Mapping, land use and development regulatory systems, landslide early warning system</li> <li>- Pilot landslide mitigation in Nuwara Eliya district</li> <li>- Public awareness and landslide safe construction campaign</li> </ul>	NBRO, DMC, relevant line ministries, UNDP	\$ 2,500,000  (3 years)	HFA Priority 2, and 4:
<b>Enhancing Weather Forecast for Disaster Preparedness</b> <ul style="list-style-type: none"> <li>- development of NWP system for reliable 1-5 day weather forecasts</li> <li>- procurement of HRPT (cloud imagery) equipment</li> <li>- national lightening safety campaign</li> </ul>	Meteorological Dept., DMC, WMO, relevant international climate institution,	\$ 1,250,000  (3 years)	HFA Priority 2 and 5
<b>Program Management &amp; Disaster Management Fund</b> <ul style="list-style-type: none"> <li>- Operationalizing the Disaster Management Fund through providing seed money</li> </ul>	MDM&HR, relevant ministries, UNDP, Donors & Bilaterals	\$ 5,000,000  (3 year)	HFA Priority 1 and 5:
<b>School Emergency Planning and Safety Initiative</b> <ul style="list-style-type: none"> <li>- Taking forward the national guidelines on school safety through specific pilot initiatives</li> </ul>	Ministry of Education, GTZ, ADPC	\$ 250,000  (3 years)	HFA Priority 3
<b>TOTAL</b>		<b>\$ 11,950,000</b>	