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The future we want-A safer Sri Lanka

Disaster Management framework in Sri Lanka



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AYUBOOWAN

All living being may have a long life





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



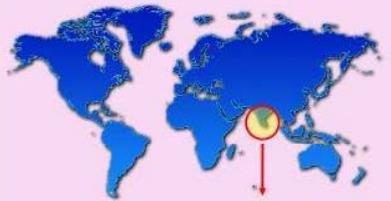


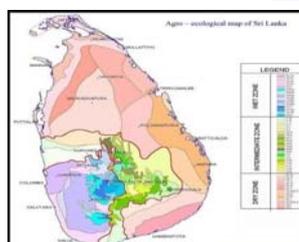
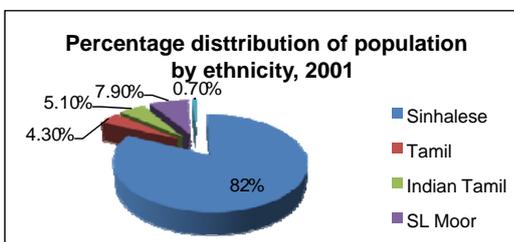
Profile of Sri Lanka



Profile of Sri Lanka



Sri Lanka		Location of Sri Lanka	
		Area - Total : 65,610 km ² - Water : 4.4	
Capital : Sri Jayawardanapura - Kotte Largest city : Colombo	Population - 2010 estimate : 20,238,000 - Mid 2010 census : 20,653,000 - Density : 308.4/km ²	Gross Domestic Product - Total : 2010 estimate : \$106.5 billion - Per capita : \$5,220	
Official language(s) : Sinhala, Tamil Demonym : 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 : Dr. Shirani, Bandaranayke	Gini Coefficient : 36 (medium) Human Development Index : 0.658 (medium) Currency : Sri Lankan Rupee (LKR) Time zone : Sri Lanka Standard Time Zone (UTC+5:30)	 Sri Lanka is situated between the latitudes of 5°55' and 9°51' North and the longitudes of 79°41' and 81°54' East
Independence - Dominion (Self rule) : February 4, 1948 - Republic : May 22, 1972	Date formats : yyyy/mm/dd Drives on the : left ISO 3166 code : LK Internet TLD : .lk, .ලංකා, .இலங்கை Calling code : 94		

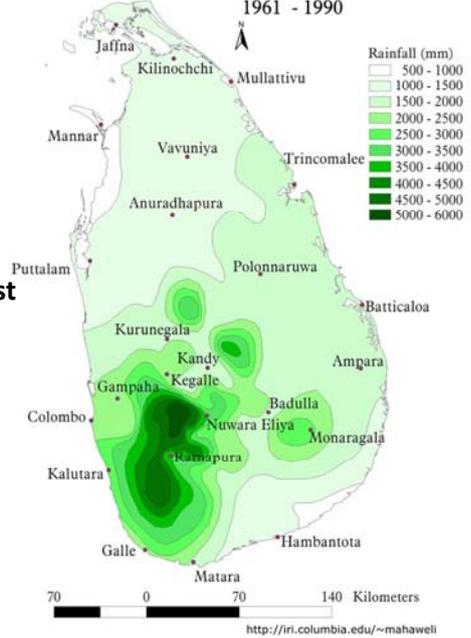




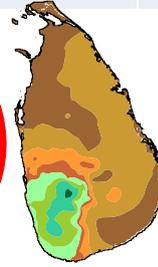
Overview of Climatology

Monsoon Season	From	To
First Inter Monsoon	March	April
South West monsoon	May	September
Second Inter Monsoon	October	November
North East Monsoon	December	February

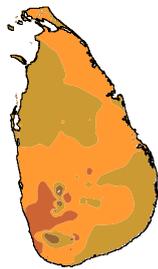
AVERAGE ANNUAL RAINFALL
1961 - 1990



First Inter-Monsoon (Mar-Apr)
268 mm/
14%



South-West Monsoon (May-Sep)
556 mm
30%



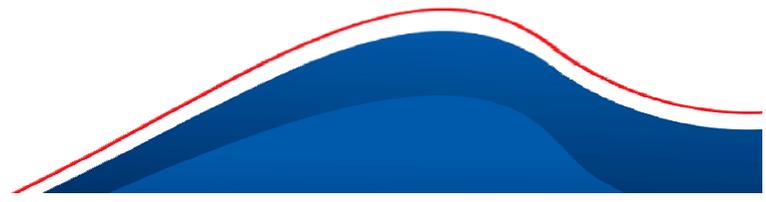
Second Inter-Monsoon (Oct-Nov)
558 mm
30%



North-East Monsoon (Dec-Feb)
479 mm
26%



Disaster Events and Impacts





Disaster Event & Impacts

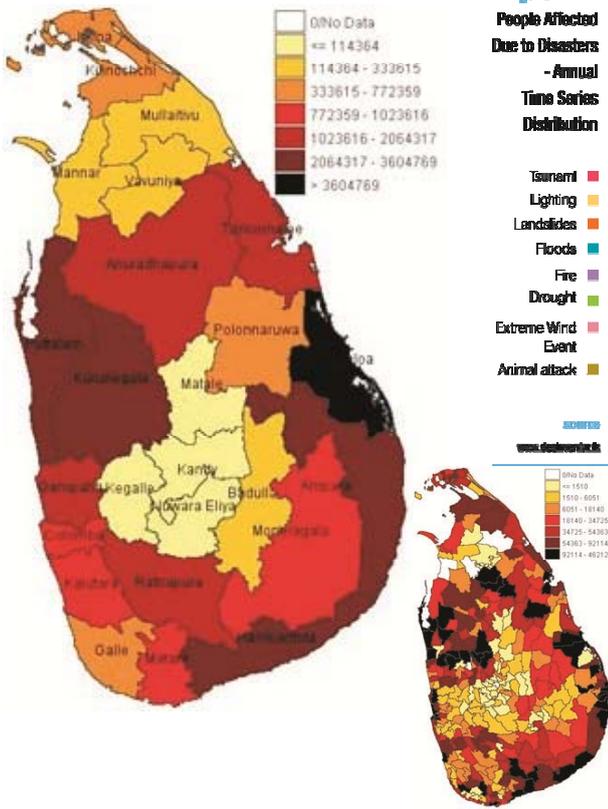
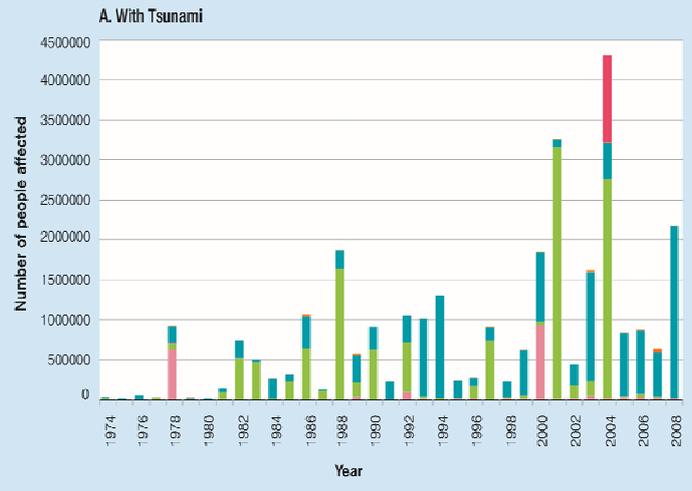


Figure 21-A:
People Affected
Due to Disasters
- Annual
Time Series
Distribution

- Tsunami
- Lighting
- Landslides
- Floods
- Fire
- Drought
- Extreme Wind Event
- Animal attack



Disaster Event & Impacts. cont



Figure 24-A:
Loss of Life Due
to Disasters -
Annual
Time Series
Distribution

- Tsunami
- Lighting
- Landslides
- Floods
- Fire
- Drought
- Extreme Wind Event
- Animal attack

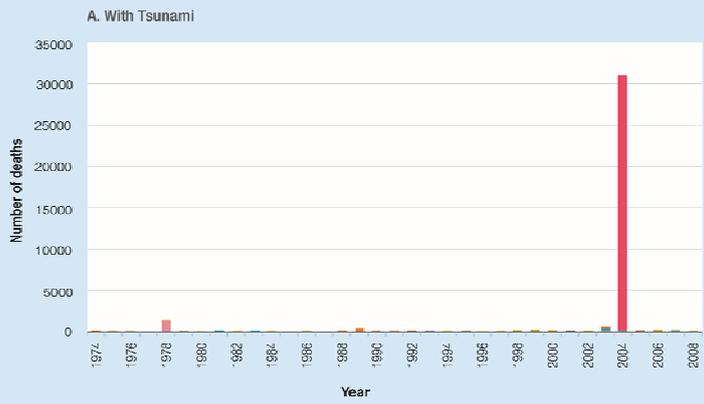
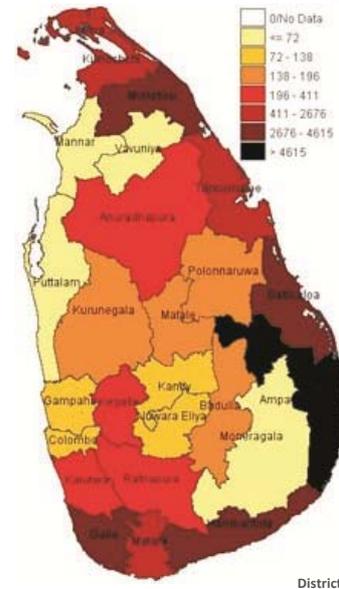
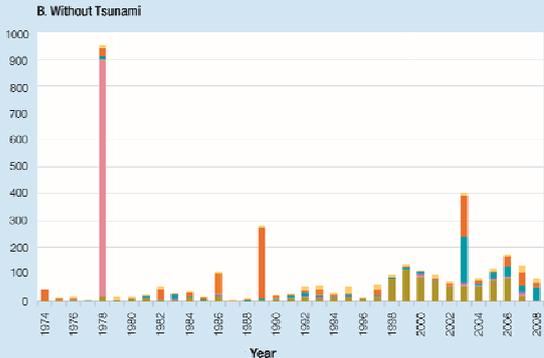


Figure 24-B:
Loss of Life Due
to Disasters -
Annual
Time Series
Distribution

- Lighting
- Landslides
- Floods
- Fire
- Drought
- Extreme Wind Event
- Animal attack



District





Evolution of DRM



Evolution of DRM



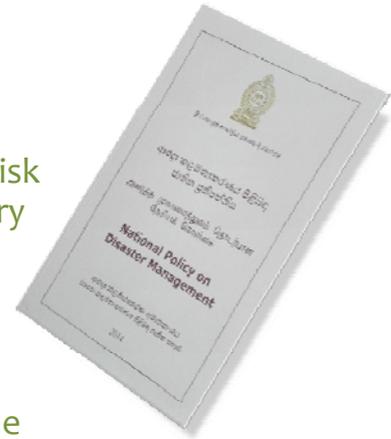
- World Conference on Natural Disaster Reduction Yokohama, Japan, 23-27 May 1994
[Ten principles of the Yokohama Strategy for a Safer World](#)
- HFA 2005-2015 The Resilient of Nations and communities to disasters The 10-year Hyogo Framework for Action came out of the World Conference held in Kobe, Hyogo, Japan, from 18 to 22 January 2005. [Key Priority Actions](#)
 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





National council for disaster Management



Ministers in charge of

- Social Services
- Rehabilitation & Reconstruction
- Home Affairs
- Health
- Science & Technology
- Housing
- Coast Conservation
- Irrigation
- Power
- Defence

National Council for Disaster Management

Chair Person : H.E. President
Vice Chairman: Hon. Prime Minister
Leader of Opposition
Nine Provincial Chief Ministers
Five MPs from Opposition

Ministry of Disaster Management



Ministers in charge of

- Police
- Finance
- Land
- Fisheries & Aquatic Resources
- Foreign Affairs
- Water Supply
- Highways
- Urban Development
- Education
- Environment
- Economic Development



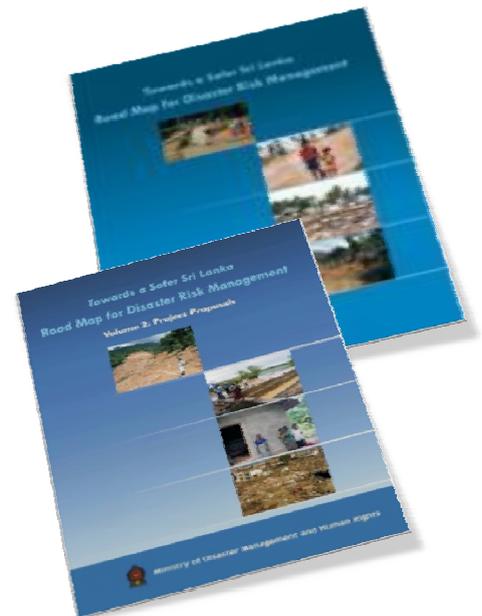
The Roadmap Towards a Safer Sri Lanka



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

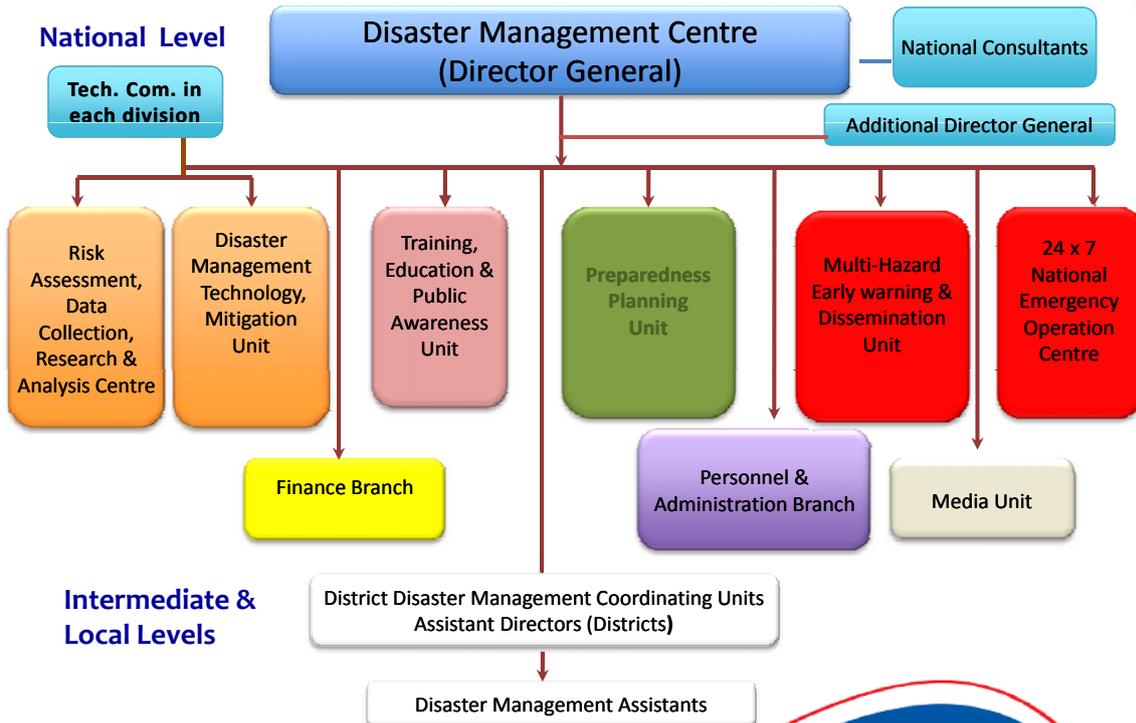
Seven Thematic Areas of the Roadmap

- 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

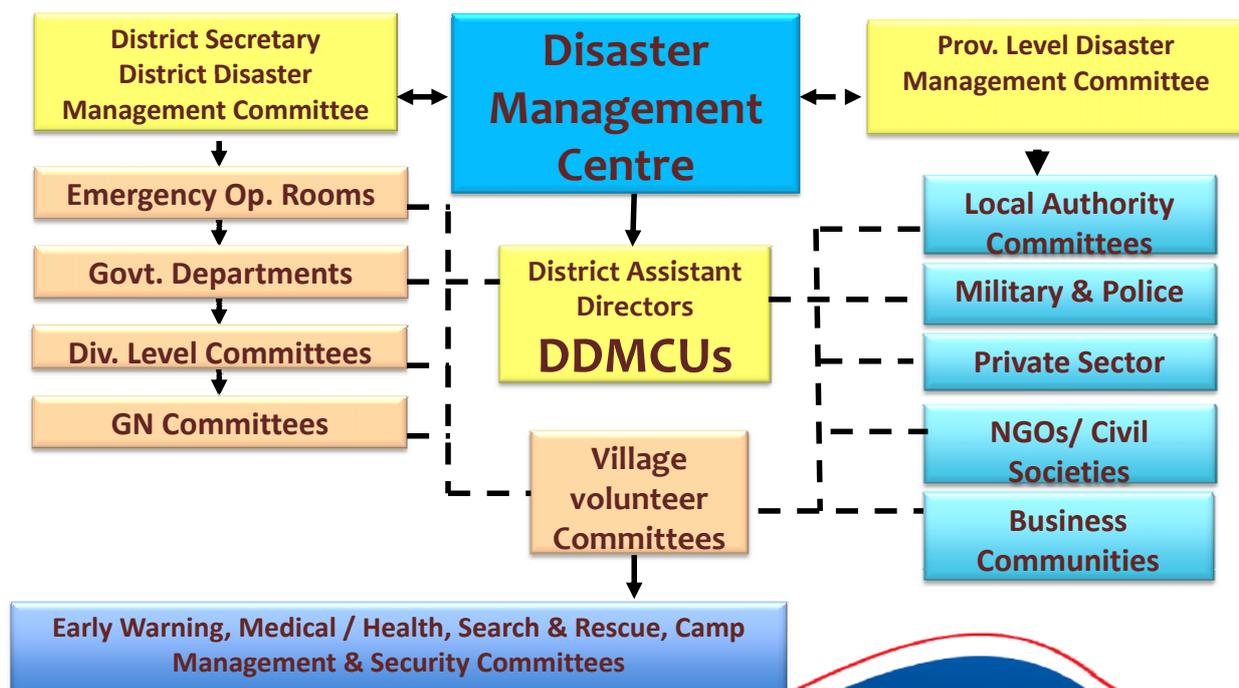




Organizational Structure - DMC



DRM Mechanism at Sub-National level





Devolved Disaster Management Framework



Sub Committees at GN Level



Early Warning



Evacuation /S & R



Medical / Health & first aids



Camp Management



Village Security

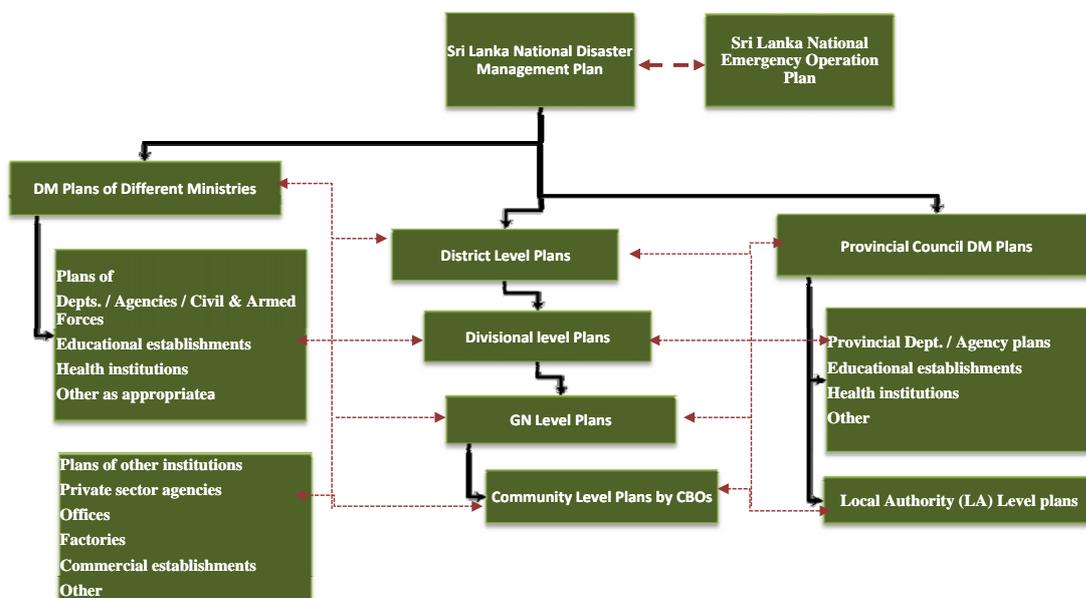




Disaster Management Planning



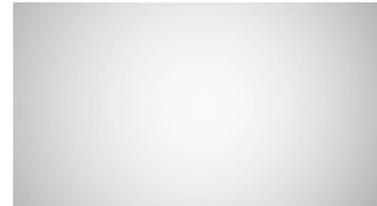
Disaster Management Plans at all levels and in all sectors





NDMP, NEOP & SLCDMP

- National Disaster Management Plan(2013-2017)
Overall disaster Management Framework in Sri Lanka
- National Emergency Operation Plan (NEOP)
Disaster Response mechanism in Sri Lanka(www.neop.gsa.lk)
- Sri Lanka Comprehensive Disaster Management Programme (SLCDMP 2014-2018).



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



Key DDR Activities



- **Analysis of Disaster Risks**
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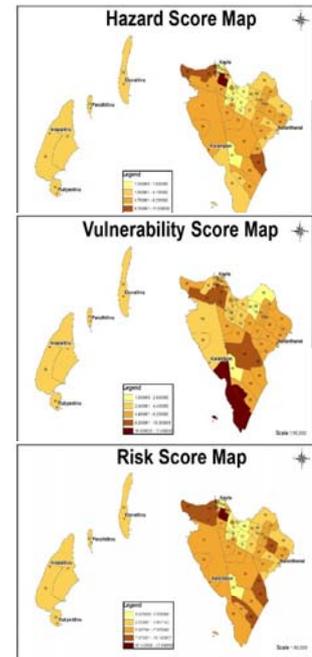




Hazard Vulnerability and Risk Analysis



- 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



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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

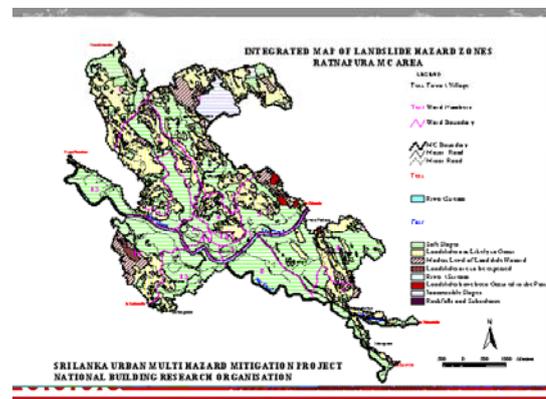
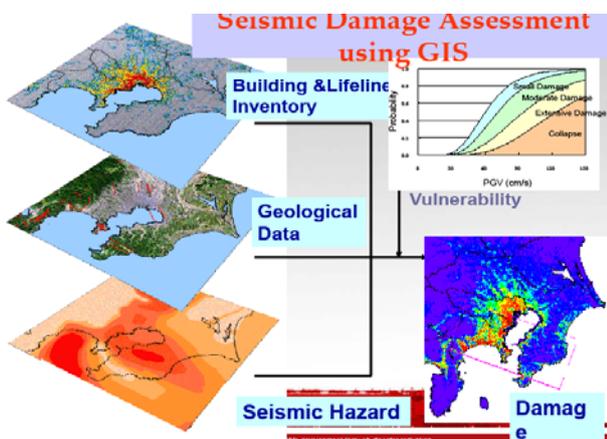


Disaster Mitigation



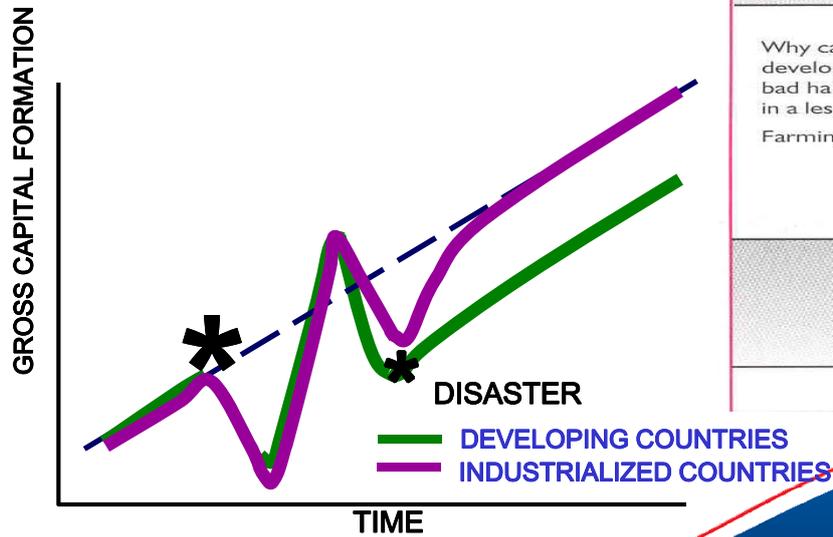
Non-structural Mitigation

- Legislative, Land Use and Risk Management Measures
- Economic Measures
- Institutional Strengthening





THE EFFECT OF DISASTER EVENTS ON GROSS CAPITAL FORMATION IN A SMALL ECONOMY



E "Bad harvests" in MEDCs and LEDCs

Farming in more developed countries

The poverty line

Bad harvest

Why can a farmer in a developed country survive a bad harvest better than one in a less developed country?

Farming in less developed countries

The poverty line

Bad harvest



Key DDR Activities

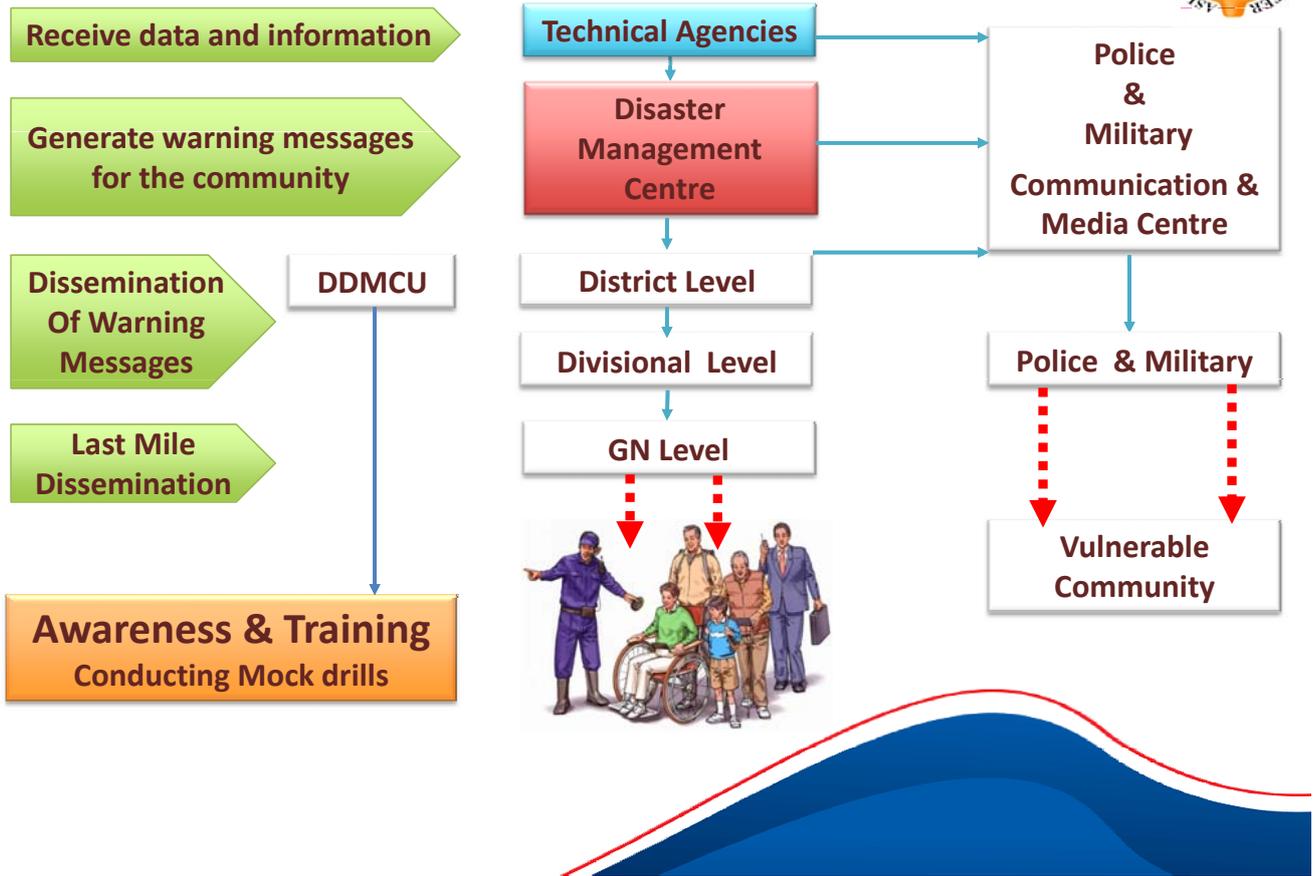


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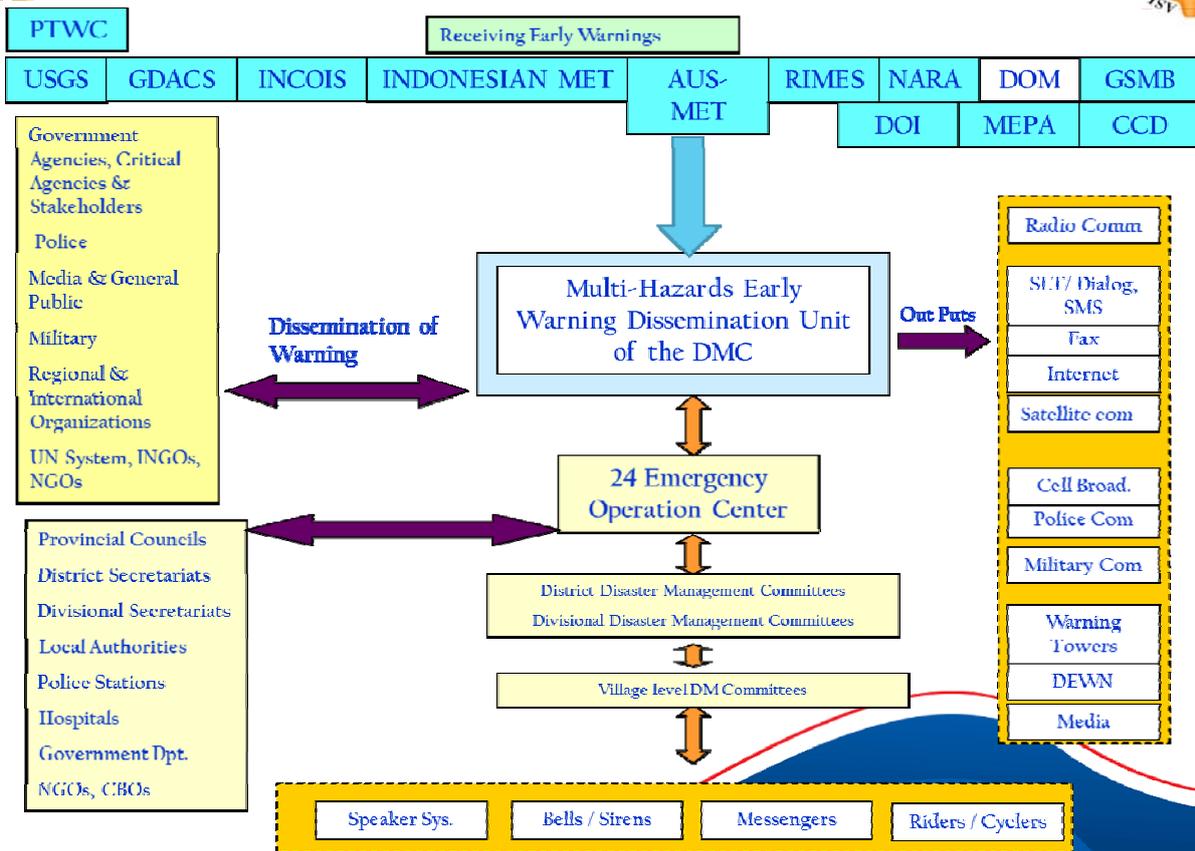




Early Warning Dissemination System



Multi-Hazard Early Warning Dissemination System





Modes of communications



▪ National Level

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

Early Warning Unit
24 x 7 Emergency Operations Centre

▪ Provincial / District Level

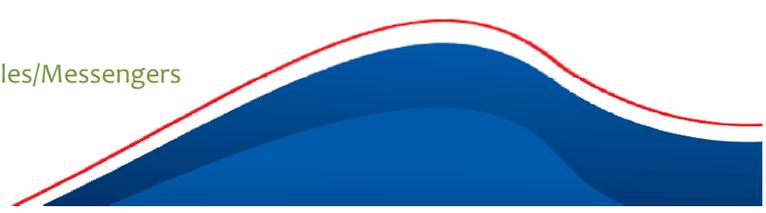
- Radio Communication
- Telephones / CDMA/ GSM
- Police & Military Communication

Emergency Operations Centre
Disaster management Coordinators

▪ AGA Division / Village Level

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

Early Warning Sub Committees/Teams
NGOs and CBOs



“Last Mile” Dissemination

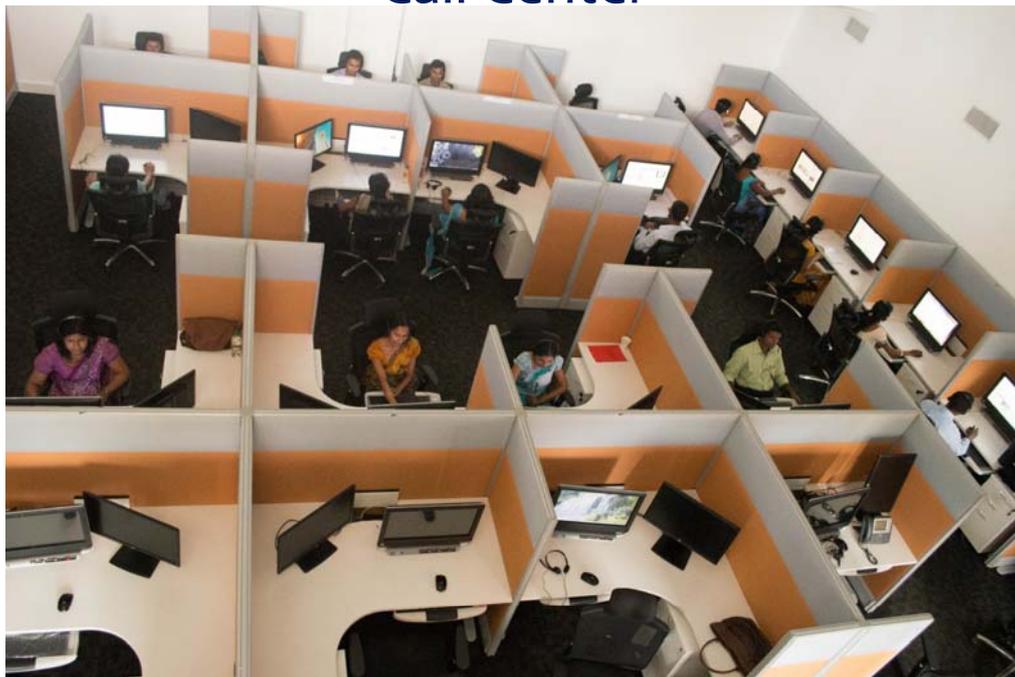




24 x 7 National Emergency
Operations Centre



117
Call Center





Early warning through Media



TV CHANNELS

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

NEWS WEB SITES SATELLITE TV

PEO TV NEWS BAR



RADIO CHANNELS

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

NEWS ALERTS

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



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
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- **Training and Public Awareness**
- Community Preparedness
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Training & public awareness

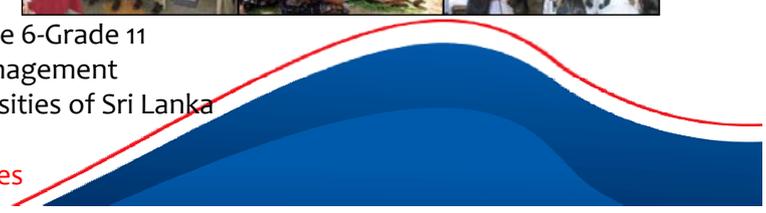


- **Training & Awareness on** Hazards, early warning systems, hazard mapping, camp management, Outbound Training, First Aid, Search & Rescue, Life Saving and Dead body Handling, ICS.
- **Conduct awareness training to stakeholders on disaster management**
 - i. District / Divisional officers
 - ii. Armed 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
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- **Simulation Exercises**
- Evacuation - Community Preparedness



Simulation Exercises



24 x 7 National Emergency Operation Centre

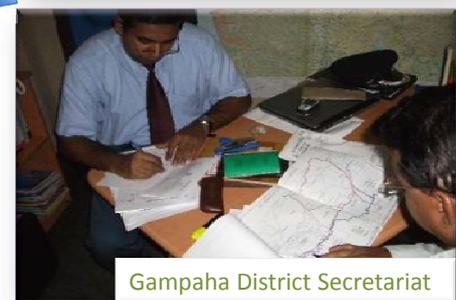


Purpose of conducting Exercises

- Check the preparedness level at each level
- Check the efficiency of early warning dissemination mechanisms
- To Assess the responding capacities of 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
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- Community Preparedness
- Simulation Exercises
- **Evacuation - Community Preparedness**



Mock Drills



- ✓ Community Evacuation Plans
- ✓ To ensure response capacities
- ✓ To ensure timely evacuation





Lesson learned



Lessons 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





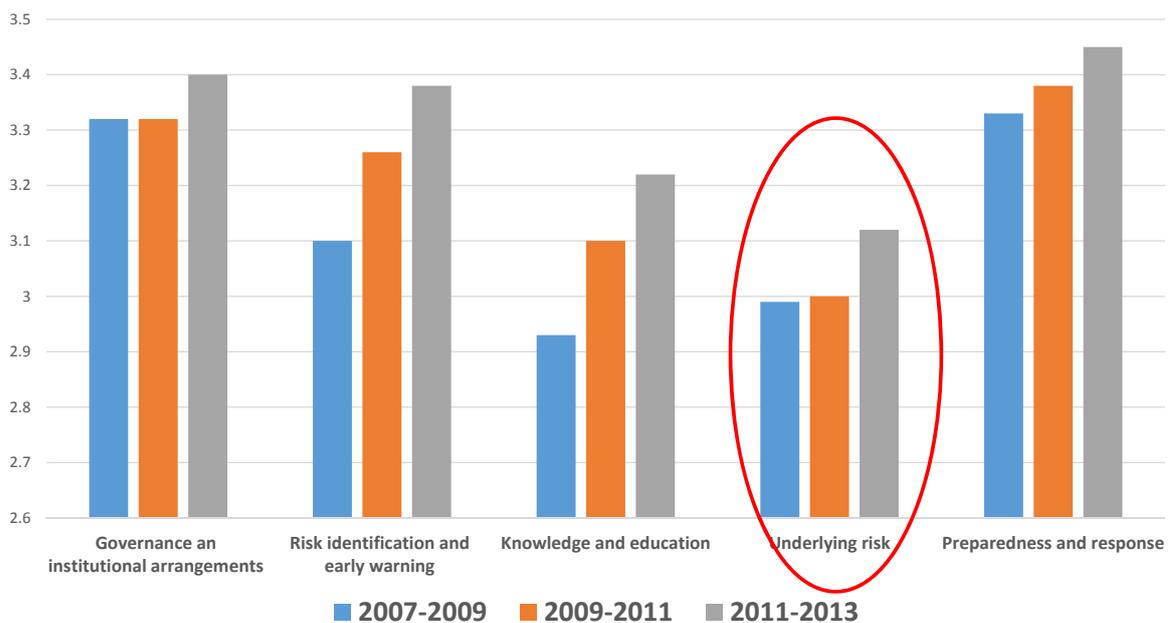
Sendai Framework for Disaster Risk Reduction



- 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



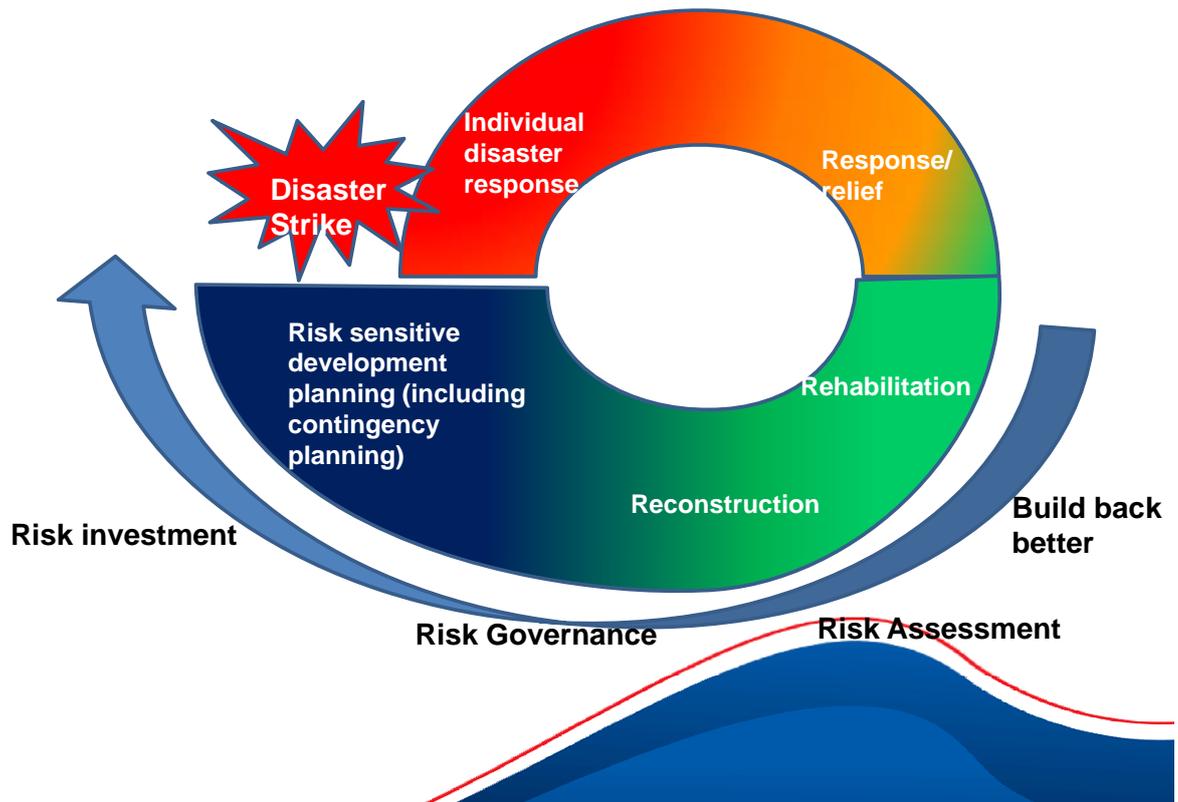
HFA Average Progress Score





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





Sustainable Development Goals



1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION 	7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES 				12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE AND JUSTICE STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS

