

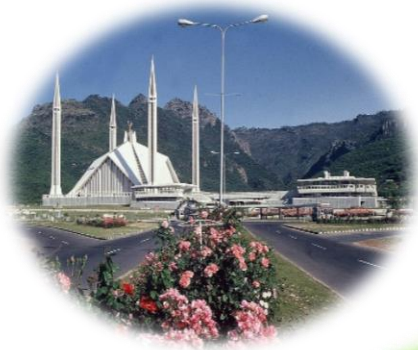
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ASIAN DISASTER REDUCTION CENTRE
Visiting Researcher Program – FY2017B
COUNTRY REPORT: ISLAMIC REPUBLIC
OF PAKISTAN



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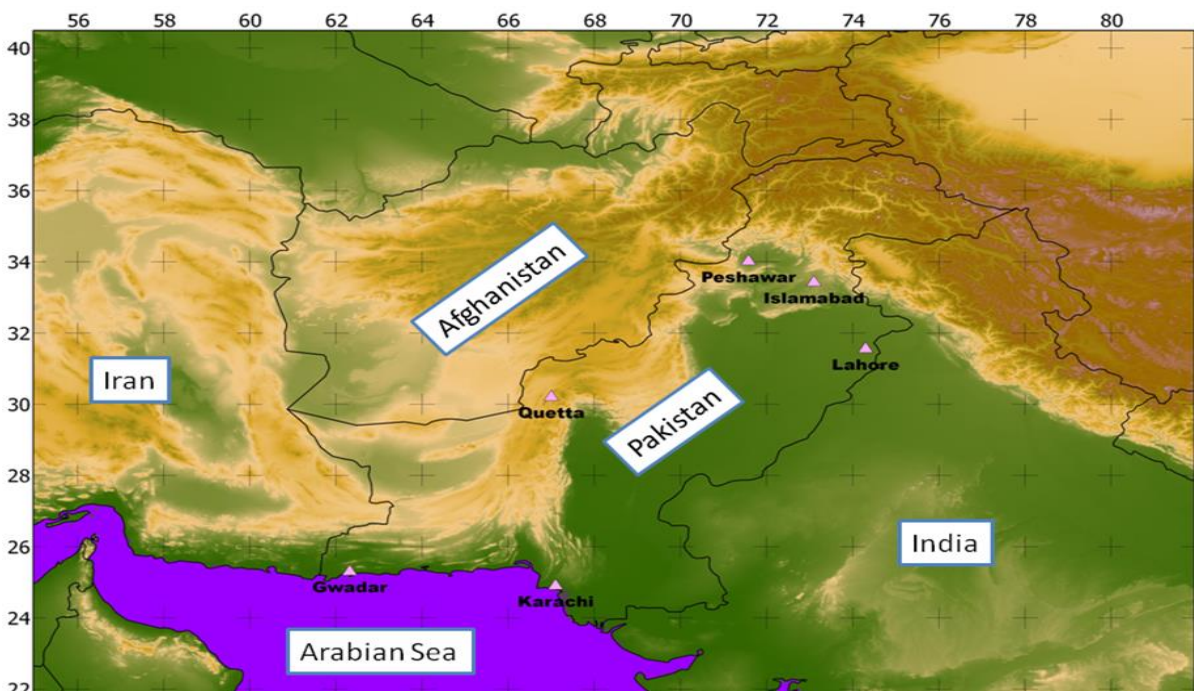
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1. General Information of Pakistan

Pakistan is situated in South Asian region between longitudes 61° & 75°30'E and latitudes 23°30' & 36°45'N covering a total land area of 796,096 sq km. It comprises the four provinces of Punjab, Balochistan, Khyber Pakhtunkhwa (KP) and Sindh plus the Federal Capital (Islamabad), Gilgit-Baltistan region (GB) and 'Tribal Areas (FATA)' under federal administration, and Azad Jammu & Kashmir (AJK). There is a Parliamentary form of Government with a Prime Minister as the executive head and the President as the constitutional head. The National Language is Urdu. Population of the country is 90 million(Approx.). According to the World Bank, Pakistan's population is about 185 million at the year 2014.

The country shares its borders with Iran to the west, India in the south-east, Afghanistan in the north-west, and China in the north. The Arabian Sea lies to its south as shown in (Fig-1). Pakistan shares total border length of 6,744 km with neighboring countries; with Afghanistan (2,430 km); with China (523 km); with India (2,912 km) and Iran (909 km). The coastal belt is about 1,046 km. Details of Maritime



claims are: Territorial Sea (12nm); Contiguous Zone (24 nm); Exclusive Economic Zone (200 nm) and Continental Shelf (200 nm).

Figure-1. Geographic location of Pakistan and its main cities

Geographically Pakistan can be divided into five major portions:

Northern high mountain ranges (the Himalayas; the Karakorum and the Hindukush)

- a. The Balochistan Plateau along western bordering
- b. The Indus River plains in the east
- c. The Salt range across the northern portion of the Punjab province
- d. The Deserts (Cholisthan in Punjab & Thar in Sindh province).

The climate of Pakistan varies with its topography but most consists of hot, dry desert, temperate in north-west and arctic in the north. About 60% of the total land area is classified as arid, which receives less than 200 mm annual rainfall. The southern slopes of the Himalayas and the sub mountainous tract receive higher rainfall ranging from 760 to 1270 mm annually. Some areas adjoining Kashmir receive more than 2000 mm precipitation per annum.

Pakistan has four well marked seasons namely Spring, Summer, Autumn & Winter. It's usually, cold from November to February; Pre-monsoon (Hot), from March to mid of June; Monsoon, from mid of June to mid of September and Post-monsoon, from mid of September to October. Summer season is extremely hot and the relative humidity ranges from 25% to 50%. Day-time temperature in this season remains 40oC and beyond in plain areas. The average temperatures in winter range from 4oC to 20oC. Mercury sometimes falls well below freezing point in Northern parts of the country. Temperatures can be as low as - 27°C in the north (at Skardu) in winter and as high as 52°C in the southern parts during summer.

2. Natural Hazards in Pakistan:

Due to geo-physical conditions, climatic extremes, and high degrees of exposure and vulnerability, Pakistan is a disaster-prone country. Pakistan's exposure to natural hazards and disasters could be ranked between moderate to severe. A range of

hydro meteorological, geo-physical and biological hazards including earthquakes, floods, tsunamis, cyclones and storms, droughts, glacial lake outbursts, landslides, avalanches, pest attacks and epidemics pose risks to Pakistani society. Some of these hazards (e.g. floods, landslides etc.) are predominantly seasonal and occur on an annual basis, whereas other hazards such as earthquakes and tsunamis are rare events but potentially highly destructive. Pakistan frequently suffers from earthquakes. Northern and Western parts are particularly vulnerable to earthquakes. The Indus River is known as flood-prone area especially in July and August. High priority hazards in terms of their frequency and scale of impact are: earthquakes, flooding, droughts, wind storms and landslides that have caused widespread damage and losses in the past.

3. Recent Major Disasters:

a. Hindukush Earthquake (April 2016)

An Earthquake having magnitude 7.1 on Richter Scale, has struck various parts of the country (10:29:02 UTC), including Khyber Pakhtunkhwa, Federally Administered Tribal Areas, Gilgit Baltistan, Azad Jammu & Kashmir, Punjab, Balochistan and Islamabad Capital Territory. The epicenter of the quake located at Hindu Kush Region, Afghanistan. Soon after the earthquake, mobile phone services were choked for because of the high voice traffic. NDMA, soon after the incident has issued alerts to all Provincial Disaster Management Authorities (PDMAs) to caution exercise in view of expected aftershocks. While DMAs of provinces/ AJ&K/ GB/FATA have been asked to carryout damage assessment. Instructions to NHA, WAPDA, PTA and all other relevant departments were also issued to assess damages at their respective circle. While Pakistan Air-force was requested to carryout aerial photography/survey to evaluate damages to infrastructure and slope stability of mountains especially in GB and KP. Moreover, SUPARCO was also asked to provide satellite imageries to analyze the extent of damages. National Emergency Operation Centre of the NDMA was activated to monitor the situation 24/7. **Damages and losses included** death of 127 people, injury of 102 people and damage to 1, 948 houses.

b. Hindukush Earthquake (October 2015)

It was of magnitude 8.1 earthquake (PMD) that struck South Asia on 26th October 2015, at 14:09 PST (09:09 UTC) with the epicenter at Hindukush region(45 km north of `Alaqahdari-ye Kiran- wa Munjan), Afghanistan having depth 193km. An aftershock of 5.3 magnitude struck 40 minutes after the main event. Mobile phone services were choked for several hours because of the high voice traffic. Tremors were felt in Pakistan, Tajikistan and Kyrgyzstan. The earthquake was also felt in the Indian cities of New Delhi and Indian Administered Kashmir, and in the prefectures of Kashgar, Aksu, Hotan, and Kizilsu in Xinjiang, China while damage was also reported in Afghan capital Kabul. **Damages and losses included** death of 280 people, injury of 1,770 people and damage to 109,110 houses. Out of total deaths, 82 % occurred in Khyber Pakhtunkhwa (KP) province of Pakistan.

c. Flood (July 2015):

Due to heavy monsoon rainfall in July 2015 affected several areas of Pakistan triggered river and glacial lake overflow in Khyber Pakhtunkhwa (KP) and river overflow in Punjab province. **The flood causes**, death of 244 people, injury of 201 people, damage to 23,934 and affected more than 4,000 villages.

d. Flood (September 2014):

Due to heavy monsoon rainfall in September 2014 resulted widespread flooding in Azad Kashmir, Punjab, Gilgit-Baltistan (GB), Khyber Pakhtunkhwa (KP) and later Sindh province in Pakistan. **The flood causes**, death of 367 people, injury to 673 people, damage to 107,102 houses and affected around 2.5 million populations.

e. Awaran Earthquake (September 2013):

This earthquake occurred on 24th September, 2013 having a magnitude of 7.7 Mw and a maximum intensity of VII (Very Strong). The shock occurred 66 kilometers (41 mile) north-northeast of Awaran in the province of Balochistan, southwestern Pakistan. Mashkai, Mangoli, Awaran and Mala/Dandar areas in

Balochistan were badly affected. **The quake causes**, death of 386 people, injury to 816 people and damage to 46,756 houses.

f. Flood (August 2013):

Due to heavy monsoon rainfall in August 2013 triggered flash floods and caused widespread losses and damage across Pakistan. All provinces and Azad Jammu & Kashmir badly affected. **The flood causes**, death of 333 people, injury of 173 people, damage to 799,43,15 houses and affected around 1.5 million populations. Moreover, around 13,504 cattle were also perished during the flood.

g. Flood (September 2012):

The floods began in early September 2012, resulting from heavy monsoon rains in Khyber Pakhtunkhwa (KP), Upper Sindh, Southern Punjab and Balochistan regions of Pakistan. Initially according to the Met Office forecasts, Pakistan was to receive below normal rainfall in 2012 and most of these areas were bracing for a drought. But by September 1st, the Pakistan Meteorological Department (PMD) started to roll out emergency weather advisories stating that an extremely low pressure Monsoon system, developed over the Bay of Bengal will enter the country and cause widespread heavy rainfall across Southern Punjab, Southern Khyber Pakhtunkhwa (KP), Eastern Balochistan and Sindh. The low pressure system entered the country on September 3 and lashed these areas with heavy falls. The system continued to stay till September 12, 2012.

Flash Floods triggered by heavy rains caused widespread destruction across vast swathes of the country, breaking a 24-year rainfall record. The chief amount of rainfall recorded 481 mm at Jacobabad in Sindh province from 5 to 9 September 2012. **The flood causes**, death of 571 people, injury of 2,902 people, damage to 636,438 houses and affected 4.8 million populations. Crops over 1.7-million-acre area (approx.) was affected. Moreover, around 12,121 cattle were also perished during the flood.

h. Flood (August-September 2011):

The flood was originated mostly because of rainfall and observed the highest ever recorded monsoon rain in Sindh province started from Aug 11, 2011 to Sept 14, 2011. So the inundated area increased respectively with rainfall. Unprecedented torrential monsoon rains caused severe flooding in 16 x Districts of Sindh province. Balochistan province also affected. **The food causes**, death of 520 people, injury of 1,180 people, damage to 16 million houses and affected 9 million populations. Crops over 2.3-million-acre area(approx.) was also affected. The flood was ranked as second most devastating flood after July 2010 flood.

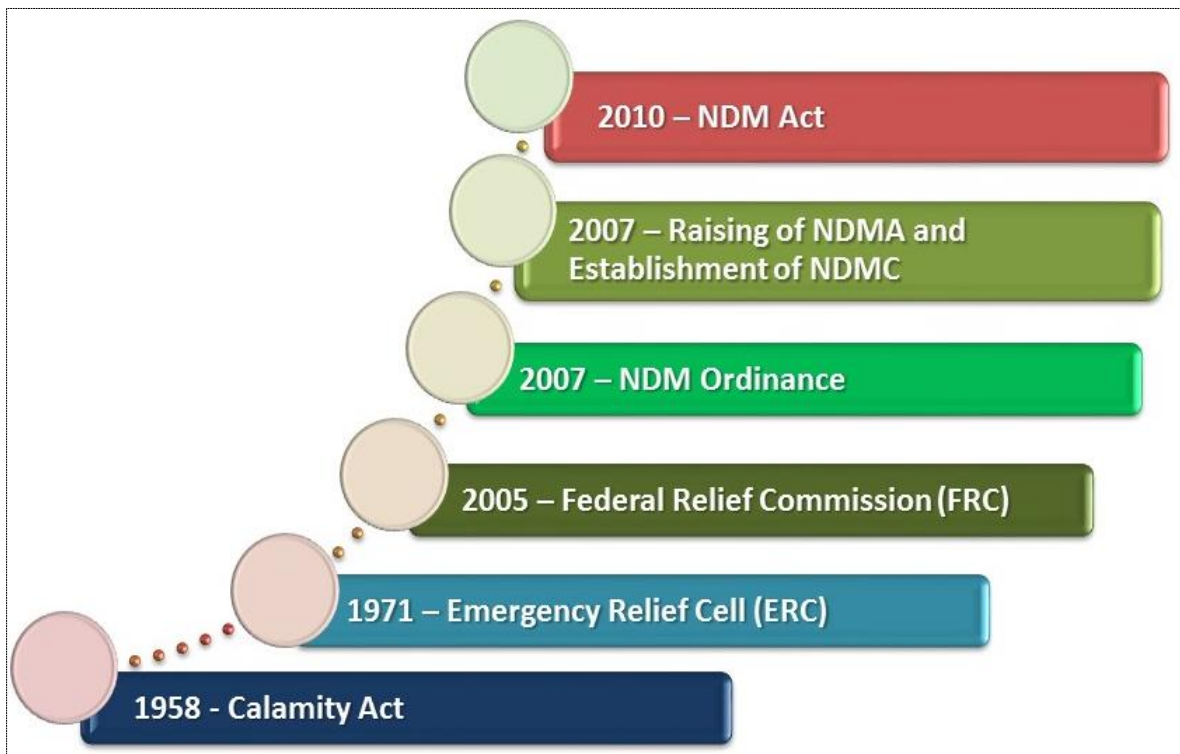
i. Supper Flood (July 2010):

Pakistan experienced the worst floods in its history over the course of the Monsoons. In July 2010, heavy rainfall was a result of interaction of Westerly and Monsoon systems over Pakistan, producing record precipitation 528mm at Mianwali and 471mm at Saidu Sharif. Pakistan received 70.5% above normal rainfall in the month of July which caused flash flooding and riverine flooding in several parts of the country resulting into loss of life, property and widespread displacement throughout country. At one point an area greater than that of Britain was under water. All provinces (Punjab, Khyber Pakhtunkhwa, Sindh & Balochistan) including Gilgit-Baltistan and Azad Jammu & Kashmir badly affected.

The floods destroyed homes, crops, and infrastructure and left millions vulnerable to malnutrition and waterborne disease. The Pakistani economy was harmed by extensive damage to infrastructure and crops. Total economic impact may have been as much as US\$ 43 billion. **Damages and losses includes** death of 1,985 x people, injury of 2,946 x people and damage to 1,602,765 x houses, 6673 x WSS, 10,192 x educational facilities, 146 x industries, 2085.4 x thousand-acre crop area. The flood left behind around 20.3 million population affected and 1,509,600 x cattle perished.

4. Evolution of Disaster Management System in Pakistan:

Prior to 2005, the West Pakistan National Calamities Act of 1958 was the available legal remedy that regulated the maintenance and restoration of order in areas affected by calamities and relief against such calamities. An Emergency Relief Cell within the Cabinet Division has been serving since 1971 as an institutional disaster relief support at the national level. Similar institutional arrangements existed at the provincial level in the form of relief commissioners. However, that regime provided a reactive approach towards emergency response only.



The 2005 earthquake, in particular, exposed weaknesses of the government and civil society to cope with natural disasters. Losses from this earthquake were considerably high and can be attributed to the non-observance of building bye-laws or poor building practices.

Realizing the importance of disaster risk reduction for sustainable social, economic and environmental development, the Government of Pakistan had embarked upon establishing appropriate policy, legal and institutional arrangements, and implementing strategies and programs to minimize risks and vulnerabilities.

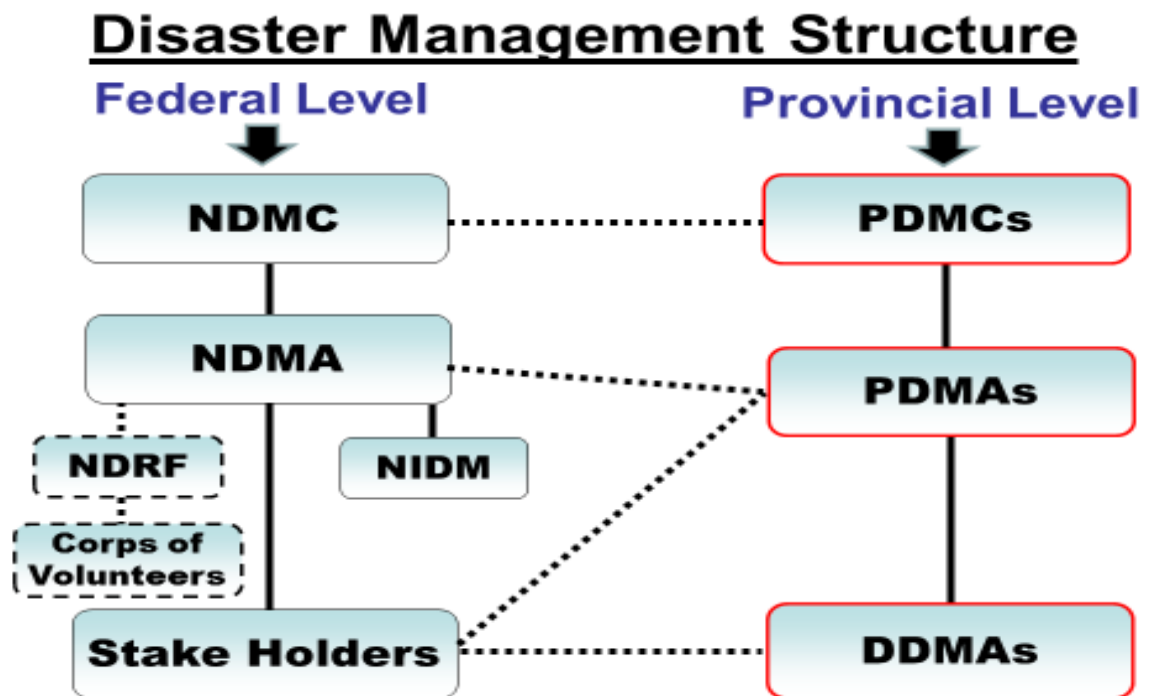
Subsequently, the National Disaster Management (NDM) Ordinance was promulgated in December 2006 which became NDM Act in 2010 with the approval of the Parliament in 2010. This Act serves as the primary law of the land in the field of disaster management and to implement the law, National Disaster Management Authority (NDMA) was created under National Disaster Management Commission (NDMC). Similar arrangements were enacted in the four provinces, FATA, GB and AJ&K. The creation of National Disaster Management Commission under stewardship of the Prime Minister, and its executive organ National Disaster Management Authority ushered an across the board transformation of the national perspective about the subject of DRM.

4.1. Disaster Management Regime in Pakistan:

Under the NDM Act 2010, a three tier disaster management regime has been adopted; National Disaster Management Authority (NDMA) as focal point at federal level, the Provincial / Regional Disaster Management Authorities(PDMAs) are the focal point for DRM endeavors in respective provinces and District Disaster Management Authorities(DDMA) on the district levels. The NDM Act 2010 elaborated following components of the system: -

- a. National Disaster Management Commission(NDMC)
- b. National Disaster Management Authority(NDMA)
- c. Provincial Disaster Commission(PDMC)
- d. Provincial Disaster Management Authorities(PDMAs)
- e. District Disaster Management Authorities(DDMAs)
- f. National Institute of Disaster Management(NIDM)
- g. Obligation of Federal and Provincial Governments in case of
- h. disaster.
- i. Establishment of National / Provincial Fund for Disaster Management (N/PDMF).

4.2. Structure of Disaster Management:



4.2.1. NDMC

The National Disaster Management Commission (NDMC) headed by prime minister has been established for the formulation of overall policies & guidelines etc. at national level while Provincial Disaster, Management Commission (PDMC) headed by the chief minister of respective province at provincial level. Chairman NDMA and Director General PDMA will act as secretary of the commission at federal and provincial level respectively. The NDMC is consist of following members: -

- a. The Prime Minister of Pakistan - the Chairperson, ex officio
- b. Leader of Opposition in the Senate
- c. Leader of Opposition in the National Assembly
- d. Minister for Defense
- e. Minister for Health

- f. Minister for Foreign Affairs
- g. Minister for Social Welfare and Special Education
- h. Minister for Communications
- i. Minister for Finance
- j. Minister for Interior
- k. Governor NWFP (for FATA)
- l. Chief Ministers of all the Provinces
- m. Prime Minister, AJ&K
- n. Chief Executive, Northern Areas
- o. Chairman, JCSC or his nominee; and
- p. Representatives of civil society or any other person appointed by the Prime Minister.

The Chairperson of the National Commission shall preside over the meetings of the National Commission. The Federal Government shall provide the National Commission with such officers, consultants and employees, as it considers necessary for carrying out its functions. Powers and functions of National Commission includes but not limited to: -

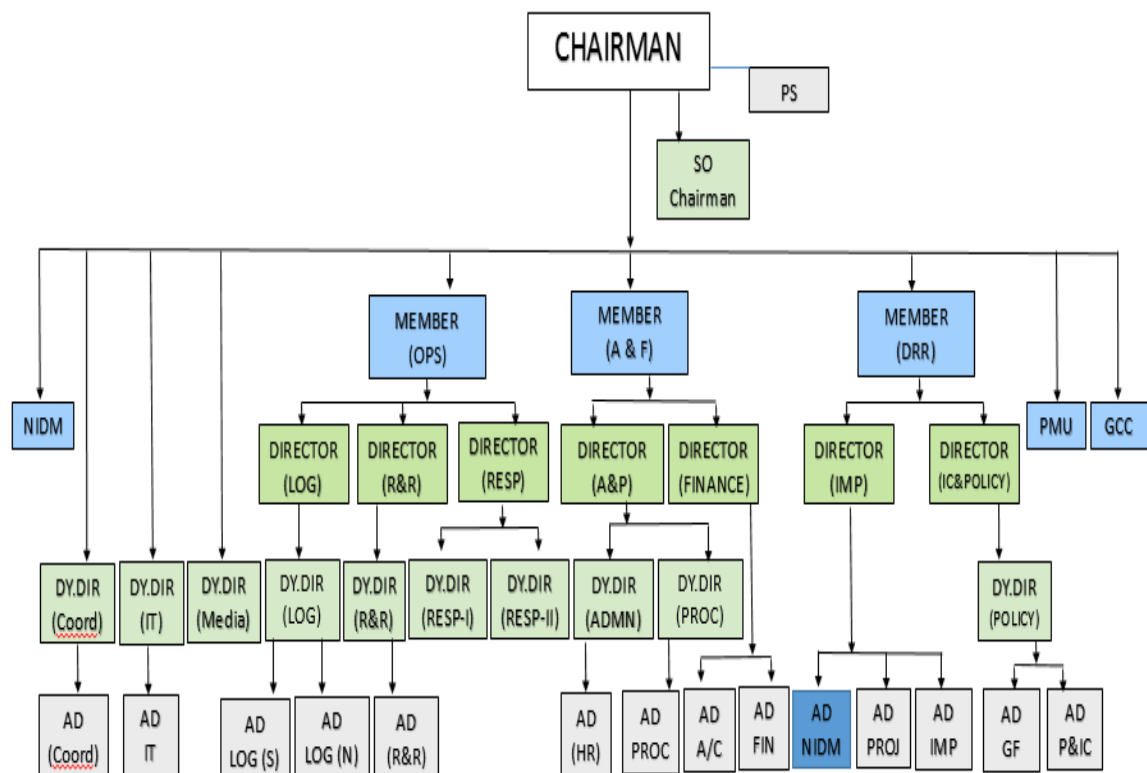
- a. lay down the policies, plans and guidelines for disaster management.
- b. approve the National Plan.
- c. approve plans prepared by the Ministries or Divisions of the Federal Government in accordance with the National Plan.
- d. arrange for, and oversee, the provision of funds for the purpose of mitigation measures, preparedness and response.
- e. provide such support to other countries affected by major disasters as Federal Government may determine; and
- f. Take such other measures for the prevention of disaster, or the mitigation, or for preparedness and capacity building for dealing with disaster situation as it may consider necessary.

4.2.2. National Disaster Management Authority (NDMA):

At federal level, the National Disaster Management Authority (NDMA) is established.

The power of the Authority includes to: -

- a. act as the implementing, coordinating and monitoring body for disaster management;
- b. prepare the National Plan to be approved by the National Commission;
- c. implement coordinate and monitor the implementation of the National policy;
- d. lay down guidelines for preparing disaster management plans by different Ministries or Departments and the Provincial Authorities;
- e. provide necessary technical assistance to the Provincial Governments and the Provincial Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Commission;
- f. coordinate response in the event of any threatening disaster situation or disaster;
- g. Lay down guidelines for, or give directions to the concerned Ministries or Provincial Governments and the Provincial Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster;
- h. for any specific purpose or for general assistance requisition the services of any person and such person shall be a co-opted member and exercise such power as conferred upon him by the Authority in in writing.



Present Organogram of NDMA

4.2.3. Provincial Disaster Management Authorities(PDMAs):

Provincial Authority is established at each province including region of Gilgit Baltistan and Azad Jammu & Kashmir. The Provincial Authorities under the Act have following powers and functions: -

- a. Responsible for implementing policies and plans for disaster management in the Province.
- b. Formulate the provincial disaster management policy obtaining the approval of the Provincial Commission;
- c. Coordinate and monitor the implementation of the National Policy, National Plan and Provincial Plan.
- d. Examine the vulnerability of different parts of the Province to different disasters and specify prevention or mitigation measures.
- e. Lay down guidelines to be followed for preparation of disaster management plans by the Provincial Departments and District Authorities.
- f. Evaluate preparedness at all governmental or non-governmental levels to respond to disaster and to enhance preparedness.
- g. Coordinate response in the event of disaster.
- h. Give directions to any Provincial department or authority regarding actions to be taken in response to disaster.
- i. Promote general education, awareness and community training in this regard.
- j. Provide necessary technical assistance or give advice to district authorities and local authorities for conveying out their functions effectively.
- k. Advise the Provincial Government regarding all financial matters in relation to disaster management.
- l. Examine the construction in the area and if it is of the opinion that the standards laid down has not been followed may direct the same to secure compliance of such standards.

- m. Ensure that communication systems are in order and disaster management drills are being carried out regularly; and
- n. Perform such other functions as may be assigned to it by the National or Provincial Authority.

4.2.4. District Disaster Management Authority(DDMA):

As per NDM Act 2010, each Provincial Government shall establish a District Disaster Management Authority (DMA) for every district. The District Authority shall consist of such number of members, as may be prescribed by the Provincial Government, and unless the rules otherwise provide, it shall consist of the following members, namely:

- a. Nazim of the District who shall be Chairperson, ex officio;
- b. the District Coordination Officer;
- c. the District Police Officer, ex-officio;
- d. the Executive District Officer Health; and
- e. such other district level officers, to be appointed by the District Government.

The District Authority shall act as the district planning, coordinating and implementing body for disaster management and take all measures for the purposes of disaster management in the district in accordance with the guidelines laid down by the National Authority and the Provincial Authority. The District Authority is mandated to:-

- a. prepare a disaster management plan including district response plan for the district;
- b. coordinate and monitor the implementation of the National Policy, Provincial Policy, National Plan, Provincial Plan and District Plan;
- c. ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the Government at the district level as well as by the local authorities;
- d. ensure that the guidelines for prevention, mitigation, preparedness and response measures as laid down by the National Authority and the Provincial Authority are followed by all departments of the Government at the district level and the local authorities in the district;

- e. give directions to different authorities at the district level and local authorities to take such other measures for the prevention or mitigation of disasters as may be necessary;
- f. lay down guidelines for preparation of disaster management plans by the departments of the Government at the districts level and local authorities in the district;
- g. monitor the implementation of disaster management plans prepared by the Departments of the government at the district level;
- h. lay down guidelines to be followed by the Departments of the Government at the district level;
- i. organize and coordinate specialized training programs for different levels of officers, employees and voluntary rescue workers in the district;
- j. facilitate community training and awareness programs for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organizations;
- k. set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public;
- l. prepare, review and update district level response plan and guidelines;
- m. coordinate with, and give guidelines to, local authorities in the district to ensure that pre-disaster and post-disaster management activities in the district are carried out promptly and effectively;
- n. review development plans prepared by the Departments of the Government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation;
- o. identify buildings and places which could, in the event of disaster situation be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places;
- p. establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;
- q. provide information to the Provincial Authority relating to different aspects of disaster management;

- r. encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management;
- s. ensure communication systems are in order, and disaster management drills are carried out periodically; and
- t. perform such other functions as the Provincial Government or Provincial authority may assign to it or as it deems necessary.

The Act has also delegated an additional power to District Authorities, like for the purpose of assisting, protecting or providing relief to the community, in response to any disaster, the District Authority may: -

- a. give directions for the release and use of resources available with any department of the Government and the local authority in the district;
- b. control and restrict vehicular traffic to, from and within, the vulnerable or affected area;
- c. control and restrict the entry of any person into, his movement within and departure from, a vulnerable or affected area;
- d. remove debris, conduct search and carry out rescue operations;
- e. provide shelter, food, drinking water and essential provisions, healthcare and services;
- f. establish emergency communication systems in the affected area;
- g. make arrangements for the disposal of the unclaimed dead bodies;
- h. direct any Department of the Government of the Province any authority or body under that Government at the district level to take such measures as are necessary in its opinion;
- i. require experts and consultants in the relevant fields to advise and assist as it may deem necessary;
- j. procure exclusive or preferential use of amenities from any authority or person;
- k. construct temporary bridges or other necessary structures and demolish structures which may be hazardous to public or aggravate the effects of the disaster.

5. Key Federal Ministries / Departments:

5.1. Federal Ministries: As per National Disaster Management Plan(NDMP), the following federal ministries shall take measures for the purpose of disaster management:

- a. Ministry of Communications
- b. Ministry of Defence
- c. Ministry of Climate Change
- d. Ministry of Economic Affairs and Statistics
- e. Ministry of Finance and Revenue, Planning and Development
- f. Ministry of Food Security and Research
- g. Ministry of Foreign Affairs
- h. Ministry of Housing and Works
- i. Ministry of Human Rights
- j. Ministry of Industries
- k. Ministry of Information and Broadcasting
- l. Ministry of Information and Technology
- m. Ministry of Interior
- n. Ministry of Law, Justice and Parliamentary Affairs
- o. Ministry of Petroleum and Natural Resources
- p. Ministry of Ports and Shipping
- q. Ministry of Railways
- r. Ministry of Regulations and Services
- s. Ministry of Science and Technology
- t. Ministry of Water and Power

5.2. Federal Departments and Authorities: As per National Disaster Management Plan(NDMP), the following departments and authorities shall take measures for the purpose of disaster management:

- a. Capital Development Authority

- b. Civil Aviation Authority
- c. Civil Defence
- d. Coast Guard
- e. Federal Flood Commission (FFC)
- f. Fire Fighting Services
- g. Geological Survey of Pakistan
- h. National Crisis Management Cell (NCCM)
- i. National Highway Authority (NHA)
- j. National Housing Authority
- k. National Logistics Cell (NLC)
- l. Pakistan Armed Forces
- m. Pakistan Housing Authority
- n. Pakistan Meteorological Department (PMD)
- o. Pakistan Commissioner for Indus Waters (PCIW)
- p. Pakistan Public Works Department
- q. Pakistan Railways
- r. Police (including Levis and Khasadar in FATA)
- s. Space and Upper Atmosphere Research Commission (SUPARCO)
- t. Survey of Pakistan
- u. Traffic Police
- v. Water and Power Development Authority (WAPDA)

The roles and responsibilities of each federal department and/or authority during pre-disaster, emergency response, and post-disaster phase are well elaborated in the **Appendix-II** of main volume of the National Disaster Management Plan(NDMP).

6. COUNTRY DISASTER RISK MANAGEMENT STATUS

In the aftermath of Indian Ocean Tsunami in 2005, a need was felt to develop a proactive framework of action to mitigate damages and losses due to mega disasters world over. The World leaders agreed on a 10-year Hyogo Framework for Action (HFA) in a Conference held at Kobe, Hyogo, Japan, in January 2005 under the auspices of United Nations. HFA was signed by 168 nations including Pakistan,

committing to implement the five priorities during 2005-2015 to meet overall objective of “Building the Resilience of Nations and Communities to Disasters”. HFA was succeeded by the Sendai Framework for DRR and adopted by member states in June 2015. This framework has four key priority areas with seven (07) targets for risk reduction.

Pakistan due to its diverse topographic and demographic settings is vulnerable to a host of natural and human-induced hazards. Hydro-meteorological disasters in the country, mostly induced by climate change and variability, have become more unpredictable with a significant increase in their frequency and intensity. The economic and social losses caused by these disasters in Pakistan run into billions of dollars, bearing a negative impact on our socio-economic indicators. This situation warranted adoption of a workable policy for disaster risk management and associated capacity building measures. Though, Pakistan, over the years, has achieved a significant progress over disaster, however, the journey still requires sustainable efforts and contribution from all concerned in all fields.

Owing to the international framework on DRR, many DRR relevant programs and projects have been developed through a participatory process thereby enhancing the collaboration among all sectors and stakeholders in the implementation and monitoring of DRM. Following paras will highlight the journey: -

6.1. DRR – A paradigm shift

In a paradigm shift, the work on DRR was initiated as under: -

Ser	Policy Document	Outcomes
a.	National Disaster Risk Management Framework (2007-12)	Framework defined roles and responsibilities of key stakeholders in implementation of disaster management policies while revolving around objectives of the globally agreed Hyogo Framework for Action
b.	DRM Needs Assessment Report -	A Country-wide DRM Needs Report was formulated through a consultative process which subsequently

	2011	assisted in formulating respective policies and plans to cater to the national and provincial DRM requirements. The process helped NDMA in preparing a Country-wide DRM Needs Report that later helped in formulating respective policies and plan to cater to the national and provincial DRM requirements.
c.	National Disaster Risk Reduction (DRR) Policy 2011	Through a participatory approach and wider consultations with relevant stakeholders including all provinces, National Disaster Risk Reduction (DRR) Policy was formulated which was approved in 4 th Meeting of National Disaster Management Commission (NDMC) under the Chairmanship of the Prime Minister of Pakistan. This policy covers implementation of DRR measures in a holistic way and is premised on proactive and anticipatory approach towards DRM by laying special emphasis on risk assessment. The DRR policy seeks to promote priority measures for existing vulnerability to hazards, and ensures that future development initiatives add resilience.

6.1.1.National Disaster Management Plan (NDMP 2012 – 2022):

Under the DRR policy parameters and in-line with the provision of NDM Act 2010, NDMA also formulated a prospective ten years' National Disaster Management Plan (NDMP 2012-22) and got it approved by the NDMC in its meeting held on 21st February, 2013. The Plan covers the complete spectrum of disasters including pre, during & post disaster phases, aims at steering the institutional and technical direction of disaster risk management in Pakistan in accordance with national requirements while also fully complying with international frameworks on DRR and DRM. NDMP cost layout and interventions are: -

- a. Interventions - 10
- b. Strategies - 41
- c. Projects - 118
- d. Cost

Original. 1040 Million USD (Based on estimates of 2013).

Revised. 2040 Million USD (after finalization of NFPP-IV).

- e. Timeframe - 10 Years (2013-22)

6.1.2. NDMP Implementation Road Map:

In October 2015, NDMA launched the Implementation Roadmap 2016-2030 of Pakistan's National Disaster Management Plan. The Implementation Roadmap focused on following four domains: -

- a. Multi-Hazard Vulnerability Risk Assessment (MHVRA) of entire Country to draw the risk atlas up to lowest tier i.e. City (Urban) and Village (Rural) level.
- b. Community Based Disaster Risk Management (CBDRM) up to Union Council Level (inclusive of all constituents of Union Council).
- c. Capacity Building (CB): -
 - (1) Government Officers Emergency Response Exercise(GOERE).
 - (2) Mobilization of local Volunteers Emergency Response Exercise (MOVEER).
 - (3) Other Capacity Building activities for Government Officials.
- d. Awareness and Advocacy about entire spectrum of disaster management.

6.1.3. A focused and phased approach, based on priority of vulnerable districts is being pursued in execution of the NDMP implementation Roadmap, for which comprehensive parameters have been followed. The districts have been divided in three phases based their risk profile and vulnerability, the timeframe and target number of districts for each phase also varies based on priority and needs. Sequel to this 39, 55 & 63 districts to be covered during 1st, 2nd and 3rd phase respectively.

6.1.4. All Projects/Interventions strictly observe the implementation guidelines which were formulated for standardizing the implementation process. All project interventions are executed as per standard guidelines to ensure uniformity of parameters, optimal

utilization of resources and bring about synergy among efforts undertaken in the field of Disaster Management.

6.1.5. The National Disaster Management Plan (NDMP) has a close linkage with the National Climate Change Policy. The NDMP interventions 3,4 & 7 are aligned with Policy Measures 4.7 a – b, 4.7d-h,4.7 j-o of intervention 4.7 (Disaster Preparedness) of National Climate Change Policy.

6.2. Country DRM Status Report:

The Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) sets the outcome of “**Substantial Reduction of Disaster Risk and Losses**”, to be measured against seven global targets that are both quantitative and qualitative, against the baseline of the 2005-2015 period. The subsequent report mainly reflects on the status of DRM in Pakistan during the period 2005-2015. This report has been developed based on desk reviews, National HFA reports, progress reports and data gathered from NDMP implementation roadmap monitoring.

6.2.1. Country’s Disaster Risk Profile

- a. With more than 185 million inhabitants in 2014, Pakistan is the sixth most populous country in the world. Pakistan has a diverse landscape spread over nine major ecological zones.
- b. It’s territory encompasses portions of the Himalayan, Hindu Kush, and Karakoram mountain ranges, Inter-mountain valleys make up most of the Khyber Pakhtunkhwa Province and rugged plateaus cover much of Balochistan in the west. In the east are located irrigated plains that lie along the River Indus and cover much of Punjab and Sindh. Both provinces also have desert areas of Cholistan and Thar in Punjab and Tharparkar in Sindh. The country’s main river is the Indus and its three tributaries are the Chenab, Ravi, and Jhelum. The Arabian Sea marks Pakistan’s southern boundary.
- c. The country’s population is concentrated in the eastern provinces of Punjab and Sindh, which contain 78.6 percent of the total population.
- d. The agricultural sector is the mainstay of Pakistan's economy.

- e. Pakistan due to its diverse topographic and demographic settings, is vulnerable to a number of natural and human-induced hazards. Hydro-meteorological disasters in the country, mostly induced by climate change & variability have not only become more unpredictable but both their frequency and intensity have increased significantly.
- f. Pakistan's exposure to natural hazards and disasters could be ranked between moderate to severe. A range of natural hazards including earthquakes, droughts, floods, landslides, avalanches, cyclones/storms, tsunami, glacial lake outburst floods (GLOFs) and extensive river erosion are the hazards that threaten Pakistan throughout the year.
- g. In addition, a variety of human induced hazards also loom over the society, economy and environment. For example, industrial, chemical and transport accidents, oil spills, urban fires and civil conflicts. High priority hazards from the perspective of disaster risk reduction include flooding, earthquakes, landslides and droughts which may inflict severe socio-economic damages.
- h. Due to climatic and topographical diversity, every province and region faces a diverse range of hazards (Global Climate Risk Index 2016 Annex C).

6.2.2. Disaster Risk and Losses 2005-2015:

Natural hazards in Pakistan originate mostly from meteorological phenomena. Weather-related hazards account for approximately 76 % of the total number of natural disasters recorded between 1980 and 2013, with floods (riverine flooding and flash floods) accounting for 46 percent of all hazards. Earthquakes and floods¹ occur more frequently and are respectively expected to hit annually, up to three times a year. It must be mentioned that only two drought events were recorded in the International Disaster Database (EM-DAT) during the last two decades to date. The economic and social losses caused by these disasters in Pakistan run into billions of dollars. In the *Fiscal Risk Assessment Options for Consideration, A Study by World Bank and GFDRR, 2015* the annual economic impact due to disasters runs into US\$ 1.2 – 1.8 billion equivalent to between 0.5 % and 0.8 % of national GDP;

¹ Riverine, coastal, flashfloods, GLOFs, floods induced by storm surges

however simulations show that a major flood event (occurring, on average, once every 100 years) could cause losses in excess of US\$ 15.5 billion, which equates to around 7 % of national GDP, equivalent to almost 40 % of the Federal Budget. In terms of overall economic damages, the proportional impact of riverine flooding is still larger. The earthquake share in terms of the total damages reaches 21%, including a significant effect of 2005 earthquake.

6.2.3. SFDRR Priority 1 (Understanding Disaster Risks)

a. National and Local Risk Assessments

- (1) Institutional Commitment has been attained through identification of National Hazard and Vulnerability Assessment as one of the priority areas in the National Disaster Risk Management Framework, 2007 and National DRR Policy.
- (2) Macro level National Multi - Hazard and Risk Assessment has been carried out with the technical assistance of JICA and Japanese technical experts during formulation of National Disaster Management Plan (NDMP).
- (3) In accordance with intervention 3 of National Disaster Management Plan, a detailed Multi-Hazard Vulnerability and Risk Assessment (MHVRA) pilot project was also carried out in Sindh province in 2013, with the financial support of WFP and technical support of Asian Disaster Preparedness Center (ADPC)-Bangkok and a national consulting firm M/s Network of Disaster Management Practitioners (NDMP)-Islamabad. The study was done on two different scales, one at Macro level covering whole Sindh Province and other was at Micro level scale with focus on five selected districts (Thatta, Badin, Tando Mohammad Khan, Tando Allah Yar and Mir Pur Khas).
- (4) Multi Hazards & Risk Assessment Study of five districts of Punjab (Multan, Jhang, Bahawalpur, R.Y.Khan & Khanewal) completed covering complete spectrum of hazards and vulnerabilities.
- (5) In order to consolidate the work already done and being done, NDMA constituted a National Working Group (NWG) on Vulnerability and Risk Assessment to coordinate all activities related to vulnerability & risk assessment and to provide strategic guidance. In addition, the NWG on RA is

also supposed to ensure consistency in methodologies employed for risk assessments, uniformity in data format during collection process, and coordination.

b. Collection, analysis, management and use of disaggregated data and information:

- (1) National Disaster Management Authority (NDMA), has been continuously striving to address the needs of vulnerable groups.
- (2) Collection and management of disaggregated data has been a foremost priority and an initiative on segregation of important demographic parameters of the top 25 most vulnerable and hazard prone districts, as per NDMP Implementation Roadmap has already been completed.
- (3) The data and demographic statistics of the study areas have been presented in the form of a Disaggregated Data Atlas containing visualization charts, maps, info-graphs, index charts and tables. The objective of the initiative is to provide a better understanding of population dynamics with specific focus on vulnerable groups.

c. Disaster Education and Awareness: Efforts have been made in creating awareness in the communities through: -

- (1) 8th October has been notified as National Disaster Awareness Day since year 2015.
- (2) Active Social Media presence established across multiple platforms.
- (3) Rich Library on Public Service Messages established.
- (4) Dynamic website with Global viewership and Alerting Capability is put in place.
- (5) Disaster Maps Portal for making all spatial data available to the public on Disaster Risks and Vulnerabilities
- (6) A comprehensive NDMA Documentary on Disaster Management Developed in 2016.
- (7) Child centered and gender sensitive IEC material designed for all potential hazards, emergencies and disasters.
- (8) Conduct of pre, during and post disaster Media Campaigns.

- (9) Conduct of National and provincial level Media Training Workshops on responsible media reporting during disasters at Karachi, Lahore, Islamabad and Peshawar during 2016.
- (10) Development of documentary highlighting issues of vulnerable groups specially children in DRR/M.
- (11) Development of Radio program on child centered DRR/M.
- (12) NDMA signed various collaterals with National Universities which will enable NDMA to benefit from their technical and non-technical capabilities and resources. Such collaborations include signing of MoU with Institute of Space Technology and NED University of Engineering and Technology.
- (13) A complete social media constellation is formed, maintained and promoted to include a dedicated channel on YouTube, Facebook, Twitter, Vimeo and Flickr Accounts.
- (14) Integration of DRR Component in Academic Curricula is being pursued.
- (15) Recognition of Bachelor and Master Level Program on DM by Higher Education Commission (HEC) has been done.

d. Develop, update periodically and disseminate location-based disaster risk information:

- (1) NDMA has recently launched an effective system of early warning for the local communities in close coordination with Pakistan Telecommunication Authority (PTA) and involvement of telecommunication industry. The SMS based Early Warning System for communities was tested for the first time in 2014 (6 million SMS generated) during the floods. This system was further improved in 2015. Approximately 52.2 million messages were generated in 2015. After 26th October 2015 Earthquake, NDMA had issued 15 Public Service Messages (PSMs) to the population of Malakand Division and Bajaur Agency through SMS alerts.
- (2) Pakistan Radio and Television with further outreach effectively used as part of information campaign.
- (3) For making early warning and dissemination timely and effective and financially viable, National Disaster Management Plan (NDMP) has included a

comprehensive and exclusive Multi-Hazard Early Warning System (MHEWS) Plan, with an indicative financial overly of US\$ 188 million. The Plan includes upgradation of existing radar stations, developing linkages between national and regional disaster management authorities etc.

e. Disaster Loss Accounting at National and Local Levels:

- (1) A system of standardized situation report mechanism with detailed reporting at all levels has been established to ensure uniformity and better reporting standards.
- (2) Multi Sector Initial Rapid Assessment (MIRA) tool has been developed in collaboration with UNOCHA conforming with the local requirements. This tool was used in 2015 and is being refined further.
- (3) National Guidelines on ex gratia compensation and damage assessment are being prepared in consultation with the Provinces.
- (4) Indigenous system of damage assessment has been put in place and effectively practiced in Earthquake of 2015, ensuring face paced and affective early recovery within 8 weeks.

f. Regional/trans-boundary risks:

Water emerged as a major reason of contention between Pakistan and India, as the partition of British India in 1947 led to division of the Indus River Basin. India emerged as an upper riparian with control over the canal head works that supplied water to vast lands which became part of Pakistan.

- (1) Given the current trend of global warming and climate change, water insecurity in the basin has heightened, resulting in Trans-boundary risks for Pakistan.
- (2) Pakistan being lower riparian state is at a higher risk of floods arising out of extreme weather events especially riverine floods.
- (3) Information exchange mechanism with India is constantly being improved.
- (4) Efforts are being made to institutionalize trans-border early warning mechanism and information sharing of hydro metrological data with India and Afghanistan.
- (5) Establishment of weather early warning between Pakistan Metrological and other Metrological departments of the region as per protocols of WMO.

6.2.4.SFDRR Priority 2 - Strengthen Disaster Risk Governance to Manage Disaster Risk:

a. Legislative and Regulatory Framework Related to DRR:

The National Disaster Management Act, 2010 has been enacted by the National Parliament, based on which Disaster Management System at National, Provincial and District level has been established. The Act now provides legal framework for functioning of the existing disaster management system in Pakistan at all levels. National Disaster Management Rules have also been drafted which are presently undergoing consultative process before their formal approval and adoption from the relevant forums and authorities. The Rules will further explain and elaborate various provisions of the NDM Act, 2010 and lay down standards and procedures as required under the Act, to be followed by all stakeholders in the disaster management system of the Country. Some of the related regulatory frame work are: -

- (1) National Disaster Management Act enacted in 2010.
- (2) National Disaster Risk Management Framework (2007-12).
- (3) DRM Needs Report formulated through consultative process in 2012,
- (4) National DRR Policy formulated in 2012.
- (5) National Disaster Management Plan (NDMP) formulated in 2013.
- (6) Act of enforcement of Building Codes in final stages.
- (7) Draft River Act is ready as part of National Flood Protection Plan IV.
- (8) National Fire and Life Safety Codes under process of notification.

b. Institutional framework

- (1) The National Disaster Management Commission (NDMC) is the apex national forum to make policies in the field of disaster management. Sectoral representation has been ensured through ministerial membership from each key sector, along with representation from the civil society. Thus the policy formation mechanism defined under the existing system is clearly based on a multi-sectoral approach.
- (2) The National Disaster Management Authority (NDMA) acts as the secretariat

/ executive arm of the Commission. It also provides policy input to the NDMC. The policy input so generated is based on multi-stakeholder consultation processes being arranged from the platform of the NDMA.

- (3) Similar arrangements have also been made at the Provincial levels by establishing Provincial Disaster Management Commissions (PDMCs), headed by their respective Chief Ministers and Provincial / Regional Disaster Management Authorities have also been established.
- (4) Moreover, District Disaster Management Authorities have been established in some of the districts and have been strengthened in capacity to deal with disaster management activities at the local levels. The DDMA's are required to frame policies and plans on disaster management relevant to local needs. Powers have been delegated to DDMA's to mobilize resources at the local levels to deal with disasters or threatening emergency situations. In addition, roles and responsibilities of various stakeholders in pre-disaster, during disaster and post-disaster phases have clearly been laid out in the National Disaster Management Plan.
- (5) In addition to above, at Federal level, Emergency Relief Cell has been merged with NDMA.
- (6) NDMP Implementation Steering Committee has been formed with a dedicated Unit within NDMA.
- (7) Gender & Child Cells have been established at National & Provincial Level.
- (8) Concept paper for a National Disaster Response Force (NDRF) is being prepared for approval.
- (9) National & Provincial Working Groups have been established and functioning on Mainstreaming DRR.
- (10) Chairman NDMA has also been entrusted with additional charge of Earthquake Recovery and Reconstruction Authority (ERRA).
- (11) Emergency Service Rescue 1122 has been established as a district and Provincial Emergency Service which is functional in all Provinces except one where it is in process of being raised.

c. Policy environment and list of key policies related to DRR

- (1) National Disaster Risk Reduction (DRR) Policy, outlining Country's DRR objectives and priorities was approved by the National Disaster Management Commission in February, 2013.
- (2) In line with the policy parameters, a 10 year (2012-2021) National Disaster Management Plan for was formulated and approved by the NDMC. The plan, which covers the complete spectrum of disasters including: pre, during & post disaster phases, aims at steering the institutional and technical direction of disaster risk management in Pakistan.
- (3) Gender being an important cross cutting theme in development, is also a priority for NDMA. In this regard, NDMA also established a gender and child cell in 2010 and have already formulated the gender and child cell framework, leading to formulation of National Policy Guidelines on Vulnerable Groups in Disaster (Aged, Disabled, Women, Children).
- (4) In the context of mainstreaming, a key development has been the incorporation of DRR checklist as an integral part of the Pakistan's public sector development project proposal format i.e PC-I, ensuring DRR mainstreaming in each new project before its approval by the highest planning forum for implementation. Some other key policies formulated are: -
 - (a) Disaster Risk Management Needs Assessment Report 2012.
 - (b) NDMA Guidelines for the Persons Affected by Natural and Manmade Disasters.
 - (c) Implementation Framework on the National Policy Guidelines.
 - (d) Pakistan School Safety Framework developed and being piloted.
 - (e) MHVRA Implementation Guidelines and Policy formulated.
 - (f) Multi-Sector Initial Rapid Assessment (MIRA) Guidelines
 - (g) Development of Media & Communication Strategy.

d. Accountability Mechanisms

- (1) National Disaster Management Act 2010 defines following Clause for accountability: -

Clause 34: *Whoever knowing makes a claim which he knows or has reason to believe to be false for obtaining any relief or assistance for relief,*

reconstruction or other benefits consequent to disaster from any officer of the Federal Government, Provincial Government, National Authority, Provincial Authority or District Authority shall be punishable with imprisonment for a term which may extend to two years or with fine or with both.

The subject clause was affectively invoked in the aftermath of 2015 Earthquake.

- (2) For effective implementation of the NDMP, NDMA launched the aforementioned NDMP Implementation Road Map on 19th October, 2015 wherein all implementing partners including relevant government ministries/ departments/agencies and development partners participated. In addition, NDMA also notified the Steering Committee responsible for Implementation of NDMP, in November 2014.
- (3) NDMA Steering Committee oversees all sensitive studies and development of related DRR polices, scrutinizes and approves all MHRA.
- (4) Monitoring of all interventions by NDMA and PDMA's for quality assessment and sustainability is done.
- (5) Periodical Coordination Conferences of all stake holders for transparency, accounting and strengthening coordination is done.

6.2.5. SFDRR Priority 3 - Invest in DRR for resilience:

a. National, Local and Sectoral Budget Allocation for DRR

- (1) Dedicated funds for DRR exist in the form of President's Relief Fund, PM's Disaster Relief Fund.
- (2) National Disaster Management Fund also exists to deal with specific emergency situations with similar funds at Provincial levels.
- (3) Pakistan Fund for Disaster Management has been established with the support of Asian Development Bank (ADB) with an initial seed money of USD 1 M (spread over 10 years). The major part of the fund will be used for DRR.
 - (a) Early Warning System (EWS).
 - (b) Flood mitigation.
 - (c) Enhanced Annual budget of NDMA.
 - (d) NFPP IV with a cost estimate of USD 1707.60 M is with Council of Common Interest.

- (4) Modernization of Pakistan Metrological Department (PMD) for a sum of USD 190 M is in the process of approval.
- (5) The provincial governments have provided dedicated funds to the Provincial Disaster Management Authorities in their annual budgets besides allocating special grants for emergency response during these years.
- (6) Efforts are underway for regular annual allocations for disaster management in the budgeting system at provincial and district levels, for implementation of public sector development program on DRR. The National DRR Policy also recommends that a separate and dedicated budget line for disaster risk reduction be created at federal, provincial and district tiers.

b. Disaster risk transfer and insurance, risk sharing and retention and financial protection mechanisms

- (1) NDMA is working in close collaboration with Lead Pakistan / CDKN on designing an initiative on Disaster Risk Insurance mechanism for vulnerable and marginalized communities. A pilot project on Disaster Risk Insurance is under consideration which is the first initiative of its kind in the region.
- (2) Demand study for Fiscal Disaster Risk Assessment Provision has been completed and pilot project is to commence shortly.
- (3) A Mature Citizen Damage Compensation program exists after experience of Earthquake 2005 and Floods 2010/2011.
- (4) A National Guideline is being developed in collaboration with UNOCHA.

c. Policies, Plans and Investments to Reduce Risk in Key Development Sectors

- (1) In view of increased frequency of natural disasters, NDMA is working on updating the building codes of Pakistan, which will later be followed by increased advocacy on implementation of building codes for safer construction. Safer construction practices have been widely followed in the region affected by Earthquake 2005 as part of the reconstruction process. Pakistan Engineering council (PEC) has developed the following major national codes:
 - (a) Building code of Pakistan (Seismic Provison-2007)
 - (b) Building code of Pakistan (energy provisons-2011)

- (c) Pakistan Electric and telecommunication safety code (2014)
- (2) The National Building Code is now being revised which will soon be circulated for enforcement. Currently, implementation of existing building codes remains a challenge. Enactment of building codes is also being pursued through legislation terming violation of building codes as a criminal offence.
 - (3) National Fire & Life Safety Codes have also been formulated with the collaboration of Pakistan Engineering Council (PEC).
 - (4) Environmental Impact Assessments has been made mandatory for all public sector projects.
 - (5) Compliance checklist has been made mandatory for mainstreaming DRR into development, planning and public sector projects.
 - (6) Annual monsoon contingency plans are prepared every year based on the emerging weather patterns.

6.2.6.SFDRR Priority IV - Enhance disaster preparedness for effective response and to “Build Back Better”:

a. Disaster preparedness and Contingency Policies, Plans, Relief Funds and Capacity for Preparedness and Response

- (1) The contingency and response planning process undertaken since 2007 has now been reformed with a view to conduct planning on bottoms up approach, involving relevant stakeholders at district levels.
- (2) Every year, the National Disaster Management Authority, keeping in view the multifaceted challenges of climate change and corresponding resources available, launches a vigorous campaign of awareness raising and a provincial level broad based consultation process. These consultations are aimed at creating an understanding for multi-hazard contingency planning process with specific focus on Monsoon Contingency Plan. These consultations also have components for identification of DRM needs at provincial and regional level for focused policy interventions to redress the key concerns.
- (3) The NDMA in collaboration with all provinces and regions undertakes annual monsoon preparedness and contingency planning which results in formulation

of provincial and National Contingency Plans. NDMA also developed a National Monsoon Contingency Response Directive for 2015.

(4) Similarly, NDMA has already formulated contingency plans for different hazards, such as: -

(a) Contingency Plans

- i. National Disaster Response Plan (NDRP), 2010
- ii. Annual Monsoon Contingency Plans, 2010-2016
- iii. Draft National Drought Mitigation and Response Plan, 2015
- iv. Cyclone Contingency Plan for Karachi – 2008
- v. Nuclear Emergency Management Plan
- vi. National Plan for Industrial / Technical Disasters
- vii. National Maritime Disaster Contingency Plan

(b) SOPs

- i. SOPs on Separated, Unaccompanied and Missing Children in Disasters
- ii. SOPs for Emergencies (Urdu)
- iii. SOP for Air Crash Handling
- iv. Minimum Cash Compensation Package

c. Training Manual

- i. Training Manual on Gender Mainstreaming in Disaster, 2014.
- ii. Trainer Manual Child Protection in Emergencies.
- iii. Guidelines and training manuals for MHVRA.
- iv. Comprehensive National Guidelines for School Safety.

d. Studies / Reports

- i. Study on the impacts and future line of action relating to, June 2015 Heat Wave in Karachi, Sindh.
- ii. Causes and Prevalence of Early and Forced Marriages in Disasters, 2014.
- iii. Report on Gender, Climate Change & Disasters- 2014.
- iv. Disaggregated Data Atlas according to age, gender and disability developed.
- v. Gender Task Force mapping study.

vi. Qualitative study on the Needs and Concerns of Vulnerable Groups during disasters.

- (5) Capability exists to support over 0.3 Million people across the Country by NDMA over and above respective Provincial capability. 21000 M Tons stocking capability of NFIs has been developed and standardized inventory for all regions procured.
- (6) Country wide elaborate Warehouse Network have been established with support of WFP including 6 Strategic Humanitarian Response Facilities and 51 Flosspans. Each warehouse complex has number of sheds, administered in building boundary wall and backup generator. Once functional, these warehouses will ensure effective disaster response by up-scaling preparedness level with respect to stocking piling of emergency relief goods. This would facilitate field coordination and easy access to the disaster prone communities.
- (7) About 6500 persons were trained in 164 Courses through National Institute of Disaster Management from 2010 to 2016.
- (8) National Disaster Management Simulation Exercises were conducted in year 2014 and 2015 with the support of WFP. Initially the exercise was conducted as a pilot project for 3 districts of Punjab. This exercise was instrumental in enhancing the capacity of different stakeholders in understanding and practicing various aspects of disaster management, such as early warning planning, coordination, and/ managing response for urban relocation, camp management, logistics needs and damage assessment. On successful completion of the above exercise, a country wide Disaster Management Simulation Exercise was also organized in 2015.
- (9) There are plans to run a Regional Scale Simulation Exercise in January 2017.
- (10) An Earthquake Mock Drill at regional scale has been planned for 2016 through UNESCO
- (11) A National Industrial Mock Exercise was held in 2010 and then again March 2016. A third exercise is planned in January 2017.
- (12) NDMA participated in South Asian Annual Disaster Management Exercise

(SAADMEX) held at New Delhi, India with a team of professionals.

(13) Government Official Emergency Response Exercise (GOERE) was conducted all across the Country in 2016 and there are plans to continue with the same in 2017 also.

(14) Six modern Urban Search & Rescue Teams have been raised in the country and are functional.

b. Early Warning Systems

(1) NDMP identifies short, medium and long term interventions for effective multi-hazard early warning system with special focus on hydro-meteorological and climate induced disasters. The multi-hazard early warning system plan contains an exclusive investment of Rs. 50 billion for flood control on country-wide basis.

(2) Based on identified priorities, NDMA and Pakistan Meteorological Department (PMD) have initiated the process to replace the existing radar stations at Karachi and Islamabad. The objectives of the projects are to improve PMD's capabilities in meteorological observation, weather forecasting and dissemination of forecasts & warnings. Weather radar at Karachi would also provide concise information on cyclone development 60-72 hours ahead of its actual development.

(3) Automatic weather stations are being installed with support of UNESCO for remote area data collection.

(4) Flash Flood Guidance System are being established through World Meteorological Organization for effective flashflood forecasting using satellite data. The system is currently under testing by the PMD.

(5) Tsunami Early Warning System has been established under overall control of PMD in the coastal areas of Sindh and Balochistan with master station at Gwadar. Tsunami simulation exercise has also been completed by the PMD.

(6) Formulation of SOP's for cyclone early warning has also been completed by the PMD.

(7) Training for seismic data collection and tide gauge maintenance has also been imparted.

- (8) PMD's medium range forecasting capability has been enhanced by NDMA during the Monsoon season-2015 through acquisition of European center of Medium Range Weather Forecasting (ECMWF) product.
- (9) With the support of Government of Japan, a Rainfall River Flow-Inundation Model has been developed for western (Indus) river for improved flow forecasting.
- (10) Early warning messages using SMS broadcast, disseminated in 2015 to flood affected communities in selected districts of Punjab and Sindh. System being institutionalized with the assistance of PTA and collaboration of cellular companies.

c. Planning for Post Disaster Recovery and Reconstruction

- (1) NDMA issued guidelines for integrating DRR into post disaster recovery and reconstruction efforts. The guidelines suggest the following measures: -
 - (a) Vulnerability assessment of public and community buildings, particularly schools and hospitals in hazard-prone areas.
 - (b) Promoting hazard resilient construction of new buildings keeping in view the hazard profile of the areas.
 - (c) Implementing of disaster preparedness plans for hazard prone areas.
 - (d) Training and capacity building of first responders, through CBDRM Programs.
 - (e) Promoting the use of hazard risk information in land-use planning and zonation.
 - (f) Promoting the increased use of hazard-resilient designs in rural housing in hazard-prone areas.
 - (g) Utilization of national building codes, compliance and enforcement of local building laws in urban hazard- prone areas.
 - (h) Promoting programs of contingency crop planning; crop diversification.
 - (i) Incorporating flexible repayment schedules into microfinance schemes.
 - (j) Support for community-driven processes and networks of protection that activate and build on local groups and resources.

6.3. International Cooperation:

- (1) **Bilateral & Regional Linkages**: NDMA has been instrumental in extending and strengthening Pakistan's diplomatic outreach through establishment of various bilateral and multilateral linkages for collaboration in the field of DRR, which includes: -

(a) Bilateral Linkages

Ser	Country	Status
i.	Republic of Korea	Signed in Sep 2012
ii.	Turkey	Signed in Dec 2013
iii.	Sri Lanka	Signed in April 2015
iv.	Kyrgyz Republic	Signed in May 2015
v.	Republic of Cuba	Approved in Dec 2015
vi.	Kazakhstan	Under Process
vii.	Afghanistan	Under Process
viii.	Bangladesh	Under Process
ix.	ICHARM- Japan	Under Process
x.	Azerbaijan	Under Process
xi.	China	Under Process

(b) Regional Linkages

- i. **Regional Consultative Committee on Disaster Management (RCC)**. Pakistan hosted the 13th RCC meeting in collaboration with MoFA and ADPC.
- ii. **Heart of Asia Istanbul Process (HOA, DM-CBM)**. 3rd Meeting of RTG was held on 14th May, 2014 in Islamabad and 4th Meeting of RTG was also organized on 8th September, 2015 in Islamabad.
- iii. **SAARC Disaster Management Center (SDMC)**. Pakistan has offered to host SAARC Environment & Disaster Management Center (SEDMC) with the merger of existing SAARC Meteorological Research Center, SAARC Forestry Center, SAARC Coastal Zone Management Center and SDMC.
- iv. **Organization of Islamic Countries (OIC)**. Supporting OIC in Disaster Management.
- v. **Asian Disaster Preparedness Center (ADPC)**. NDMA enjoys a very close working relations with ADPC. A case in point is the joint hosting of the 13th

RCC in Pakistan.

- vi. **Asian Disaster Reduction Center (ADRC)**. NDMA, being counterpart organization, enjoys a very close working relations with ADRC.

6.4. Key issues, challenges and priorities for Sendai Framework Implementation

- a. Implementation of Road map of National Disaster Management Plan
- b. Micro level risk assessment of entire country
- c. Enhancing medium to long range weather forecasting capability
- d. Financial constraints versus enhanced vulnerability
- e. More collaborative partnership with Development Entities at National level.
- f. Capacity and resource enhancement of DM institutions especially at Provincial and district level.
- g. Capacity enhancement of PDMAs and DDMA's.
- h. Enhance resilient capacity of communities through Advocacy and Awareness.
- i. Enhance regional and international linkages for DRR.
- j. Integration of Youth, Boy Scouts, and Girl Guides in Disaster Management and devise a National Volunteer Network.
- k. Strengthening and developing National Institute of Disaster Management (NIDM) on permanent footing.
- l. Expansion of Emergency Response Service (Rescue1122) network in the country.
- m. Establish donor's budget line for Disaster Risk Reduction instead of relief/humanitarian assistance.
- n. Simulation exercises to improve response and capacity of disaster managers.
- o. Robust regional based logistics system for immediate response.
- p. Effective implementation of Activity plan under Heart of Asia process.
- q. Implementation of Road Map for HoA countries.
- r. Enhanced Regional and International Linkages for DRR.
- s. Sharing Research, Knowledge & Best Practices - Regional & Global scale.
- t. Disaster Risk Insurance Framework.
- u. Foster private sector investment by formulating mechanism for disaster risk transfer and insurance.

- v. Revisit National Disaster Contingency & Response Plan.
- w. Integrating the monitoring of SFDRR in national systems.

7. ADRC Counterpart

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8. References / Useful Links:

- a. Official website of National Disaster Management Authority (NDMA), Government of Pakistan; <http://www.ndma.gov.pk>.
- b. National Disaster Management Act 2010, Government of Pakistan; <http://www.ndma.gov.pk/files/NDMA-Act.pdf>
- c. National Disaster Management Plan, NDMA Government of Pakistan; <http://www.ndma.gov.pk/plans/NDMP-Main%20Vol.pdf>
- d. Pakistan Climate Change Policy / http://nidm.edu.pk/Documents/Policies/National_Climate_Change_Policy_2012.pdf
- e. Official website of Pakistan Space and Upper Atmosphere Research Commission (SUPARCO); <http://www.suparco.gov.pk>.
- f. Official website of Pakistan Meteorological Department (PMD); <http://www.pmd.gov.pk>.
- g. Official website of Federal Flood Commission, Government of Pakistan; <http://www.ffc.gov.pk>.
- h. Official website of Provincial Disaster Management Authority (PDMA), Khyber Pakhtunkhwa, <http://www.pdma.gov.pk/>
- i. Official website of Provincial Disaster Management Authority (PDMA) Punjab/ <http://pdma.gop.pk/>
- j. Official website of Provincial Disaster Management Authority (PDMA) Sindh/ <http://www.pdma.gos.pk/new/>
- k. Official website of Provincial Disaster Management Authority (PDMA) Balochistan / <http://pdma.gob.pk/>
- l. Official website of FATA Disaster Management Authority (FDMA)/ <http://www.fdma.gov.pk/>
- m. Official website of Gilgit Baltistan Disaster Management Authority (GBDMA)/ <http://www.gbdma.gog.pk/>
- n. Official website of State Disaster Management Authority (SDMA), AJ&K / <http://sdmagok.pk/>

- o. Sendai Framework for Disaster Risk Reduction / http://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf
- p. Official website of the Asian Disaster Reduction Center, Government of Japan// <http://www.adrc.asia>.