Disclaimer

This report was compiled by an ADRC visiting researcher (VR) from ADRC member countries.

The views expressed in the report do not necessarily reflect the views of the ADRC. The boundaries and names shown and the designations used on the maps in the report also do not imply official endorsement or acceptance by the ADRC.
Presentation Outline

- Profile of Sri Lanka
- Disaster Events and Impacts
- Evolution of DRM in Sri Lanka
- Institutional Arrangements
- Disaster Management Planning
- DRR activities carried out
- Lesson learned
- Future of DRM in Sri Lanka

THE GLORY OF SRILANKA
Profile of Sri Lanka

Sri Lanka

- Capital: Colombo
- Largest city: Colombo
- Official language(s): Sinhala, Tamil
- Demonyms: Sri Lankan
- Government: Democratic Socialist Republic, Semi-presidential system
- President: Mahinda Rajapaksa
- Prime Minister: D.M. Jayaratne
- Speaker of the House: Chamal Rajapaksa
- Chief Justice: Shirani Bandaranayake
- Independence: from the United Kingdom, February 4, 1948
- Republic: May 22, 1972

- Area:
  - Total: 65,610 km²
  - Water: 4,4
- Population:
  - 2010 estimate: 20,376,000
  - 2011 census: 20,653,000
  - Density: 338.6/km²
- Gross Domestic Product:
  - Total: $106.5 billion
  - Per capita: $5,220
- Gini Coefficient: 36 (medium)
- Human Development Index: 0.648 (medium)
- Currency: Sri Lankan Rupee (LKR)
- Time zone: Sri Lanka Standard Time Zone (UTC+5.30)
- Date formats: Example date: 2007-01-01
- Internet TLD: .lk
- Calling code: +94

Location of Sri Lanka

Sri Lanka is situated between the latitudes of 6°30' and 9°30' North and the longitudes of 79°41' and 81°54' East.
Overview of Climatology

<table>
<thead>
<tr>
<th>Monsoon Season</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Inter Monsoon</td>
<td>March</td>
<td>April</td>
</tr>
<tr>
<td>South West monsoon</td>
<td>May</td>
<td>September</td>
</tr>
<tr>
<td>Second Inter Monsoon</td>
<td>October</td>
<td>November</td>
</tr>
<tr>
<td>North East Monsoon</td>
<td>December</td>
<td>February</td>
</tr>
</tbody>
</table>

- First Inter-Monsoon (Mar-Apr): 268 mm/14%
- South-West Monsoon (May-Sep): 556 mm/30%
- Second Inter-Monsoon (Oct-Nov): 558 mm/30%
- North-East Monsoon (Dec-Feb): 479 mm/26%

Disaster Events and Impacts
Disaster Event & Impacts

Disaster Event & Impacts. cont

Figure 2A: People Affected
- Tsunamis
- Earthquakes
- Floods
- Landslides
- Drought
- Tornadoes
- Heat Waves
- Wildfires
- Animal attacks
- Floods

Number of people affected

A. With Tsunami

B. Without Tsunami

District
Evolution of DRM

• World Conference on Natural Disaster Reduction Yokohama, Japan, 23-27 May 1994
  Ten principles of the Yokohama Strategy for a Safer World


1. Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation
2. Identify, assess and monitor disaster risks and enhance early warning
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
4. Reduce underlying risk factors
5. Strengthen disaster preparedness for effective response at all levels
Sri Lanka National DM Policy
Priorities Accorded in the Policy for main Elements of DM

- Preparedness to ensure safety of the people;
- Mitigation/Prevention and Integration in Development to best possible extent to reduce risk and ensure sustainable development in the country
- Response and immediate recovery of essential services, and
- Medium and longer term reconstruction and rehabilitation, to a higher standard than before the occurrence of the disaster

Sri Lanka Disaster Management Act; No.13 of 2005

Provides for a framework for Disaster Risk Management (DRM) in Sri Lanka and this Act addresses Disaster Management (DM) holistically, leading to a policy shift from response based mechanisms to a proactive approach. The Disaster Management Centre was established in August 2005 under the National Council for Disaster Management

- Assist NCDM to Prepare & implement National Policy on Disaster Management, National Disaster Management Plan, National Emergency Operation Plan and Institutional disaster Management Plan for the country and take responsibility for implementation
- Assist and ensure all public sector agencies prepare Disaster Management Plans as per the National Plan
- Assist to obtain funds and Implement programmes and plans for disaster preparedness, mitigation, prevention, relief, rehabilitation, and reconstruction activities and coordinate with such organizations
21 Hazards identified by the Act

- Cyclone
- Floods
- Drought
- Tornadoes, Lightening Strikes and Severe Thunder Storms
- Landslides
- Tsunami (Seismic Wave)
- Earthquakes
- Air Hazards
- Industrial Hazards
- Chemical Accidents
- Explosions
- Air Raids
- Civil or Internal Strife
- Radiological Emergency
- Nuclear Disaster
- Oil Spills including inland and Maritime oil spills
- Maritime Hazard
- Coastal Erosion
- Urban and Forest Fire
- Epidemics

Institutional Arrangements
The Roadmap Towards a Safer Sri Lanka

The Roadmap is a 10 year DRM framework to be addressed in a systematic manner with the involvement of all relevant stakeholders. These priorities of actions are consistent with the Sri Lanka DM Act No. 13 of 2005 and also in line with the Hyogo Framework For Action 2005-2015

Seven Thematic Areas of the Roadmap
- 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
Devolved Disaster Management Framework

- National Disaster Management Coordinating Committee
- Emergency Response Committee

- District Disaster Management Committees

- Divisional Disaster Management Committees

- Community Disaster Management Committee
- Sub Committees at GN Level

Sub Committees at GN Level

- Early Warning
- Evacuation /S & R
- Medical / Health & first aids
- Camp Management
- Village Security
Disaster Management Planning

Disaster Management Plans at all levels and in all sectors

DM Plans of Different Ministries
- Plans of Deps. / Agencies / Civil & Armed Forces
- Educational establishments
- Health institutions
- Other as appropriate

DM Plans of Other Institutions
- Private sector agencies
- Offices
- Factories
- Commercial establishments
- Other

Sri Lanka National Disaster Management Plan
- District Level Plans
- Divisional Level Plans
- GN Level Plans
- Community Level Plans by CBOs

Sri Lanka National Emergency Operation Plan
- Provincial Council DM Plans
- Provincial Dept. / Agency plans
- Educational establishments
- Health institutions
- Other

Local Authority (LA) Level plans
- Plans of other institutions
- Private sector agencies
- Offices
- Factories
- Commercial establishments
- Other
NDMP, NEOP & SLCDMP

  Overall disaster Management Framework in Sri Lanka
- National Emergency Operation Plan (NEOP)
  Disaster Response mechanism in Sri Lanka (www.neop.gsa.lk)

DRR activates carried out in Sri Lanka
Key DDR Activities

• Analysis of Disaster Risks
• Disaster Mitigation
• Early Warning Systems & Emergency Response
• Stock piling of equipment and supplies
• Training and Public Awareness
• Community Preparedness
• Simulation Exercises
• Evacuation - Community Preparedness
Hazard Vulnerability and Risk Analysis

- It shows potential hazards prevailing in the districts, divisions and Grama Niladari Level and probable time of occurrence, which would be extremely important in terms of Preparedness and Response.
  - Hazardous months of the division indicating Potential Hazards;
  - Probable time of occurrence;
  - Potential impacts and the last reported year;
  - Seasonality of hazards prevailing in the division within the year;
  - History of disasters in the division and their impacts;
  - Frequency of disaster occurrence indicating the time and areas vulnerable to such disasters; etc.
  - Prediction of probable disasters in relation to time, for precautionary measures, early warning and safe rescue operations.
  - Estimation of Population at risk

Hazard profile of Sri Lanka
www.hazard.gov.lk

Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning Systems & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- Simulation Exercises
- Evacuation - Community Preparedness
Disaster Mitigation

Structural Mitigation

- Engineering measures to modify hazard environment
- Land use plan implementation and management
- Control and protection works
- Preparedness measures (retrofitting, strengthening through structural modifications etc)
- Reconstruction and rehabilitation work after a disaster
- Infrastructure projects through Management and Institutionalization of disaster mitigation as a component

Disaster Mitigation

Non-structural Mitigation

- Legislative, Land Use and Risk Management Measures
- Economic Measures
- Institutional Strengthening
THE EFFECT OF DISASTER EVENTS ON GROSS CAPITAL FORMATION IN A SMALL ECONOMY

Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- Simulation Exercises
- Evacuation - Community Preparedness
Early Warning Dissemination System

- Receive data and information
- Generate warning messages for the community
- Dissemination of Warning Messages
- Last Mile Dissemination
- Awareness & Training: Conducting Mock drills

Technical Agencies

Disaster Management Centre

Police & Military Communication & Media Centre

District Level

Divisional Level

GN Level

Police & Military

Vulnerable Community

Multi-Hazard Early Warning Dissemination System

PTWC

USGS

GDACS

INCOIS

INDONESIAN MET

AUS-MET

RIMES

NARA

DOM

GSMB

Government Agencies, Critical Agencies & Stakeholders
Police
Media & General Public
Military
Regional & International Organizations
UN System, INGOs, NGOs

Provincial Councils
District Secretariats
Divisional Secretariats
Local Authorities
Police Stations
Hospitals
Government Dept.
Other, CBOs

Dissemination of Warning

Multi-Hazards Early Warning Dissemination Unit of the DMC

24 Emergency Operation Center

District Disaster Management Committees

Village level DMC Committees

Output

Radio Comm.

Cell Broad.

Police Comm.

Military Comm.

Weather Lifters

PHAWN

Media

Speaker/Syna.

Sells/ Vendors

Messengers

Riders/Cyclers
Modes of communications

**National Level**
- TV Stations
- Radio Stations
- Early Warning Towers
- Police & Military Communication
- Cell Broadcast/SMS
- Technical Devices
- Satellite & Radio Communication (HF & VHF)
- Telephones/CDMA/GSM

**Provincial/District Level**
- Radio Communication
- Telephones/CDMA/GSM
- Police & Military Communication

**AGA Division/Village Level**
- Telephones/CDMA/GSM
- Police Vehicles – Announcements
- PA Systems
- Sirens
- Temple and church bells
- Riders/Push Bicycle & Motor Cycles/Messengers

“Last Mile” Dissemination

Communication Tools

- DMC
- District Divisional GN
- Police
- Military
- Media

- Multi hazard EW tower
- Temple Bell
- Loudspeaker car
- SMS
- Rider/Messenger

- Tsunami Warning
- Flood Warning
- Evacuation Instruction in collaboration with CBDM
24 x 7 National Emergency Operations Centre

117 Call Center
Early warning through Media

**RADIO CHANNELS**
- SLBC
- LAKHADA FM
- SIRASA FM
- DERANA FM
- SRI FM
- SIYATHA FM
- KIRULA FM
- LAK FM
- RANGIRI DAMBULU FM

**TV CHANNELS**
- ITN
- RUPAVAHINI
- SIRASA TV
- DERANA TV
- SHAKTHI TV
- SWARNAVAHINI
- SIYATHA TV

**NEWS WEB SITES**
- SATTELITE TV

**NEWS ALERTS**
- JNW NEWS ALERTS
- DERANA ALERTS
- LIVE @ 8 ALERTS

**PEO TV NEWS BAR**

---

Emergency Response
SAR Teams Dep by Army

Equipment allocated to the SAR teams by the DMC
Air Rescue Missions By Sri Lanka Air force

More than 150 fire incidents - 2014

4 RS Teams by NAVY

June 2014 (More than 400 people rescued in Kalutara and Rathnapura)
Humanitarian Response By volunteers & NGOs

Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning Systems & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- Simulation Exercises
- Evacuation - Community Preparedness
Stockpiling of Machinery and Equipment for Emergency Response

- District & Divisional Secretariats:
  Water bowsers, Rescue boats, Mega Phones, Chainsaws, VHF/HF sets, Canopies, Sirens
- Local Authorities:
  Backhoe loaders, Water bowsers, Gully Emptier, Water pumps, Generators, Sirens
- Communities:
  Megaphones, Fire extinguishers, Safety Jackets, PA Systems, Kitchen Utensils, First aids kits, Rain Gauges
- Schools:
  First aids kits, Rain Gauges
- Armed forces/Police:
  Public Addressing Systems, HF/VHF Sets, Ropes, S&R Boats, Safety Jackets, Search Lights, sirens, Megaphones

Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning Systems & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- Simulation Exercises
- Evacuation - Community Preparedness
Training & public awareness

- **Training & Awareness on**
  Hazards, early warning systems, hazard mapping, camp management, Outbound Training, First Aid, Search & Rescue, Life Saving and Dead body Handling, ICS.

- **Conduct awareness training to stakeholders on disaster management**
  i. District / Divisional officers
  ii. Armed forces/Police Officers
  iii. Media Officers
  iv. Local Government Employees
  v. NGO representatives
  vi. Youth Corp members
  vii. Vulnerable Community
  viii. Committees/Sub committees
  ix. School Teachers and Children

- **Disaster Education**
  - Include to the School Curricula from Grade 6-Grade 11
  - MSc, Degree and Diploma in Disaster Management
    programs were started in National universities of Sri Lanka

- **Awareness Materials in all three Languages**

---

National Safety Day, Exhibitions & International Conferences
Key DDR Activities

• Analysis of Disaster Risks
• Disaster Mitigation
• Early Warning Systems & Emergency Response
• Stock piling of equipment and supplies
• Training and Public Awareness
• Community Preparedness
• Simulation Exercises
• Evacuation - Community Preparedness

Participatory Hazard Mapping to identify safe routes and safe areas
Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning Systems & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- **Simulation Exercises**
- Evacuation - Community Preparedness

Simulation Exercises

**Purpose of conducting Exercises**
- Check the preparedness level at each level
- Check the efficiency of early warning dissemination mechanisms
- To assess the responding capacities of the community
- To get familiarize with SOPs on Early Warning Dissemination

**Exercises**
- **Information Transferring Exercises**
  National level up to community level through district, division, GN
- **Information transferring and Evacuation Exercise**
- **Community evacuation exercise**
  One village, several villages, all vulnerable GN divisions, ...
- **Table Top Exercises**
  With other Institutions, ........
- **Role Play Exercises**
  For institutions
Key DDR Activities

- Analysis of Disaster Risks
- Disaster Mitigation
- Early Warning Systems & Emergency Response
- Stock piling of equipment and supplies
- Training and Public Awareness
- Community Preparedness
- Simulation Exercises
- Evacuation - Community Preparedness

Mock Drills

- Community Evacuation Plans
- To ensure response capacities
- To ensure timely evacuation
Lesson learned

• The officials and the general public learned the lesson of being prepared for natural disasters.

• The horizontal and vertical integration of agencies for Early Warning. Gap in Early Warning was accepted by decision makers and initiated dialogues at policy level and grassroots level to prompt early warning dissemination

• Community based disaster risk reduction approaches were advocated by DMC as well as non-government partners.
Challenges/gaps encountered

- Lack of available data and data sharing mechanisms (Exposure data, Baseline data real time data).
- Lack of proper Vulnerability and Risk Analysis.
- Different mandates, priorities and attitudes of Stakeholder agencies.
- Changes of disaster calendar and unforeseen events occurred in recent past.
- Unavailability of skillful people with innovative ideas, and political issues are considered as challenges in implementing of disaster management plans at local level.
- Financial contributions for all DM works are insufficient to fulfill all requirements at vulnerable divisions. Specially the supply of equipment to increase the response capacity of vulnerable communities.
- Keeping the volunteer committee members active is another burning issue that DM officers face at ground level because of the existing village committees.
- Early warning mechanism at night time. Traffic plan for the evacuation of people, specially during busiest day time.
- Implementation of preparedness planning activities by DMC at local level with limited human resources and with their capacities is a challenge.
- Some NGOS/INGO conducting Disaster preparedness activities in local level with the help of local administrations with different modules and methods.

Future of DRM in Sri Lanka
Sendai Framework for Disaster Risk Reduction

- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Investing in disaster risk reduction for resilience
- Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction

HFA Average Progress Score

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance and institutional arrangements</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Risk identification and early warning</td>
<td>3.2</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>Knowledge and education</td>
<td>3.1</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Underlying risk</td>
<td>2.9</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Preparedness and response</td>
<td>3.4</td>
<td>3.4</td>
<td>3.4</td>
</tr>
</tbody>
</table>
Modified Disaster Risk Management Cycle for Sendai Framework
(Adapted from Khan et al., 2008)

Disaster risk reduction in post 2015 development agenda

- Post 2015 development agenda will be shaped by three mutually supportive international frameworks launched in 2015
  - Sendai Framework for DRR
  - Sustainable Development Goals
  - Legally binding universal agreement on climate change
- These three are closely interrelated
- Growing disaster risks, climate change, poverty and inequality are all indicators of unsustainability
- Increased disaster losses will undermine the capacity of low and middle income countries to make the capital investments and social expenditure to achieve SDGs
- Need to shift the countries focus on managing the underlying risk