ASIAN DISASTER REDUCTION CENTER

Visiting Researchers Program – FY 2019B

COUNTRY REPORT: DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

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"Safer communities and Sustainable Development in Sri Lanka"

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1. Introduction

1.1. Geography

Sri Lanka is an Island(Figure 1) with a land area of 65,610 square kilometers. It is situated between the 5.55'and 9.51'N, 79.41 and 81.54 E. The Island is 224 Km wide and 432 Km long at its furthest point. The central part of the southern half of the island is mountainous with heights more than 2.5 Km.

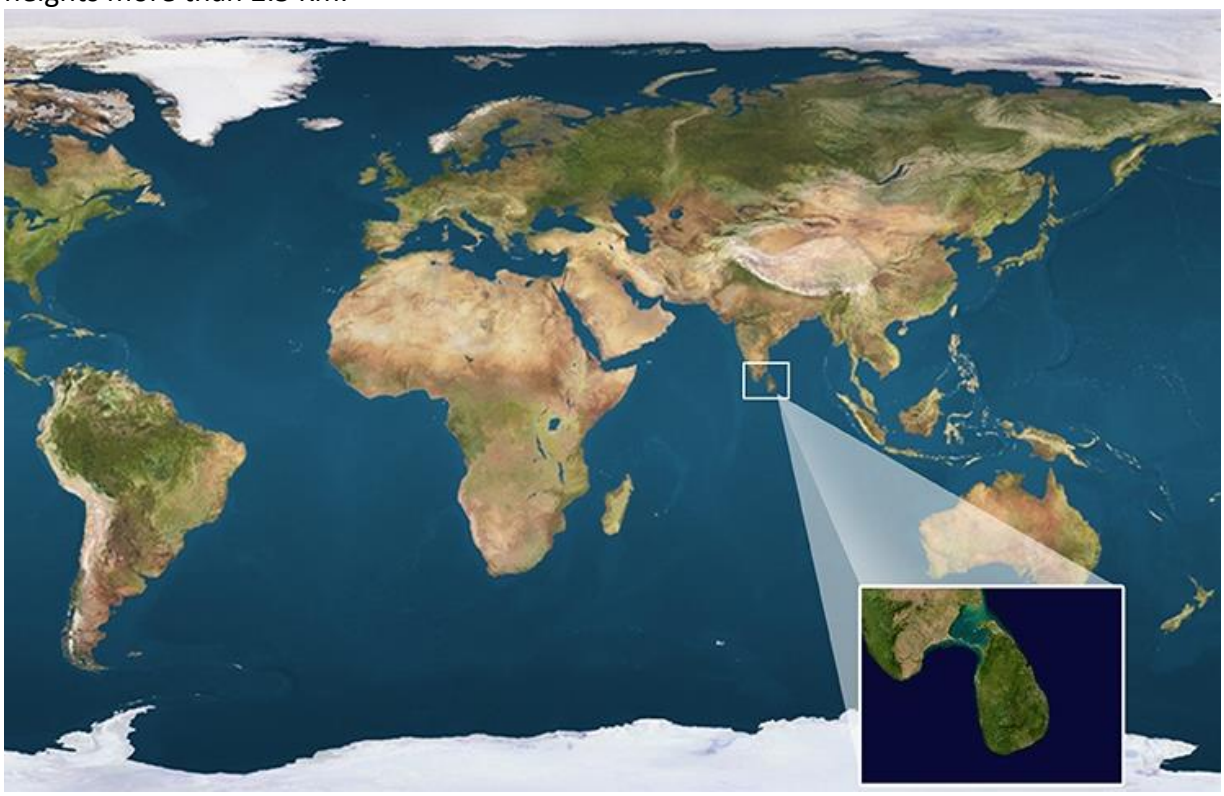

Figure1. Where located in Sri Lanka

The core regions of the central highlands contain many complex topographical features such as ridges, peaks, plateaus, basins, valleys and escarpments. The remainder of the island is practically flat except for several small hills that rise abruptly in the lowlands. These topographical features (Figure 2) strongly affect the spatial patterns of winds, seasonal rainfall, temperature, relative humidity (RH) and other climatic elements, particularly during the monsoon season. Sri Lanka's highest Mountain is Pidurutalagala which is 2,524 meters in height and Mountain of Pidurutalagala shown in Figure3. Most of the island's surface consists of plains between 30 and 200 meters above sea level. Hundred and three rivers in the Central Highlands and flow in a radial pattern toward the sea. Most of these rivers are short. There are 16 principal rivers longer than 100 kilometers in length, with twelve of them carrying about 75% of the mean river discharge in the entire country. The longest rivers are the Mahaweli Ganga (335 km) and the Malwathu Oya (164 km). The rivers map of Sri Lanka shows in (Figure 4), in the highlands, river courses are frequently broken by discontinuities in the terrain, and where they encounter escarpments, numerous waterfalls and rapids have eroded a passage. Once they reach the plain, the rivers slow down and the waters meander across flood plains and deltas. The upper reaches of the rivers are wild and usually un-

navigable, and the lower reaches are prone to seasonal flooding. Human intervention has altered the flows of some rivers in order to create hydroelectric, irrigation, and

transportation projects. In the north, east, and southeast, the rivers feed numerous artificial lakes or reservoirs (tanks) that store water during the dry season. More than 90% of Sri Lanka's surface lies on Precambrian strata, some of it dating back 2 billion years.

Figure2. Topographical map of Sri Lanka

Figure 3 Pidurutalagala Mountain

Figure4: River basing map of Sri Lanka

We continued to use it even after gaining independence in 1948. According to the recommendations of a select committee appointed to devise a state emblem more suitable for Sri Lanka (Ceylon) we opted for a new State Emblem. It had a Lion with Sword in its right for paw encircled with a Palapethi open petal design top. A new republican emblem was chosen after the country was declared a Republic on May 22, 1972. In addition to the lion with a sword and the Palapethi open petal design it portrays the Punkalasa, dhammachakka, sun, moon and two sheaves of paddy. Figure 5
Sri Lankan flag is Known as the Lion Flag, the flag of Sri Lanka is a rich colorful flag of gold, green, saffron, and deep red, and depicts a golden lion holding a sword in its right fore paw, in front of a dark red background with four golden bo leaves, one in each corner. Around the background is a yellow border, and to its left are 2 vertical stripes of equal size in green and saffron, with the saffron stripe closest to the lion. Figure 6

Figure 5: Embalm of Sri Lanka

Figure 6: Flag of Sri Lanka

1.2 Climate

The Climate in Sri Lanka is tropical and consists of very distinctive dry and wet seasons. The average temperature of Sri Lanka usually ranges from 28 – 32 degrees Celsius which may differ due to global weather conditions as a whole. The temperature can vary from being as low as 16 degrees Celsius in Nuwara Eliya which belongs to the central highlands and to as high as 32 degrees in Batticaloa along the Eastern coast of the island. However, there are certain areas along the coast that are cooled by the ocean breezes. The coldest months according to the mean monthly temperature are December and January while the warmest months are April and August. The Climate experienced during 12 months' period in Sri Lanka can be characterized in to 4 climate seasons (Figure 7) as follows.

- **First Inter-Monsoon Season (March – April)** – Thunderstorm type rainfall with warm and uncomfortable conditions
- **Southwest-Monsoon Season (May – September)** – The warm season is eased away by the windy weather during this particular monsoon season. Rains can be expected during any time of the day
- **Second Inter-Monsoon Season (October – November)** – Rains occur with thunder storms while the influence of the weather system like depression and cyclones in the Bay of Bengal is considered to be common. The whole island experiences wide spread rain with strong winds

- **Northeast-Monsoon Season (December – February)** – Cold and dry windy weather can be expected during this season while cloud free and days filled with sunshine can be expected. Rain can be expected in several parts of the island as well.

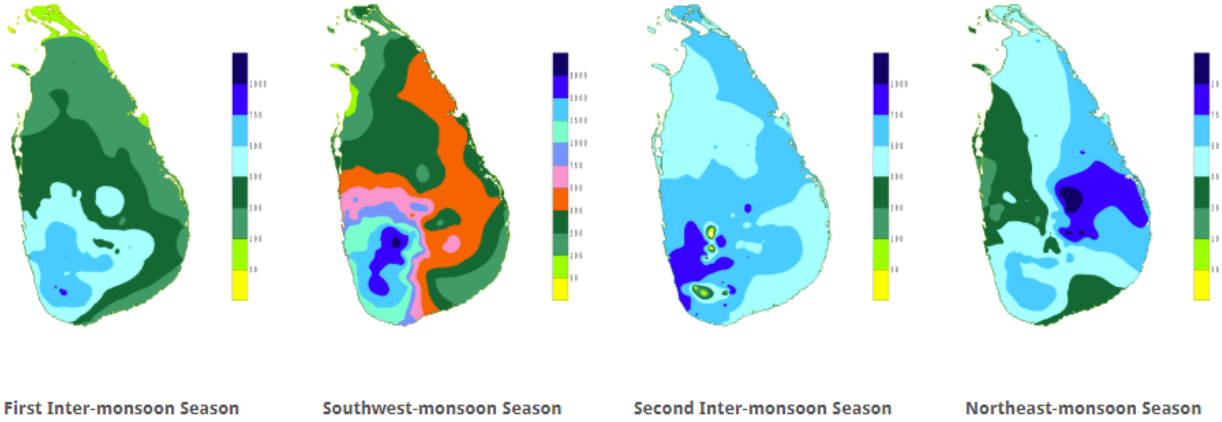

Figure 7: climate seasons in Sri Lanka

Due to increase of global warming and climate change scenarios above mentioned time period has slightly been changed. The rainfall pattern is influenced by the monsoon winds of the Indian Ocean and Bay of Bengal and is marked by four seasons. The mean annual rainfall varies from under 900mm in the driest parts (southeastern and northwestern) to over 5000mm in the wettest parts (western slopes of the central highlands) (Figure 8). Sometimes tropical cyclones bring overcast skies and rains to the southwest, northeast, and eastern parts of the island. The average yearly temperature for the country, as a whole, ranges from 26° C to 28° C.

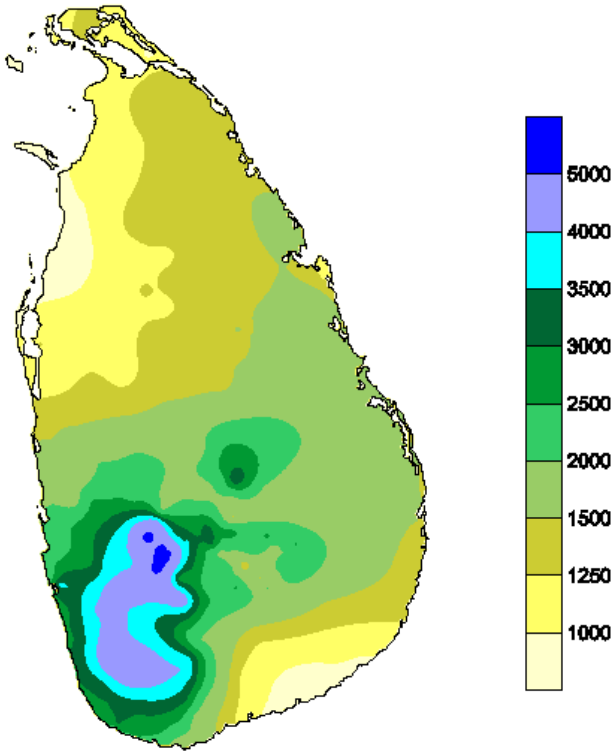

Figure 8: Annual Rainfall in Sri Lanka

1.3 Demography

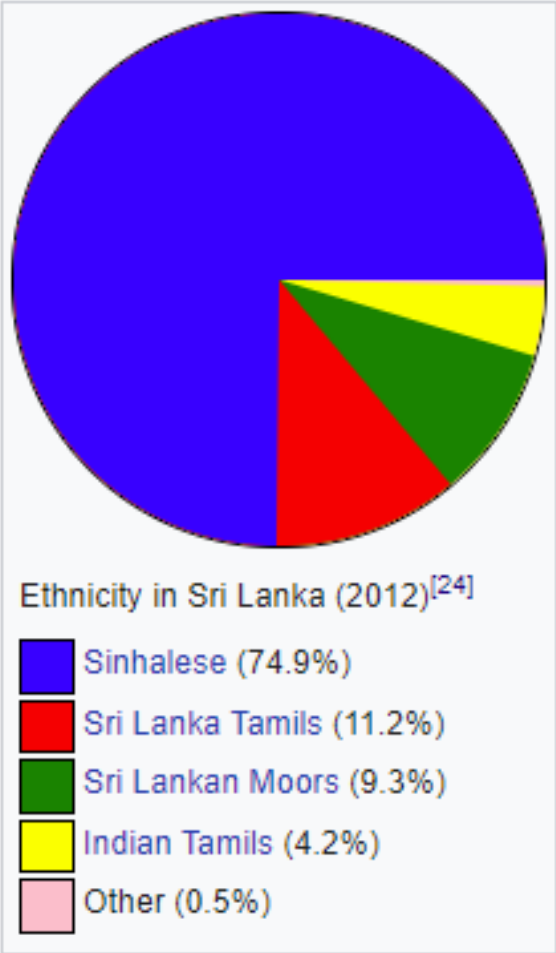

Figure 9: Population distribution in Sri Lanka in 2012 censes

The Sinhalese make up 74.9% of the population (according to 2012 census) and are concentrated in the densely populated south-west and central parts of the Island. The Sri Lanka Tamils live predominantly in the north-east of the island forming the largest minority group at 11.2% (according to the 2012 census) of the population(Figure 9).

The Moors, who descend from Arab traders that settled in Sri Lanka, form the third largest ethnic group at 9.2% of the population. They are mostly concentrated in urban areas in the southern parts of the island with substantial populations in the Central and Eastern provinces. During times of Portuguese colonization, Moors were persecuted, and many forced to retreat to the central highlands and the eastern coast. There are also Indian Tamils who form distinct ethnic group which comprises 4.2% of the population. The British brought them to Sri Lanka in the 19th century as tea and rubber plantation workers, and they remain concentrated in the "tea country" of south-central Sri Lanka. In accordance with a 1964 agreement with India, Sri Lanka granted citizenship to 230,000 "stateless" Indian Tamils in 1988. Under the pact, India granted citizenship to the remainder, some 200,000 of whom now live in India. Another 75,000 Indian Tamils, who themselves or whose parents once applied for Indian citizenship, now wish to remain in Sri Lanka. The government has stated these Tamils will not be forced to return to India, although they are not technically citizens of Sri Lanka.

Smaller minorities include the Malays who descent from South East Asian settlers, and the Burghers, who are descendants of European colonists, principally from Portugal, the Netherlands and the UK. (Wikipedia)

Link for details - https://en.wikipedia.org/wiki/Demographics_of_Sri_Lanka

1.4 History of Sri Lanka

History of Sri Lanka begins around 30,000 years ago when the island was first inhabited. The Chronicles, including the Mahawansa, the Dipawansa the Chulawansa and the Rajawaliya, record events from the beginnings of the Sinhalese monarchy in the 6th century BC. The Buddhism was introduced in the 3rd century BC by Arahath Mahinda (son of the Indian emperor Ashoka the Great). The European Colonialist arrived in the 16th century and disestablishment of the monarchy in 1815. The Portuguese arrived in 1505 and ruled a part

of the country's coastal Area. Then the Dutch rule Lasted from 1656 to 1796 and ruled a part of the country. The British ruled the country from 1796 to 1948. However, by a peaceful process and constitutional evolution, Sri Lanka won back her independence in 1948 and is now a sovereign republic. In 1983 Sinhala and Tamil conflict was started and it ended in 2009 under guidance of his Excellency president Mahinda Rajapaksa. Sri Lanka Historical Map Shown in figure 10.

Link for more details - https://en.wikipedia.org/wiki/Geography_of_Sri_Lanka

Figure 10 Historical map of Sri Lanka

2. NATURAL HAZARDS OF SRI LANKA.

2.1 Hazard Profile of Sri Lanka

Sri Lanka being a small island in the Indian Ocean in the path of two monsoons is mostly affected by weather related hazards. It is surrounded by 1,340 kilometers of beach frontage and with an abundance of breathtaking inland waterways, including rivers, lakes, reservoirs and tanks. Floods mostly due to monsoonal rain or effects of low pressure systems and droughts due to failure of monsoonal rain are the most common hazards experienced in Sri Lanka. In 2009, Disaster Management Centre (DMC) initiated a hazard profiles development process in collaboration with the relevant technical agencies, which are responsible for disaster mitigation activities of the country. Hence, it was decided to develop nine hazard profiles of the country namely; Coastal Erosion, Drought, Floods, Landslides, Lightning, Sea Level Rise, Storm Surge, Tropical Cyclone and Tsunami (Figure 11).

Over the past few decades' disaster in Sri Lanka have increased substantially. The country is prone to natural disasters caused by floods, cyclones, landslides, droughts and coastal erosion with increasing instances of environmental pollution related hazards. The devastation caused by the Indian Ocean tsunami of 2004 h a s highlighted that Sri Lanka also vulnerable to tsunami. Except tsunami, Sri Lanka is affected by various natural hazards such a s floods, droughts, cyclones, land slights and coastal erosion. Other localized hazards include lightning strikes, epidemics, high winds, fires and wild elephant attacks. More details please access the fallowing link. Impact of disasters in last 30 years shown in Table 12.
Link- http://www.dmc.gov.lk/hazard/index-2.html

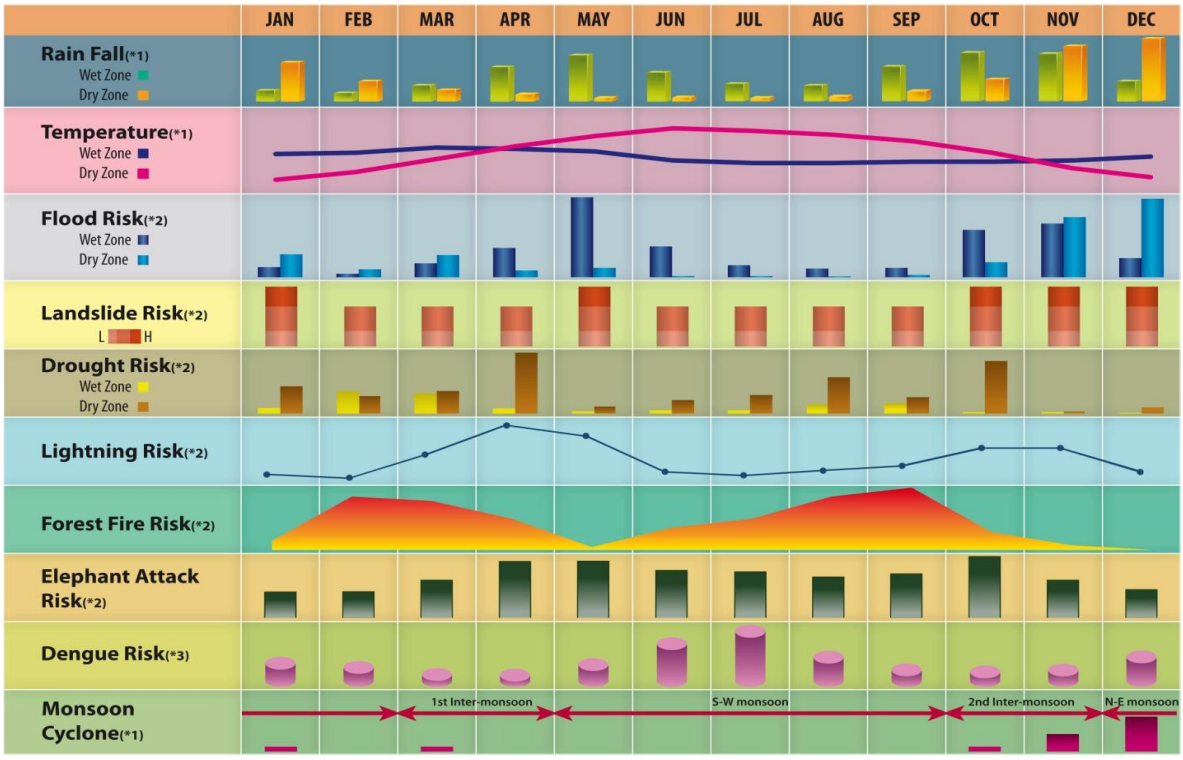

Figure 11: Major Hazard prediction calendar in Sri Lanka

Disaster	Deaths	Injured	Missing	Houses Destroyed	Houses Damaged	Affected	Relocated	Evacuated
ACCIDENT	348	340	1	0	5	752	0	0
ANIMAL ATTACK	977	617	2	191	7700	80065	0	59
BOAT CAPSIZE	58	43	23	0	0	73	0	0
CUTTING FAILURE	31	56	1	161	2028	30583	0	0
CYCLONE	12	140	5	11510	88301	898283	0	571
CYCLONE & FLOOD	9	12	0	13178	37371	319128	0	0
DROUGHT	0	0	0	0	0	21415559	0	600
DROWNING	246	21	33	0	0	310	0	0
EARTH SLIP	10	10	7	56	168	3043	0	0
FIRE	102	149	0	2058	1008	15935	0	1040
FLASH FLOOD	6	10	2	82	826	18704	0	0
FLOOD	706	486	113	53807	173833	15242913	4	39421
FOREST FIRE	1	0	0	6	19	98	0	10
GALE	8	21	1	137	1858	11820	0	36
LAND SUBSIDENCE	17	8	0	69	1742	10403	0	401
LANDSLIDE	1001	316	243	2877	12077	292227	348	2357
LIGHTNING	516	461	3	39	753	4745	0	3
ROCK FALL	3	9	0	13	111	1448	0	28
STRONG WIND	217	710	68	7749	105353	735739	16	1339
TSUNAMI	30959	19611	1908	57085	48069	970705	0	0
URBAN FLOOD	0	0	0	0	0	155	0	0
TOTAL	**35496**	**23429**	**2416**	**150194**	**490657**	**41397027**	**369**	**47221**

Table 01 impact of the human life by disaster from 1980-2020 (Desinventar Database)

2.2. Major Disasters in Sri Lanka

The most common disasters in Sri Lanka include localized and seasonal floods and associated landslides. Less frequent but more severe hazards include cyclones, droughts, and tsunamis; Sri Lanka was one of the worst hit countries by the 2004 Indian Ocean Tsunami. According to World Bank estimates, the country's average annual losses are $380 million, or 3 percent of total government expenditure.

Sri Lanka's flood risk profile is rising. In the Colombo Metropolitan Region, economic growth and changes in land use are exacerbating flood risk. In 2010, heavy rainfall and flooding affected about 50 percent of the private sector. In May 2016, Tropical Storm Roanu caused flooding and landslides in 22 out of 25 districts. Over 90 people were killed and damages and losses, per the preliminary post-disaster needs assessment, exceed $570 million.

Climate change is expected to increase the frequency and impact of hydro-meteorological hazards. Major flooding in 2010, 2011, 2014, and 2016 exemplifies a 20-year trend.

2.2.1 Tsunami

The tsunami on 26th of December 2004 was the biggest havoc the Sri Lanka has ever faced (Figure 12) The southern, western, eastern and northern coastal belt was prone that tsunami event. It was almost the two third of Sri Lanka's coastal belt. More than 30,959 people were killed while 5,644 people were missing and around 100,000 houses had been

completely destroyed. A number of 500,669 people were displaced. The Figure 13 shows the tsunami affected area of the country. More details please access the fallowing link. (Desinventar)

Link- http://www.desinventar.lk:8081/DesInventar/main.jsp?countrycode=sr&continue=y

Figure.12. Impact of Tsunami 2004

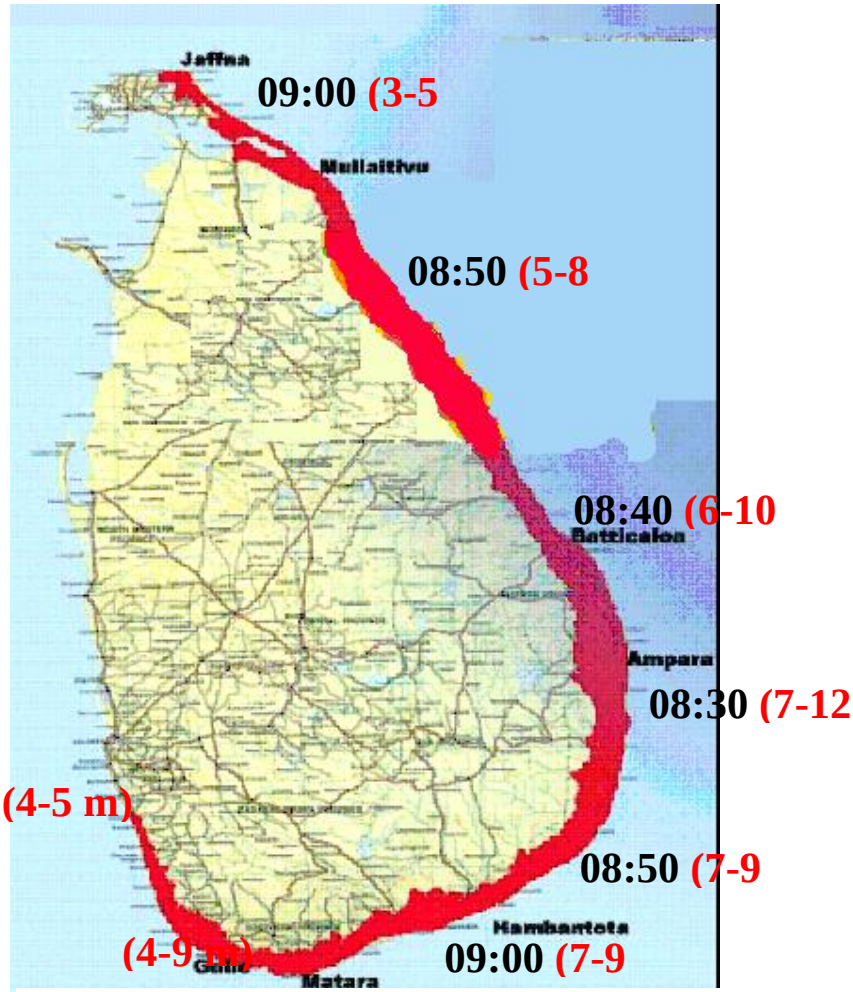

Figure .13: Tsunami affected areas in Sri Lanka

2.2.2. Flood

Floods are more of a common occurrence in Sri Lanka than the other natural disasters (figure 14). The water resources map of 1959 identified 103 river basins of which about 10 rivers are considered as major. Among these major rivers Kalani, Gin, Nilwala and Mahaweli are vulnerable to floods. The increase in population and subsequent need for land have forced more and more people to live and work in these vulnerable areas, thereby intensifying the risk to life and property in the event of major floods. Heavy rainfall and run off the large volume of water from the catchment areas of rivers, deforestation, improper land use and the absence of scientific soil conservation practices could be identified as the major factors for floods in Sri Lanka. Moreover, with global heating due to the greenhouse effect, topical countries are expected to get less annual rainfall, but increased rainfall intensities. The average annual rainfall ranges from 550 mm to 5500 mm. The highest rainfall of 805 mm. At Kanukken in 1897 and 508 mm. at Nedunkerni in 1911. Due to the Southwest and Northeast monsoon rains, floods occur in the Island. The districts of Kegalle, Ratnapura, Kalutara, Colombo, Gampaha and Gall are subject to floods on account of Southwest monsoon rains (figure 15) while Ampara, Trincomalee, Badulla, Polonnaniwa, Batticaloa, Matale and Monaragala suffer from the Northeast rains (figure 16).

Figure .14: Flood in Sri Lanka, 2016

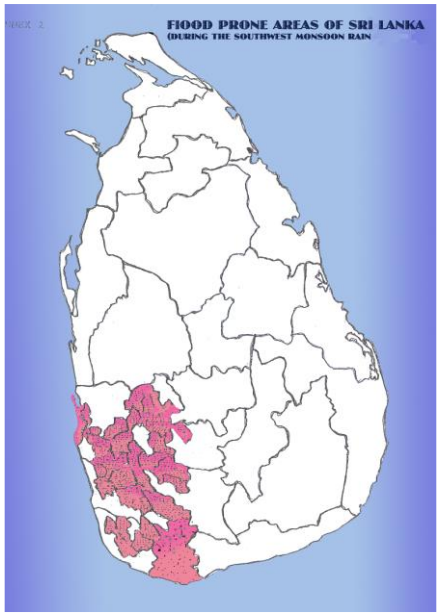

Figure .15 Flood Prone areas during South west Monsoon (May – Sep)

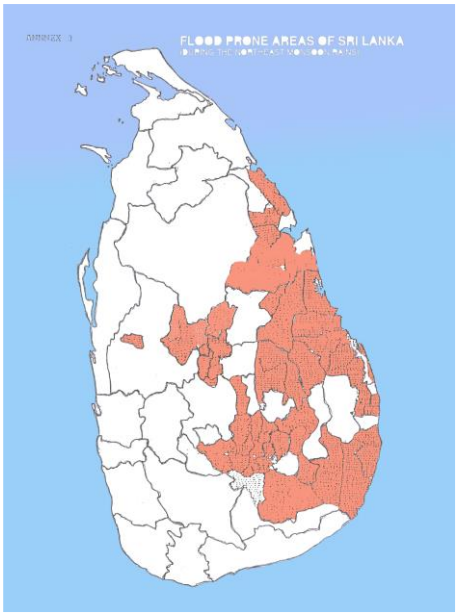

Figure .16 Flood Prone areas during North East Monsoon (Dec – Feb)

2.2.3. Drought

Drought in Sri Lanka seems to be very frequent phenomena in the recent years. According the latest headlines in the media the drought is upon us once again with devastating effects. It has been affecting not only the dry zones per se but all other areas such as Kandy, Bandarawela to name a few due to scarcity of water both for drinking and other domestic use. Drought is natural phenomenon in that land dries up due lack of precipitation (normal rainfall), rising temperatures, climate change, over use of water and lack of proper management of water and its resources. This is a major issue for water management and environmental protection. Unsustainable water management, including water over-consumption and water pollution, as well as predicted climate change effects in droughts, could result in severe impacts on nature and society. In 2016 highly affected by drought. Nearly 208,000 people from 51,561 families in several districts have been affected by the prevailing drought. 69,678 people in Eastern Province, 8,600 people in Northern Province, 8,422 people in North Western Province, over 10,000 people in Sabaragamuwa Province, and 110, 350 people from 23,000 families in North Central Province are facing a water shortage due to the drought in Sri Lanka. Drought prone area and drought situation shows figure 17 and figure 18.

Figure 17 Drought Prone areas in Sri Lanka

Figure .18: Drought situvation in Sri Lanka

2.2.4 Landslide

Landslide is among the major natural hazards that affect large parts of the country. The central highlands of Sri Lanka comprising 20% of the total land area of the country is often threatened by 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 most prone to landslides. Land slide prone areas map and landslide occurrences in Nuwara-Eliya and Badulla, Sri Lanka shown in figure 19 and figure 20.

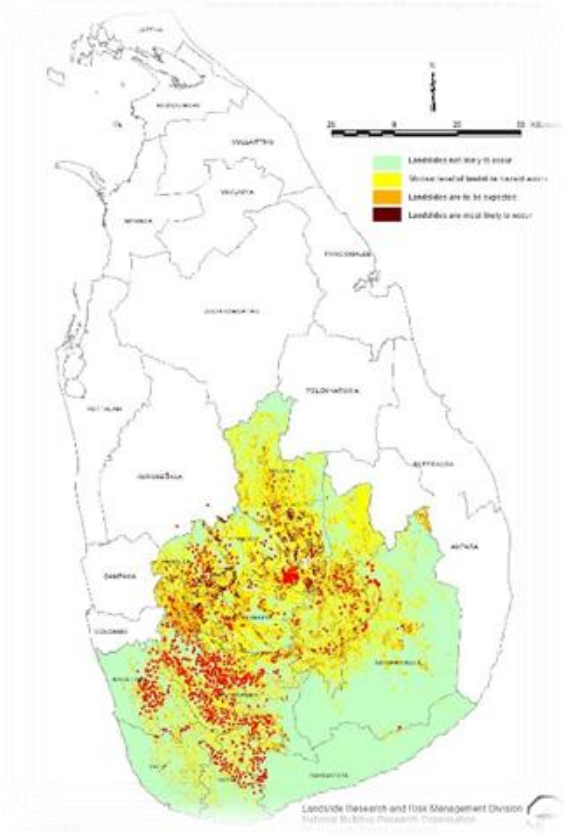

Figure .19: Landslide Prone areas in Sri Lanka

Figure .20: Landslide Occurrences in Nuwara – Eliya and Badulla, Sri Lanka

2.3.5. Cyclones

Sri Lanka has been affected mostly by cyclone activity occurring in the Bay of Bengal. The Eastern, Northern and North Central regions are the cyclone prone areas of Sri Lanka as shown in figure 21. Although cyclones do not occur frequently in Sri Lanka, these are not totally outside the range of disasters. The records show that cyclones have affected the Eastern, Northern and North Central Provinces. Sri Lanka has been hit by cyclones during the past 70 years causing severe damages to the economy. The 1978 cyclone alone affected more than one million people, killed nearly a thousand persons, partially and completely damaged nearly 250,000 houses, destroyed 90% of the coconut plantation in the Batticaloa district and resulted in the government having to. Spend over Rs. 600 million to bring immediate relief to those affected. Also cyclones of severe intensity struck Sri Lanka in 1922, 1931 and 1 964. Figure 22 shows cyclone incident in Sri Lanka.

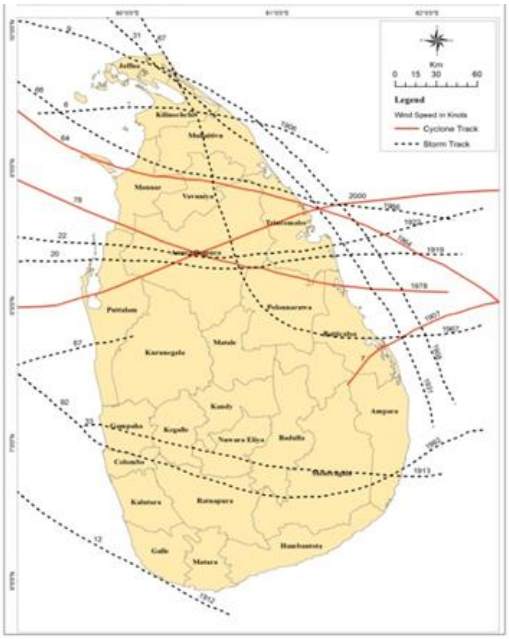

Figure .21: Tropical Cyclones prone areas in Sri Lanka

Figure .22: Cyclone Occurrences in Sri Lanaka

2.2.6. Coastal Erosion

Sri Lanka has a coastline around 1340 km. More than half of her 18.3 million population live in village, town and cities of the coastal district. The economic importance of the coastal areas has increased further with the rapid urbanization, the development of commercial harbours (Colombo, Hambantota, Galle, and Trincomalee). Fishing harbours and anchorage, main lines of communication (road and rail), recreational facilities and tourism. It has been estimated that over 50-55 percent of the shoreline is subjected to or threatened by coast erosion. The most critically affected areas are those between Mahawewa, Arachchikattuwa, Udappuwa and Kalpitiya in the North-western province and Matara in the South. Figure 15 shows the erosion trends in selected reaches of the coastline. One of the worst affected reaches is the coastal sector from Maha oya to Lansigama, where erosion rates of 3.5-4.5 m/m/year have been recorded. Shoreline retreat due to sea erosion has been a severe problem in Sri Lanka resulting in damage to and loss of property and infrastructure facilities, and development efforts. Figure 23 showing beach conditions such as erosion (red lines) and accretion (green lines) and prominent sand movement directions and b schematic comparison with representative oceanic circulations in the Central Indian Ocean during the (i) winter monsoon and (ii) summer monsoon. Figure 24 showing costal erosion in Matara Sri Lanka

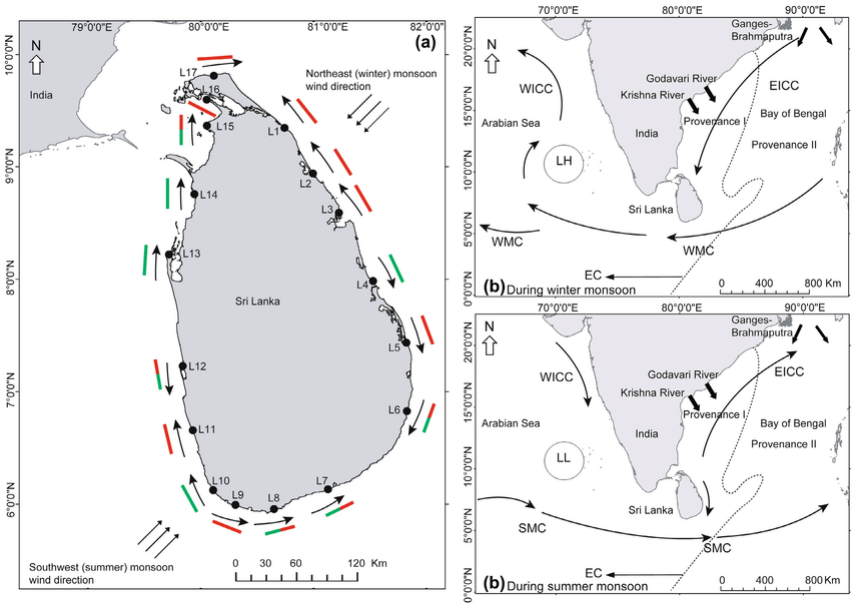

Figure .23: Coastal Erosion areas in Sri Lanka

Figure .24: Coastal Erosion in Mtara, Sri Lanka

2.2.7. Forest Fire

Forest fires across the central part of the country, aggravated by dry conditions, have left hundreds of acres of trees destroyed and brought suffering and death to wild animals. There have been several fires in every year, with incidents being reported from the Naula, Laggala, Rantota, Dambulla, Gallewela, Sigiriya, Gampola, Nawalapitiya Hatton, Maskeliya, Bogawantalawa, Puttalama and Talawakelle. Fires were difficult to control because they were breaking out in remote areas and being aided by the dry weather. Blazes were caused by various factors including hunters setting fire to an area of a forest so that animals could be captured and killed when they flee to another area. The grassland areas of Kandy and Matale are the area's most prone to forest fires. Forest fires in Sri Lanka are man-made, through accident or design (Figure 25) and figure 26 showing forest fire of Ella area in 2019.

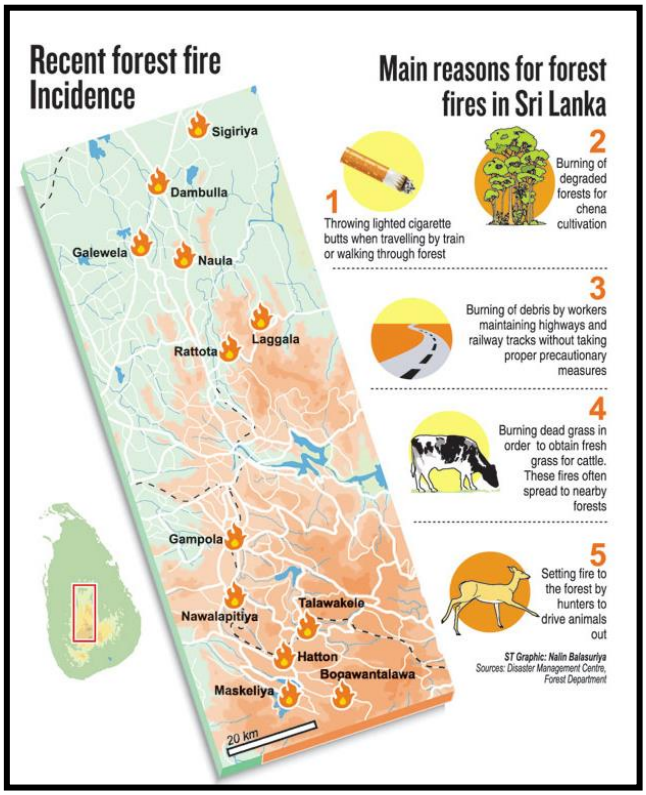

Figure 25 Main reason for forest fire in Sri Lanka

Figure 26 Forest fire of Ella in 2019

3. DISASTER MANAGEMENT SYSTEM

3.1 Administration System in the country.

Politics of Sri Lanka takes place in a framework of a presidential representative democratic republic, whereby the President of Sri Lanka is both head of state and head of government, and of a multi-party system. Executive power is exercised by the government. Legislative power is vested in both the government and parliament. The Parliament has 225 members, 196 members elected in multi-seat constituencies and 29 by proportional representation. The president may summon, suspend, or end a legislative session and dissolve Parliament. Parliament reserves the power to make all laws.

Mainly, Sri Lanka have three levels in the political and administrative level. They are National, Provincial and local authority level. Under the national government all cabinet and non cabinet ministries are governing all the national and Grama Niladari (smallest administrative unit) level administration affairs. However, provincial level provincial government is consisted of provincial level ministries. Under those ministries, several government institutions such as provincial level schools, hospital, and some government department are servicing to the people.

Sri Lanka is divided in to 25 districts based on administration prospects and each district is administered under a District Secretary, who is appointed by the central government. The main tasks of the District Secretariat are to coordinate, implement and communicate activities of the central government Through Divisional Secretariats. The District Secretariat is also responsible for implementing and monitoring development projects at the district level and assisting lower-level subdivisions in their activities, as well as revenue collection and coordination of elections in the district. A district is divided into a number of Divisional Secretary Divisions (commonly known as DS divisions), which are also subdivided into Grama Niladari Divisions.

3.2 Disaster Management Legal System / Framework

Ministry of Disaster Management is the one of vital important ministry in the country which is mandated for disaster management activities. Disaster Management Centre, National Disaster Relief Service Centre, National Building Research Organization and Department of Meteorology are being functioning under the Ministry of Disaster Management. The main administration system for disaster management of the country operates under the central government and through the Ministry of Disaster Management.

Link for more details- http://www.disastermin.gov.lk/web/

3.3 Disaster Management Policy

The National Policy on Disaster Management (the 'Policy') is a core component of Sri Lanka's national regime for disaster management. It articulates agreed overarching principles and preferred outcomes for disaster management in Sri Lanka. It also provides policy directives to address the issues such as inadequate coordination among stakeholder agencies, duplication of efforts and insufficient policy directives to reduce the human and economic impacts of disasters which were identified in the aftermath of the 2004 Tsunami and the other recent disaster situations.

The 2005 Parliament Select Committee on Natural Disasters recommended formulation of a national policy to manage disasters after the 2004 Indian Ocean tsunami. The Disaster Management Act, No.13 of 2005 (the 'Act') provides that the National Council for Disaster Management (the 'Council') shall formulate such a policy.1 Its preparation was the first listed of 60 outcomes for the period 2006-2016 under the document Towards a Safer Sri Lanka: A Road Map for Disaster Management ('the Road Map'). In accordance with the Road Map, the Ministry of Disaster Management, as Secretariat of the Council, led a consultative process to formulate the Policy with input and guidance from relevant agencies and stakeholders. More details please access the fallowing link. http://www.disastermin.gov.lk/web/images/pdf/dm%20policy%20full%20ver.pdf

3.4 Disaster Management Act (DM Act)

The Sri Lanka Disaster Management Act No.13 of 2005 is the main legal document for disaster management in Sri Lanka and it was enacted in July 2005 which provides the legal basis for instituting a disaster risk management system in the country. The National Council for Disaster Management (NCDM) is a high-level policy making body for safe the country from any calamities. The chairman and vice chairman of the NCDM is H.E. The President and Hon Prime Minister respectively. Other members are Leader of the Opposition, Ministers in charge of 20 selected subject areas, Provincial Council Chief Ministers and five members of the Opposition (Figure 27). The Act also provides for establishing the Disaster Management Centre (DMC) under the Council to be the apex body for the purpose of planning, co-coordinating and implementing of certain natural and other forms of disasters.

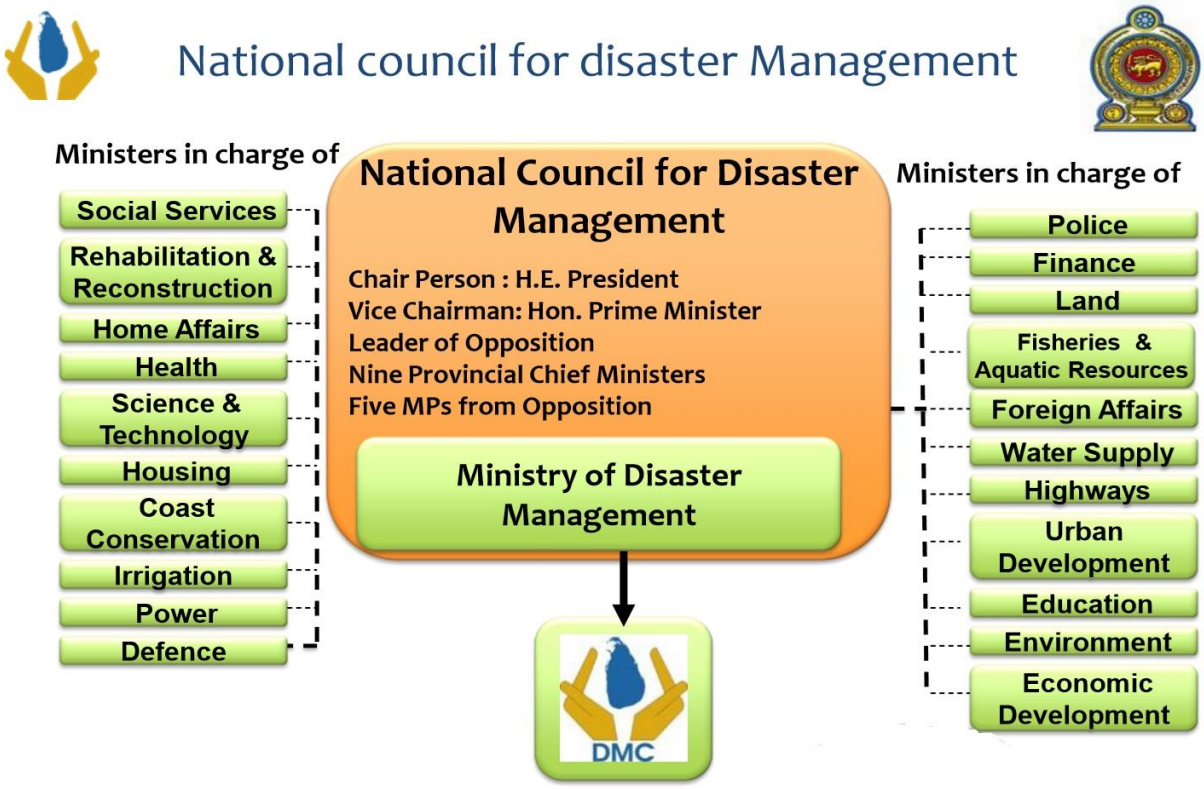

Figure.27 Structure of National Disaster Management Council

Sri Lanka Disaster Management Act No.13 of 2005 provides for a framework for DRM in Sri Lanka and addresses Disaster Management (DM) holistically, leading to a policy shift from response based mechanisms to a proactive approach towards disaster risk reduction (DRR). Twenty-one hazards come under the purview of the act.

(*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, lightning strikes and severe thunder storms;

In addition to the above gazetted disasters, Dam breach, Animal attacks, Drowning and Road accidents are identified as major threat to the human being in the country. More details please access the fallowing link.
Link- http://www.dmc.gov.lk/attchments/DM%20Act%20English.pdf
DMC was established in July 2005 (Figure 28).

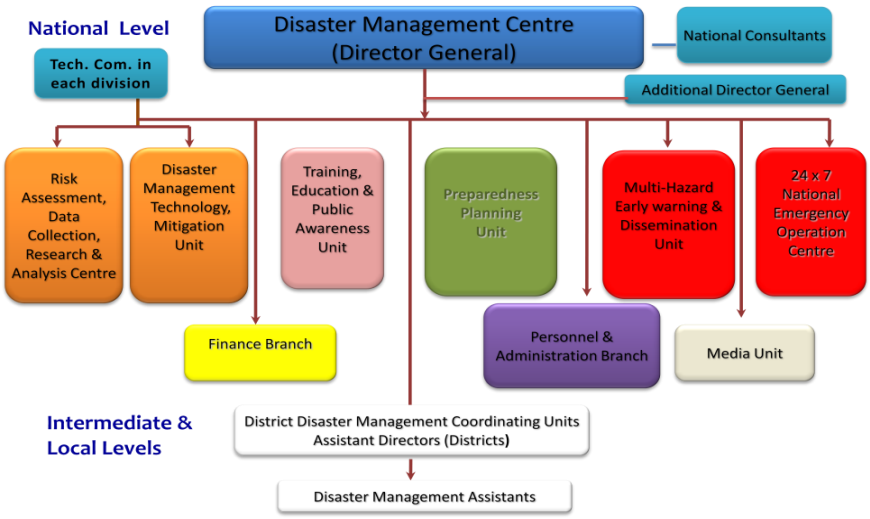

Figure 28: Structure of the Disaster Management Centre

District Disaster Management Coordinating Unit (DDMCUs) has established under the Disaster Management Center for the coordination of local level disaster management activities. By this time, under the National Disaster Relief service Centre has been appointed officer at divisional level to coordinate disaster management activities. DDMCU is doing disaster management activities under the supervision of District Secretary

In December 2005 the Ministry for Disaster Management and Human Rights (M/DM&HR) was established with the subject of DM listed under its purview. The principal functions of the Disaster Management Centre as per the act are as follows.

1) 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
2) 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 coordinate the implementation of the National Emergency Operation plan
3) Ensuring that the various Disaster Management Plans prepared by Ministries, Government Departments or public corporations conforms to the National Disaster Management Plan
4) Based on Disaster Management Plans prepared by various Ministries, Government Departments and public corporations under section 10, preparing and implementing programs and plans for disaster preparedness, mitigation, prevention, relief, rehabilitation and reconstruction activities and coordinating of organizations which implement such programs and plans and obtain financial assistance from the Treasury for such activities and release the same to the relevant regions and monitor and evaluate these activities
5) 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 programs in co-ordination with such organizations and secretaries
6) Promoting research and development programs in relation to disaster management and setting up and maintaining a data base on disaster management
7) Submitting reports to the Council from time to time and whenever required by the Council in regard to its activities.
8) To implement the above functions, the Disaster Management Centre has organized

The disaster Coordination and Early Warning Mechanism form national to sub national level is shown below figure 29 and Figure 30.

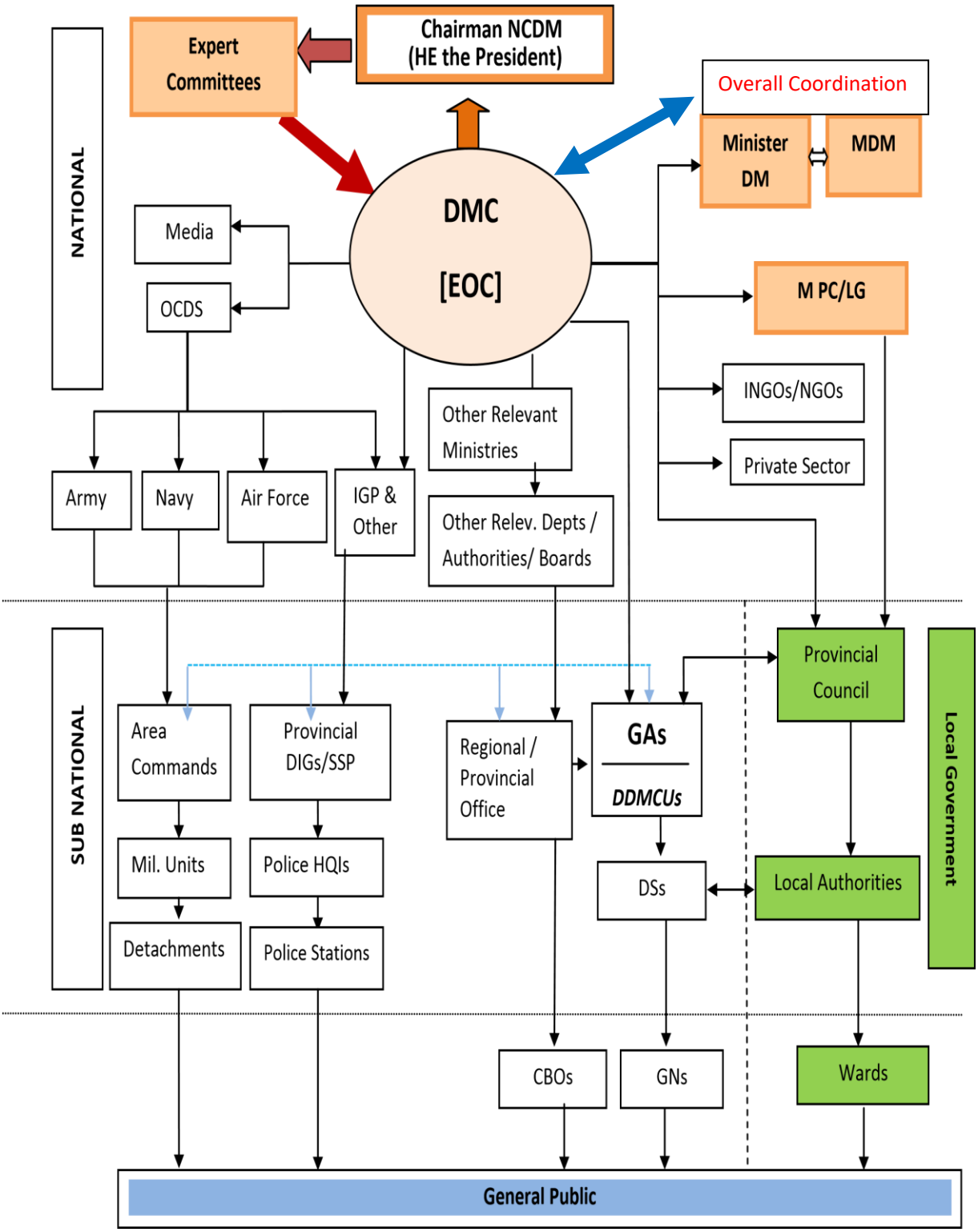

Figure 29: Overall Emergency Response Coordination Flowchart

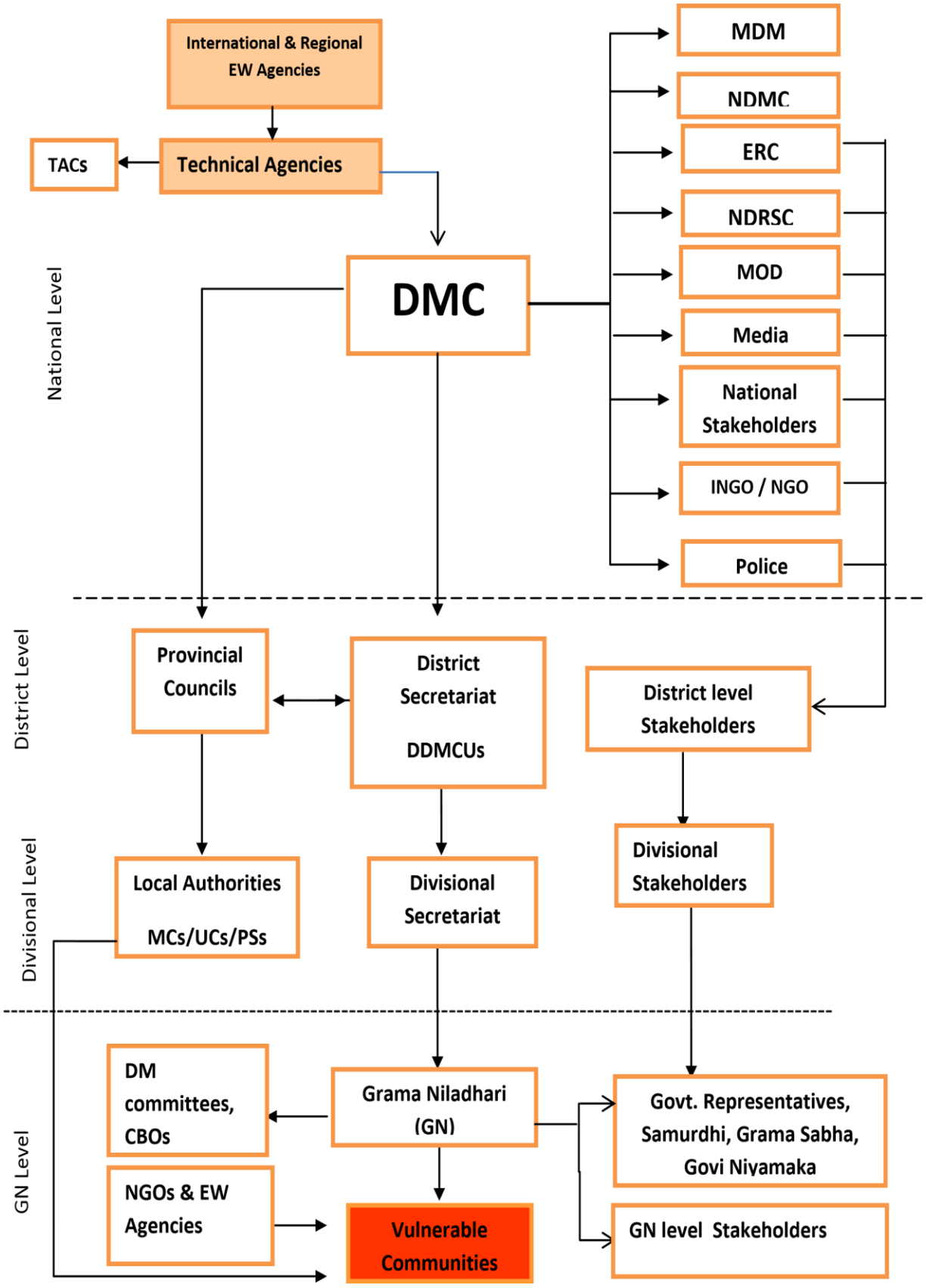

Figure 30: Early Warning Coordination framework

3.5 National Disaster Management Plan (2013 -2017)

Sri Lanka Disaster Management Act No.13 of 2005 provides for the development of National Disaster Management Plan (NDMP) as the overall guiding document consisting of all phases of disaster management cycle, namely, mitigation, preparedness, response, coordination of relief, rehabilitation and reconstruction.

NDMP incorporates all aspects such as, institutional mandates and institutional development; hazard, vulnerability and risk assessment; multi-hazard early warning systems; disaster preparedness and response planning; disaster mitigation and integration into development planning; community-based disaster management; public awareness, relief, immediate recovery, rehabilitation and reconstruction; education and training. Plans and policies of the related sectors covering the subjects as indicated in the Act have been taken into account in preparation of this plan.

All state sector agencies, provincial councils and local authorities will have to develop the Institutional Disaster Management Plan (IDMP) based on the NDMP. The users of this plan would be all stakeholders; officials of sub-national administration – at Provincial, Local Authority, District, Divisional and Grama Niladari levels; relevant officers and personnel from Governmental and Non-Governmental Organizations, community leaders etc, have been consulted and their comments were incorporated. This document will be useful in developing the response and preparedness capacity of the country.

3.6 National Emergency Operation Plan

The objective of establishing a NEOP is to maintain a sustainable mechanism/system, resources, capabilities and guiding principles with the collaboration of all relevant stakeholders, for responding to a disaster or emergency situation if and when they occur, in order to save lives, property and environment; minimize harm and ensure physical and psychological health of the survivors; and immediate recovery of essential services.

The necessity of a National Emergency Operation Plan (NEOP) was discussed after the 2004 tsunami and documented as far back as 2005 in the Disaster Management Act, No.13 of 2005. The Disaster Management Centre (DMC) was endowed with the task of preparing the NEOP as required by the Act.

National Emergency Operations Plan facilitates,

- assigning responsibilities for organizations and individuals to carry out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency.
- lines of authority and organizational relationships, and demonstrates how all actions are to be coordinated.
- Protection of people and property in emergencies and disasters.
- the utilization of personnel, equipment, facilities, supplies, and other resources identified under National and sub-national level Disaster Preparedness Plans for use during response and recovery operations.
- actions to minimize the impact of disasters during response and recovery activities.
- Inter/intra-regional cooperation.

3.7 Institutional Disaster Management Plan

All responsible Ministries and departments, agencies will be required to develop a DM Plan as a part of the total DM Plan within the framework of the National Plan and the National Policy. Technical agencies responsible for different technological hazards. All national and provincial educational establishments including schools, universities, technical colleges, training establishments etc. (private & public). All national and provincial health institutions including hospitals, clinics, training schools, health facilities, etc. (private & public). Private / government agencies including hotels / inns, offices, factories, commercial establishments etc. These would include production factories involving explosives, hazardous materials, chemicals, such storage places etc. In addition, there would be the vital government agencies responsible for public services and infrastructure facilities. DMC will facilitate in developing these plans by providing guidance notes, general coverage, necessary circulars to national/provincial ministries and awareness workshops. DMC will coordinate and monitor adherence and progress.

In addition, representatives from National, Provincial and District level offices of service providing agencies will be serving in the disaster management committees at the respective levels. These agencies, in addition to their DM Plans for their respective agencies, will have a role in the DM Plan at the given administrative level and will have **Standard Operating Procedures (SOPs)** detailing out activities to assist National, Provincial and District level administrations in an emergency situation after a disaster.

3.8 A Road Map for Disaster Risk Management

"Towards a Safer Sri Lanka: A Road Map for Disaster Risk Management" is the master plan for disaster management in Sri Lanka. DMC has been accorded the lead role in directing the strategic planning process for disaster prevention, mitigation, response and recovery. 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 DMC has prepared the road Map to identify and coordinate multi stakeholder efforts in the next 10 years through a holistic strategy. According to the Road Map it is focused on seven thematic components which are consistent with ongoing and past efforts in the field of disaster risk management and development planning, and as in the Hyogo Framework of Action 20052015. The seventh thematic components are as follows.

1. Policy, Institutional Mandates, and Institutional Development
2. Hazard, Vulnerability and Risk Assessment
3. Tsunami & Multi- hazard Early Warning Systems
4. Preparedness and Response Plans
5. Mitigation and Integration of Disaster Risk Reduction (DRR) into Development Planning
6. Community-based Disaster Risk Management
7. Public Awareness, Education and Training

The projects and activities for disaster management of the country are based on above seventh components.

Link for more details- http://www.dmc.gov.lk/Publications/Road_Map_Volume_2.pdf

3.9 Comprehensive Disaster Management Plan (CDMP)

Sri Lanka comprehensive Disaster Management Plan 2014-2018, was introduced in new read-map for DRM activities by Ministry of Disaster Management. It is mainly focused on next five-year disaster management countermeasures and Disaster Risk Reduction program hope to be carried out by Sri Lankan government. In the comprehensive Disaster Management Plan clearly identified the 45 institutions which are contributed their service when its implementation. Currently the plan has been taken the approval from National Planning Department and the cabinet of Sri Lanka. UNDP and the Treasury funds will be used for the implementation.

Link for more details-
http://www.dmc.gov.lk/NDMCC/presentations/Comprehensive%20Disaster%20Management%20Plan%20for%20Sri%20Lanka2.pdf

4. DISASTER MANAGEMENT COMMITTEES

4.1. National Disaster Management Coordination Committee (NDMCC)

Disaster risk reduction (DRR) is a cross-cutting and complex issue. Therefore, it requires political and legal commitment, public understanding, scientific knowledge, careful development planning, responsible enforcement of policies and legislation, people centered early warning systems, and effective disaster preparedness and response mechanisms. A multi-stakeholder national coordination for DRR can provide or mobilize the combined knowledge, skills, and resources required for DRR and its mainstreaming into development policies, planning and programs.

Under the Chairmanship of the Secretary, Ministry of Disaster Management the NDMCC's roles and responsibilities are:

- It is a national mechanism by which the country can address inter-related social, economical and environmental problems;
- It supports the identification of urgent needs in the area of DRR, allocating resources, presenting time table for actions and monitoring and reviewing the implementation of DRR activities in line with HFA and Road Map;
- It works towards better resourced, effective and integrated DRR efforts amongst national stakeholders and amongst national, regional and international organizations. It supports development goals, by providing a framework for systematic thought and commitment to priority actions across sectors and the territory;
- It serves as catalyst for national consultations and consensus building, as well as for DRR priority identification and policy formulation, implementation and monitoring DRR activities. The emphasis should be on managing progress towards DRR objectives rather than producing a "Plan" as an end product; and
- It facilitates the allocation of resources from donors, development banks, and UN agencies that are not represented in their respective countries. This can be advanced by advocating the importance and necessity for UN country offices to support the integration of DRR into UN backed development programs. http://www.dmc.gov.lk/index_ndmcc.htm

4.1.1 Primary activities of NDMCC

- Establishing baseline information for DRR, including disaster and risk profiles, national policies, strategies, capacities, resources and programs;

- Identify targets, gaps, concerns and challenges and setting forth accepted priority areas in DRR; Advocating the urgent need for developing or adopting policies and legislations for DRR;
- Benchmarking progress made in promoting DRR and its mainstreaming into development policies, planning and programmers;
- Developing result-oriented work plan for National DM Coordination Committee to coordinate the DRR activities in line with the HFA and "Road Map for Disaster Risk Management; Towards a Safer Sri Lanka";
- Coordinating joint efforts among members of National DM Coordination Committee to reduce the vulnerability of people at relatively high risk;
- Monitoring, recording and reporting of DRR actions at national and community levels in line with HFA and "Road Map for Disaster Risk Management; Towards a Safer Sri Lanka";
- Documenting lessons learned and good practices, and share the findings at national, regional and international levels;
- Working towards better integration of DRR into national planning, policies and programs in development and humanitarian assistance;
- Initiate the Community Based/Led Disaster Management (CBDM) approach at national level to strengthen community's decision making process.

4.2. Emergency Response Committee (ERC)

The Emergency Response Committee consists of representatives appointed from all emergency response organizations such as tri-Forces, Police, Fire Brigade, Water Supply and Drainage Board and Electricity Board, etc. Main agencies will respond and also coordinate through their line agencies to assist immediately at a disaster.

4.3. Involvement of United Nations, Red Cross Movement & Other Humanitarian Agencies

The UN agencies, most of which also have pre-existing development-focused relationships with Member States, provide sector-specific support and expertise before, during and after a disaster. The main UN agencies with humanitarian mandates include FAO, IOM, OCHA, UNDP, UNFPA, UNHCR, UN-HABITAT, UNICEF, UN Women, WFP and WHO, which support disaster response across needs, from shelter, protection, food security, health, nutrition, education and livelihoods to common services like Coordination, logistics and telecommunications.

United Nations General Assembly resolution 46/182 defines the role of the United Nations (UN) in coordinating international humanitarian assistance when a Government requests external support. The resolution establishes a number of UN mechanisms to strengthen effectiveness of international humanitarian action, namely, the Central Emergency Response Fund (CERF), the Consolidated Appeal Process (CAP), the Emergency Relief Coordinator (ERC) and the Inter-Agency Standing Committee (IASC). SLRCS is generally the first point of contact for the Government requesting additional support from IFRC (in natural disasters) and ICRC (in situations of armed conflict). The SLRCS works alongside national and local public authorities through their branch network mobilizing trained volunteers in disaster situations. The SLRCS will acquire adequate resources through the RC movement components upon request of the government or based on the severity of the event.

International NGOs operating in emergency preparedness and response include humanitarian organizations and multi-mandated organizations that operate independently to provide humanitarian assistance. Many organizations operating in Sri Lanka with ground presence will coordinate with DMC and the Ministry of Disaster Management in providing emergency response services based on ground needs. Oxfam, Consortium of Humanitarian Agencies, World Vision, Handicap International etc., are some of agencies which provide these services and can be mobilized at the request of DMC based on the needs of the affected population. Further these agencies will coordinate with their international arms to attend to the activities described in the NEOP before, during and after. Any professionals and organizations can be engaged with processes based on the severity of the emergency in accordance with the NEOP with the approval of Disaster Management Centre. The Disaster Management Centre will closely coordinate their engagement.

5.DISASTER INSURANCE IN SRI LANKA

During last few years Sri Lanka had faced Natural disasters as a result loss of human life and damages to property has been significant. Such to overcome such issues to protect entire country against natural disasters, Natural Disaster Insurance Scheme was implemented through NITF, since 01/04/2016 (Figure 31).

Figure .31: Insurance policy web site in Sri Lanka

Covers lives and properties, specifically all households and small business establishments (any business of which annual turnover does not exceed LKR 10 M) covered up to 2.5 million rupees each in respect of damages (per event) caused to their property and contents due to Cyclones, Storm, Tempest, Flood, Land slide, Hurricane, Earthquake, Tsunami and any other similar natural perils, excluding Drought. All Fishermen registered under Department of Fisheries will be covered to the value of Rs.1 Million each.

Limitations

- Death compensation other than fisherman death - Rs. 100,000.00
- Property damage (House and SME) - Max Rs.2.5 Mn
- Fisherman death - Rs. 1,000,000.00 (1 Mn)

More details please access the fallowing link.
Link- http://www.nitf.lk/National%20Natural%20Disaster.html

6. PROGRESS OF IMPLEMENTATION OF SENDAI FRAMEWORK FOR ACTION (SFA) (2015 - 2030)

6.1 The Four Priorities for Action

Priority 1. Understanding disaster risk

Disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics

and the environment. Such knowledge can be used for risk assessment, prevention, mitigation, preparedness and response.

Priority 2. Strengthening disaster risk governance to manage disaster risk

Disaster risk governance at the national, regional and global levels is very important for prevention, mitigation, preparedness, response, recovery, and rehabilitation. It fosters collaboration and partnership.

Priority 3. Investing in disaster risk reduction for resilience

Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the economic, social, health and cultural resilience of persons, communities, countries and their assets, as well as the environment.

Priority 4. Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction

The growth of disaster risk means there is a need to strengthen disaster preparedness for response, take action in anticipation of events, and ensure capacities are in place for effective response and recovery at all levels. The recovery, rehabilitation and reconstruction phase is a critical opportunity to build back better, including through integrating disaster risk reduction into development measures.

6.2 Achievements of the HFA and SFA

Disaster management in Sri Lanka became a mainstream subject after 1990, when the country endorsed the UN supported International Decade for Natural Disaster Reduction in 1989. After 2005, with the adoption of the Hyogo Framework for Action(HFA), a more systematic legal and institutional setup for disaster management was established in the country. During the HFA era, Sri Lanka enacted the Sri Lanka Disaster Management Act No13 of 2005 giving provisions to form the National Council for Disaster Management under the chairmanship of His Excellency the President to take all policy decisions pertaining to disaster risk management; the Ministry of Disaster Management to oversee the administrative roles; and Disaster Management Centre to coordinate and operationalize the policy decisions taken by the Council. HFA progress reports both from the government and the civil society show remarkable achievements the country has made in many HFA priorities; especially in priority 1 and 5. However, we also acknowledge the low performance with relevant to Priority 4 of the HFA. Therefore, the main focus now is on identifying and addressing underlying risk factors of disasters.

We also believe that sustainable development can never be possible unless we take proactive measures to correct our own decisions and actions. We, Sri Lanka, believe that Sendai Framework for Disaster Risk Reduction leads the way to show us how disaster risk reduction could be achieved, which is essential to make the development gains sustainable. Our challenge is to gradually strengthen our focus on managing disaster risks rather than managing disasters.

We have already taken measures to develop a national action plan and review our existing legal and institutional framework in the view of the Sendai Framework. Ministry has already taken initiatives to review the existing legal and institutional framework and to identify an appropriate legal and institutional framework in the context of Sendai Framework. It is planned to develop country's next National Disaster Management Plan in line with the Sendia Framework. We are currently implementing a five-year national program titled "Sri Lanka Comprehensive Disaster Management Program", which is also meant to mainstream disaster risk reduction into sectoral development plans of various other Ministries and agencies. Demonstrating the government's commitment to disaster risk reduction, Government has already approved and financed over Rs. 10 Billion worth of project under the Comprehensive Disaster Management Program.

However, being an island nation, Sri Lanka's progress in sustainable development is challenged by both climate change induced and other geo physical disasters making serious threat to the economic development of the country.

The May 2016 floods and landslides disasters that affected almost 23 of 25 districts of the country accounted over Rs. 100 Billion worth damages and losses; most of those belong to the country's economic hub. Part of the Colombo city and suburbs went under water inundating over 40,000 houses. However, we managed to evacuate all the people without a single loss of life. The recent drought has seriously affected the livelihoods of rural farmers which necessitated drought relief on a large scale. Climate change predictions suggest an increasing frequency and exacerbated impact from such events in the future.

The government introduced a risk transfer mechanism through the National Insurance Trust Fund to cover all the houses and small to medium business enterprises in Sri Lanka against natural disasters. The total annual premium of the insurance policy amounting to Rs. 300 million is paid by the government.

Our success in facing such challenges rely on our commitment in understanding disaster risks, adequacy of our governance systems in addressing disaster risks, our commitment in investing in disaster risk reduction and our preparedness to face any unforeseen disasters as well as our preparedness for resilient recovery. These are core priorities of the Sendai Framework. It is also necessary that we build synergy between disaster risk reduction and climate risk reduction. Sri Lanka would like to re-emphasize our commitments to implement the Sendai Framework for Disaster Risk Reduction and provide our fullest support to regional initiatives to achieve our common goals in disaster risk reduction.

Sri Lanka always believe that challenges faced by us today and in the future could be better combatted by increased cooperation among nations. The agreements came into force in 2015 such as sustainable development goals (SDGs), Sendai Framework and Paris Agreement are for such common course. We as a signatory to the Paris Agreement welcome the commitment made by other countries in the region to support achieving emission targets. We are thankful to SAARC secretariat for facilitating an agreement on Rapid Response to Natural Disasters among member countries and initiating a program to promote Child Centered Disaster Risk Reduction in South Asia in line with the Sendai

Framework. We also believe that for the meaningful implementation of the Sendai Framework and other agreements and frameworks, we need to look for ways to improve the technical cooperation of the countries, in terms of research, information sharing including satellite imagery for risk assessment, disaster preparedness and recovery and also on lessons sharing. Those will enhance our efforts in implementing the Sendai Framework and achieve sustainable development.

National Planning Department of the Ministry of Finance has agreed to consider DRR in approving development plans provided guidelines are developed for such a process. DMC is working with Central Environmental Authority (CEA) and other agencies to develop such guidelines. National Water Supply and Drainage Board has initiated implementation of augmentation program in western, central, and southern provinces. New water supply schemes are being developed for northern and eastern provinces. NDMCC meets regularly and discuss programs implemented by members and policy requirements to make the implementation more effective. Hazard cycle for Sri Lanka has been developed and given to district administration to prepare disasters such as floods, landslides and cyclones. Nearly 40% of the activities identified in the Road Map have been commenced.

DM Act is being modified giving more authority to DMC for coordination of DM Activities. Draft Act has been forwarded to Attorney general Department. Disaster Management concepts were included in the Local Government (LG) policy which has been approved by the govt. DMC has already provided disaster concerns to be incorporated in to the act based on the LG policy. Development DM plans for Northern Province has been commenced. Training of officials in Government and LG sector on DM and development of plans commenced.

DMC with the assistance of Urban Development Authority, practical Action and ADPC has commenced three pilot projects in southern and eastern provinces to prepare urban development plans for selected towns. UDA has agreed to issue instructions to planning officers to follow Guidelines developed in future urban development planning process. Mainstreaming disaster risk reduction in to housing is being undertaken with the assistance of ADPC. All agencies in state sector were involved.

Training program conducted for technical Officers in the Eastern province to introduce the guidelines developed for construction of disaster resistance buildings. Building application used by Local Authorities for approval of land subdivision plans and building plans are being modified with the Concurrence of UDA to included DRR concepts. Draft format has been submitted to UDA for their consideration. Environment Authority invites DMC for the meetings where EIA reports are discussed. Integrated Strategic Environment Assessment (ISEA) for the Northern Province is been developed with the assistance of all stakeholders. Proposed development plans are incorporated in the ISEA and areas for development are been identified. Discussions are in progress with relevant development agencies to identify conflict areas and find solutions. Hazard maps for landslides in Nuwaraeliya districts were given to agencies involved in development and development control and officers were trained for the used hazard maps.

More detail also can be obtained by using fallowing references.

7. COUNTERPART OF ADRC

Disaster Management Center
Ministry of Disaster Management
Vidya Mawatha,
Colombo, Sri Lanka.
www.dmc.gov.lk
Tel. +94112136136/+94112670002
Fax. +94112670075/+94112670025

8. References

1. Disaster Management Act No 13 of 2005.
2. Disaster Management Policy of 2014.
3. National Disaster Management Plan. (2013-2017).
4. National Emergency Operation Plan 2016 -2020
5. Sri Lanka National Report on Disaster Risk, Poverty and Human Development Relationship.2015.
6. Wikipedia. http://en.wikipedia.org/wiki/Preparedness
7. Ministry of Disaster Management. (2014) *Sri Lanka Comprehensive Disaster Management Programme,* (2014-2018), Government of Sri Lanka, March, 2014.
8. http://www.disastermin.gov.lk/web/
9. http://www.dmc.gov.lk
10. http://www.preventionweb.net/english/professional/news/?cid=162
11. http://www.meteo.gov.lk
12. http://www.treasury.gov.lk/FPPFM/fpd/pdfdocs/annualReport2010/AnnualReport2010-eng.pdf
13. http://www.nitf.lk/Home.htm
14. http://www.nbro.gov.lk/web/
15. http://www.ndrsc.gov.lk/web/