NDMA'S

National Disaster Management Plan - III

2024

NATIONAL DISASTER MANAGEMENT AUTHORITY

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List of Acronyms

BHU	Basic Health Unit
CNG	Compress Natural Gas
COVID	Coronavirus Disease
DDMA	District Disaster Management Authority
DEOC	District Emergency Operation Center
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EOCs	Emergency Operation Centers
EWSs	Multi-Hazard Early Warning Systems
FFC	Federal Flood Commission
FFD	Flood Forecasting Division
FRD	Flood Risk Reduction
GDP	Gross Domestic Product
GIS	Geographic Information System
GLOF	Glacial Lake Outburst Flood
HKH	Hindu Kush-Himalaya
HRF	Humanitarian Response Facilities
IASC	Inter-Agency Standing Committee
ICT	Islamabad Capital Territory
INGO	International Non-Government Organizations
IRSA	Indus River System Authority
KKH	Karakorum Highway
LPG	Liquid Petroleum Gas
MCH	Mother and Child Health
MHVRA	Multi-Hazard, Vulnerability, and Risk Assessment
MIRA	Multi-Sector Initial Rapid Assessment
NDMA	National Disaster Management Authority
NDMP	National Disaster Management Plan
NDRMF	National Disaster Risk Management Fund
NDRP	National Disaster Response Plan
NEOC	National Emergency Operation Center
NIDM	National Institute of Disaster Management
NLC	National Logistic Cell
PEOCs	Provisional Emergency Operation Centers
PIA	Pakistan International Airline
PMD	Pakistan Meteorological Department
PRCS	Pakistan Red Crescent Society
RHC	Rural Health Center

List of Acronyms

SFDRR	Sendai Framework for Disaster Risk Reduction
SIMEX	Simulation Exercise
SOP	Standard Operating Procedure
SUPARCO	Space & Upper Atmosphere Research Commission
UN	United Nation
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
WAPDA	Water and Power Development Authority
CBDRM	Community Based Disaster Risk Management
MISP	Minimum Initial Service Package
GCC	Gender and Child Cell

Executive Summary

Pakistan encounters a range of natural and human-induced hazards, owing to its diverse geography and the impact of climate change. The country's vulnerability has heightened by factors such as population growth, unplanned urbanization, exposure to hazards in vulnerable areas, limited institutional capacities, and the impacts of climate change. Addressing these challenges necessitates the revision of the National Disaster Management Plan, which provides standardized guidelines for hazard mitigation and preparedness measures against various hazards and outlines emergency response procedures in an organized manner, involving government and non-government stakeholders at all levels.

This Plan serves as a successor to the recently expired National Disaster Management Plan, which achieved significant milestones from 2012 to 2023. This National Disaster Management Plan shall act as a comprehensive document, adopting a proactive approach to enable National and Provincial Disaster Management Authorities to prepare for and respond to emergencies in a coordinated manner. It delineates the roles and responsibilities of various stakeholders and outlines necessary actions at each level to manage disasters effectively. Emphasis is placed on enhancing coping capacities and leveraging past experiences by improving disaster preparedness and response mechanisms. This involves refining the operational procedures of the national emergency operation center, developing contingency plans, conducting regular drills, and simulation exercises, and maintaining a resource inventory.

The National Disaster Management Plan highlights the compulsion for coordination mechanisms, encompassing the operationalizing of emergency operation centers, rapid damage needs assessment, and effective media management during emergencies. Furthermore, it emphasizes community involvement in disaster management, delineating strategies outlined for building community resilience through public awareness campaigns, training, and capacity-building initiatives. It also discusses the essence of international cooperation and coordination in disaster response and recovery efforts. Moreover, it highlights significant actions undertaken in 2023, enabling Disaster Management Authorities to adopt a holistic approach towards comprehensive resilience strategies.

In conclusion, the National Disaster Management Plan stands as a crucial tool for enhancing Pakistan's preparedness and resilience to disasters and climate change. Successful implementation requires the collaboration and commitment of all stakeholders to effectively manage disasters and mitigate their impact on the population, economy, and environment.

Chapter 01

Need for Developing a National Disaster Management Plan in the context of Emerging Hazards and Climate Change

Introduction

1. The recent surge in the frequency and intensity of natural disasters has highlighted the need for a robust disaster risk management system at all levels. As per the Global Climate Risk Index 2021, Pakistan ranks among the top 10 countries most adversely affected by climate change, with an annual average from 2000 to 2019 [1]. However, Pakistan is ranked 31st globally in the total greenhouse gas emissions [2].

2. Recognizing climate change as a key factor escalating the risk of hydro-meteorological disasters in recent years, there is a dire need to transition from a reactive to a proactive approach and thoroughly prepare for emergency responses to mitigate the consequences of disasters. Despite notable achievements following the establishment of disaster management authorities nationwide, there remains much work to be done in raising awareness and building resilience against the future hazards and risks raised by climate change and human interactions with natural processes.

3. To chart a strategic course, the National Disaster Management Authority (NDMA) formulated the National Disaster Risk Reduction (DRR) Policy in 2013, followed by the development of the National Disaster Management Plan 2012-2023 and the National Disaster Response Plan in 2019. Substantial milestones have been achieved across the country through collaborative efforts involving both government and non-government organizations under these strategic documents. Following the expiration of the previous NDMP-II in 2023, the National Disaster Management Plan takes its place, providing a roadmap for attaining additional milestones in 2024 and beyond. With the collective support of both government and non-government stakeholders, we are optimistic about striving towards and achieving the set targets for 2024 and beyond.

Aim

4. The NDMP-III aspires "*to strengthen the necessary capacities to mitigate risks and promote resilience to disasters and climate impacts at every level*" by preparing Gender Inclusive and cross cutting Disaster Management and Emergency Preparedness Plans.

Mission

5. The mission is to actively engage in every phase of the disaster management cycle, employing a strategic approach. This entails implementing specific interventions in collaboration with counterparts to strengthen the capacities of all stakeholders, ensuring a well-coordinated state of readiness for any emergency or disaster.

Objectives

6. The plan aims to achieve the following objectives:

a) Continuing efforts in establishing a robust disaster risk management system with a focus on institutionalization at the grassroots levels.
b) Analyze natural and human-induced hazards, including climate change induced hydro-meteorological hazards, to identify their likely occurrences, timing, and frequency.
c) Identify and prioritize districts at risk for future project implementation, aimed at reducing the consequences of disasters and fostering resilience against both disasters and climate change.
d) Ensure that the needs and concerns of vulnerable population i.e. Women, Children, Elderly, Disable Persons and other marginalized communities are catered for in all phases and all types of Disasters.
e) Define priority interventions for implementation, collaborating with counterparts to enhance disaster resilience and adapt to climate change.
f) Ensure the integration of disaster risk management into future development programs while ensuring climate adaptation policies.
g) Adapt Anticipatory Actions to enhance preparedness and response capacities.

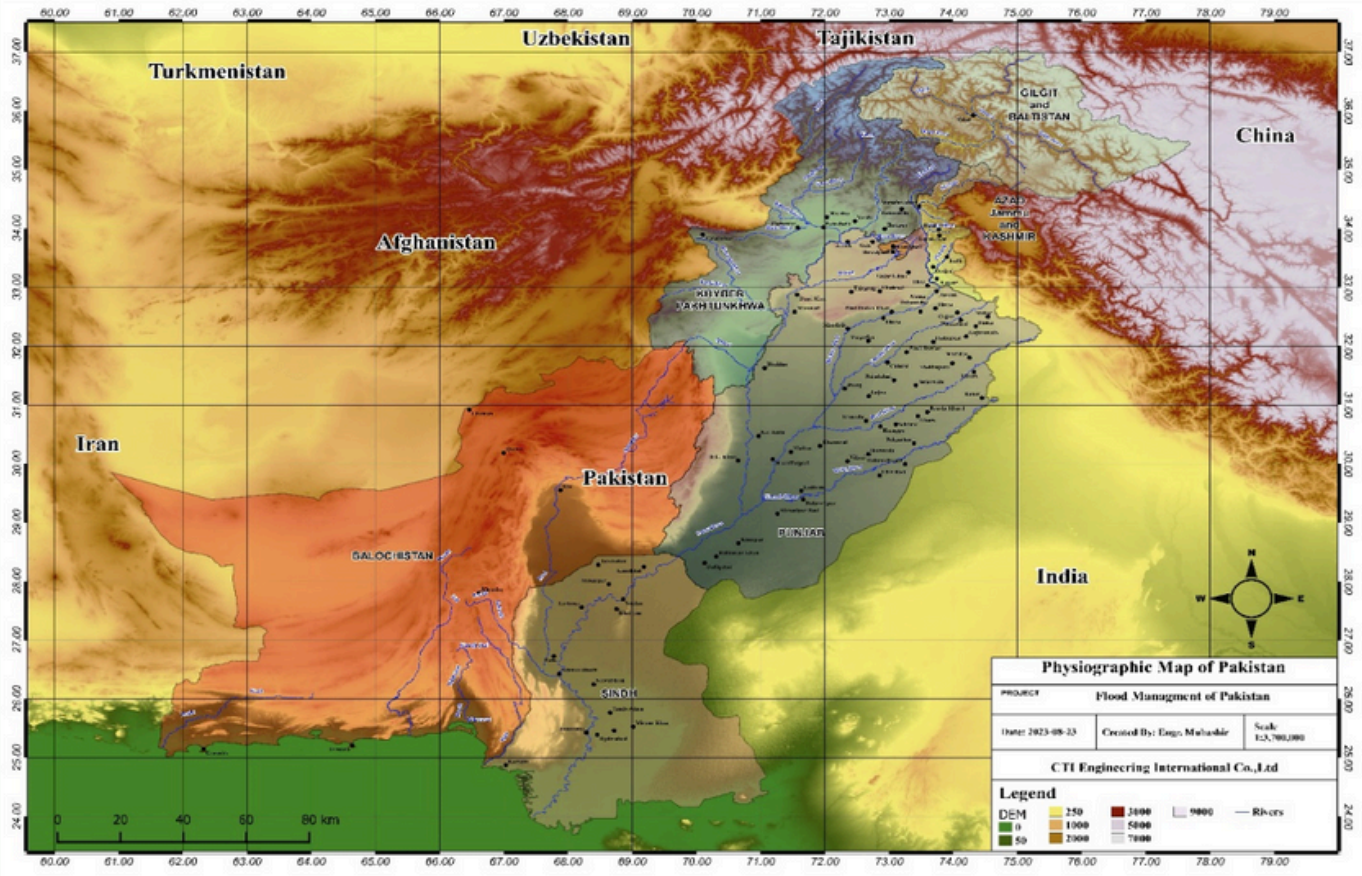


Figure 1.1:Physiographic Map of Pakistan (Source: NEOC)

Pakistan at a Glance

Geographical Features

7. Pakistan boasts diverse geographical and physical features, encompassing mountains, fertile plains, plateaus, and deserts. The eastern part comprises the flat Indus Plain, while the west features the Balochistan Plateau. In the north and northwest, Pakistan is home to one of the world's highest mountain ranges, the Karakoram Range. Notably, the world's second-highest mountain, K2, is located in Gilgit-Baltistan Pakistan, along with the impressive 63 Km -long Baltoro Glacier, one of the longest glaciers outside Earth's Polar Regions. The country's major river, the mighty Indus, spans a total length of 3,180 Km[3] and is regarded as the lifeline of Pakistan. Other significant rivers include Jhelum and Chenab as the Western Rivers and Ravi, Beas, and Sutlej as Eastern River.

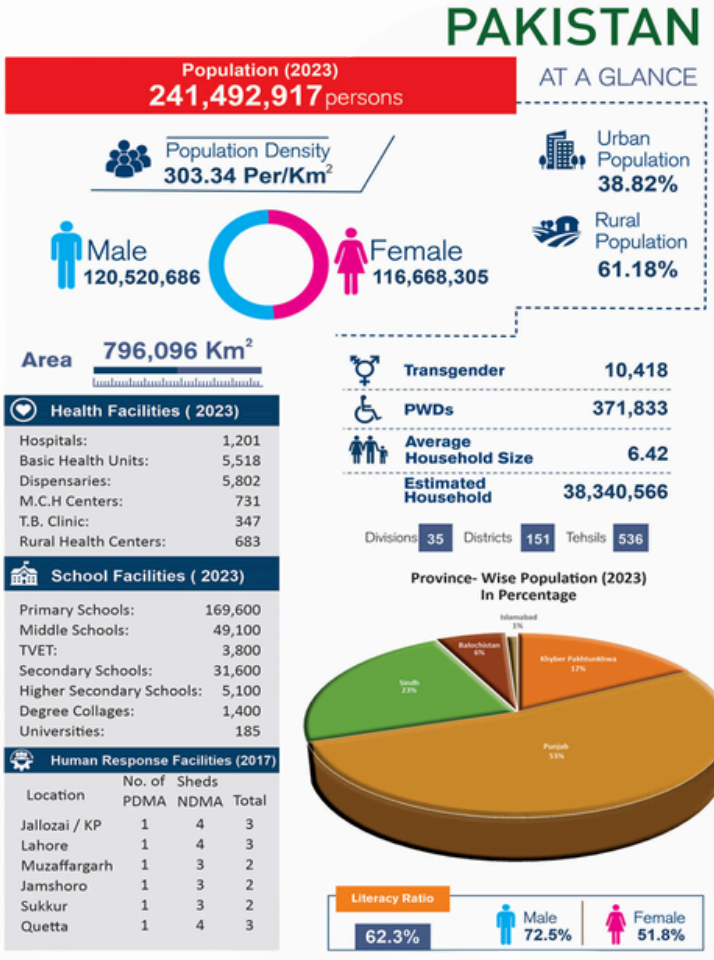


Figure 1.2 Pakistan at a glance

Demographic Features

8. With a recorded population of 241,490,000 people in the recent census of 2023, Pakistan has now secured its position as the world's fifth-most populous country. The intercensal population data reveals a notable growth trend, surging from 33.74 million in Census 1951 to 207.68 million in 2017, indicating a population surge of 173.94 million individuals over the past 67 years. The graph below illustrates Pakistan's substantial population growth over the last three to four decades, resulting in an overall cumulative increase of 515.55% since 1951[4]. As of 2023, the present population density in Pakistan stands at 302.08 individuals per sq/km [5]. When examining population density on a provincial level, it is evident that Islamabad is experiencing a significant and rapid increase in population.

9. According to the Population Census report of 2017, the overall population density is 260.88 persons/Km|. The province-wise population density shows that Islamabad's population is increasing at an enormous rate.

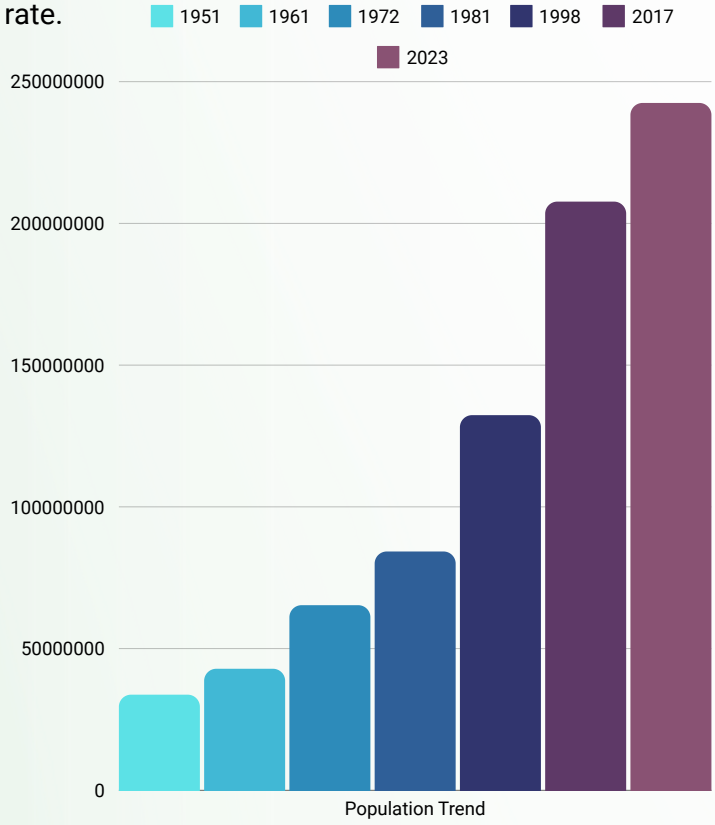


Figure 1.3 Intercensal Population Growth of Pakistan

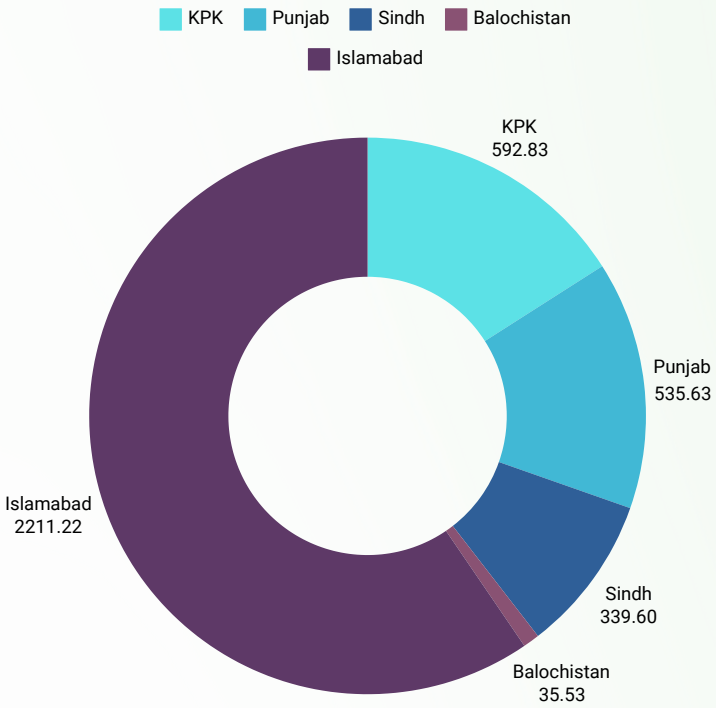


Figure 1.4: Province Wise Population Density (persons/sq.km)

Climate of Pakistan

10. In Pakistan, the weather is mainly dry, and the average yearly rainfall is less than 297.6mm. However, there's a noticeable climate difference between the Northern and Southern regions. The average annual temperature is around 22.45°C. In the flat areas, the hottest months are usually from June to August, and temperatures can sometimes go beyond 50°C during this period.

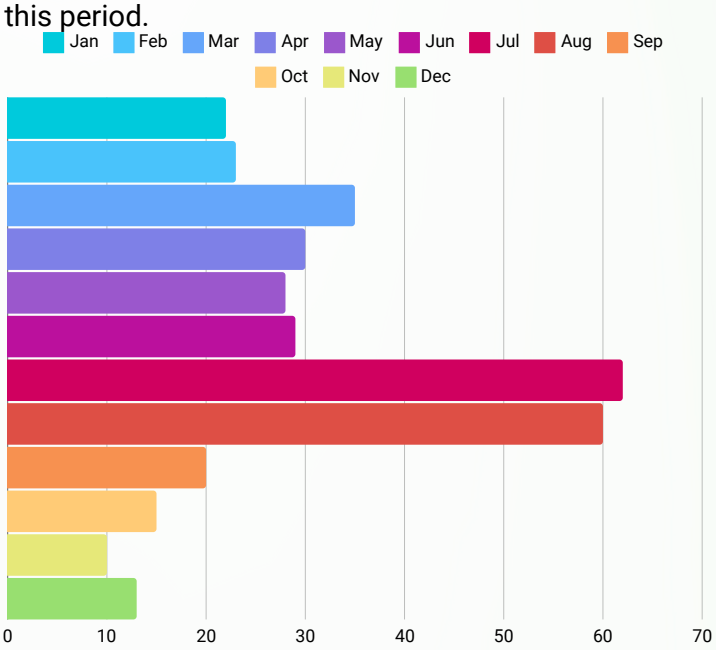


Figure 1.5: Monthly Rainfall during 2020 compared with their Corresponding Averages [6]

11. However, the coastal areas of Sindh and Balochistan Provinces tend to have warmer summers. During the winter months, spanning from December to January, temperatures drop significantly in the northern, western, and northwestern mountains, making these regions the coldest during winter, often accompanied by heavy snowfall. For instance, Skardu District experiences temperatures as low as -6°C to -8.7°C in December and January. Similarly, Quetta and Ziarat in Balochistan Province also undergo severe winters with snowfall on their mountains.

12 The country receives rainfall from two major sources such as; the monsoon during the summer months and the westerly depression during the winter months. However, most of the rainfall is received during the monsoon season which causes sometimes severe flooding in the plain areas of the country.

Administrative Features

13. Pakistan is administratively divided into four provinces: Khyber Pakhtunkhwa, Punjab, Sindh, and Balochistan, along with Islamabad Capital Territory. There are also autonomous regions, including Azad Jammu and Kashmir and Gilgit Baltistan. Administratively, the country is further divided into 39 divisions & 170 Districts.

Hazard Profile of the Country

14. In recent years, Pakistan has faced a frequent occurrence of both natural and human-induced disasters, highlighting the risk, exposure, and vulnerability of the general public. The country's exposure to natural hazards is considered moderate to severe, including earthquakes, droughts, floods, landslides, avalanches, cyclones, tsunamis, glacial lake outburst floods (GLOF), and locust infestations. Apart from natural hazards, various human-induced hazards also have created threats to society, the economy, and the environment including natural habitats and livestock. These Hazards encompass industrial, technological, and transport accidents, oil spills, urban fires, civil conflicts, and more.

15. From the perspective of disaster risk reduction, high-priority hazards include earthquakes, droughts, landslides, flooding, and transport accidents. These events have the potential to cause widespread damage and losses when they occur, turning into disasters that affect the lives and livelihoods of people.

Floods

16. Flood disasters can be classified into five main categories namely Riverine Floods, Flash Floods, Urban Floods, Glacial Lake Outbursts Floods, and Coastal Floods.

Pakistan is among first five South Asian Countries with the highest annual average number of people affected by Floods. Flooding is the most recurring natural disaster affecting human lives, and heavy losses to infrastructure and property. Normally tropical monsoon depression systems which originate from the Bay of Bengal during the month from July to September is the main cause of flooding in Pakistan. Flood characteristics can be classified into three main categories namely Riverine Floods, Flash Floods and Urban Floods.

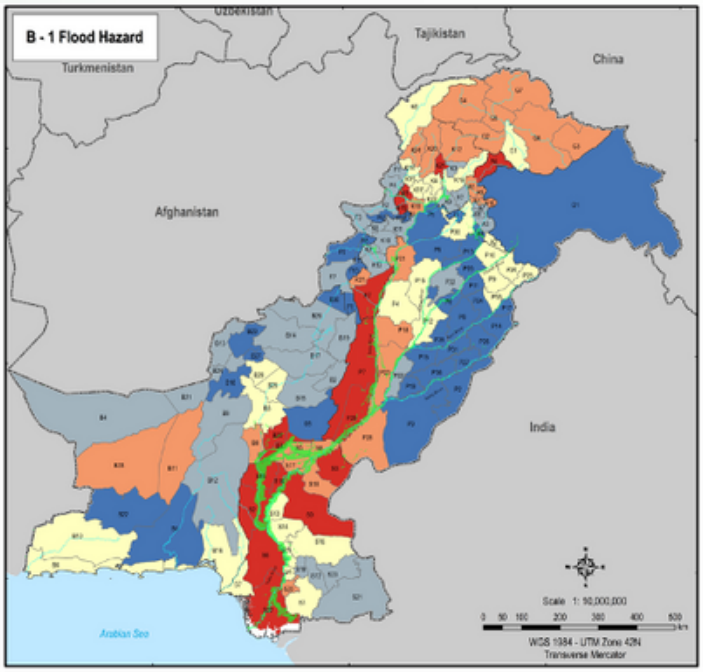
Year	Deaths	Villages Affected (Numbers)	Year	Deaths	Villages Affected (Numbers)
2022	1730	33 million people	2007	586	6,498
2021	198	Not Reported	2006	541	2,477
2020	423	1,193,353 people	2005	59	1,931
2019	235	Not Reported	2004	85	47
2018	135	Not Reported	2003	484	4,376
2017	271	Not Reported	2001	219	50
2016	153	45	1995	591	6,582
2015	238	4,111	1992	1,008	13,208
2014	367	3,798	1988	508	1,000
2013	243	8,297	1978	393	9,199
2012	571	14,159	1976	425	18,390
2011	520	38,700	1973	474	9,719
2010	1985	17,553	1957	83	4,498
2009	99	89	1956	160	11,609
2008	157	800	1950	2,190	10,000

Table 1.1: Major Flood Disasters in Pakistan

Province	Districts
Balochistan	Bolan, Chaghai, Gwadar, Jaffarabad, Jhal Magsi, Kech, Kharan, Khuzdar, Lasbela, Nasirabad, Nushki and Sibbi
Punjab	Bhakkar, D.G.Khan, Gujranwala, Gujrat, Jhang, Khushab, Layyah, Mianwali, Muzaffargarh, Narowal, R.Y.Khan, Ranjanpur; Rawalpindi, Sialkot and Sheikhupura
KP	Buner, Charsadda, Nowshera, Swat, Chitral, D.I.Khan, Dir Upper, Dir Lower, Kohistan, Kurram, Lakki Marwat, Malakand, Mansehra, Mardan, North Waziristan, Nowshera, Orakzai, Peshawar, Shangla, South Waziristan, Swabi, Swat and Tank
Sindh	Badin, Dadu, Ghotki, Jacobabad, Mirpur Khas, Jamshoro, Qamber Shahdadkot, Karachi, Kashmore, Khairpur, Larkana, Sanghar, Shikarpur, Sukkur, T.M.Khan and Thatta
Gilgit Baltistan	Astore, Chillas, Diamer, Ghanche, Gilgit, Ghizar, Hunza, Nagar & Skardu
AJ&K	Bagh, Bhimber, Muzaffarabad, Neelum and Poonch

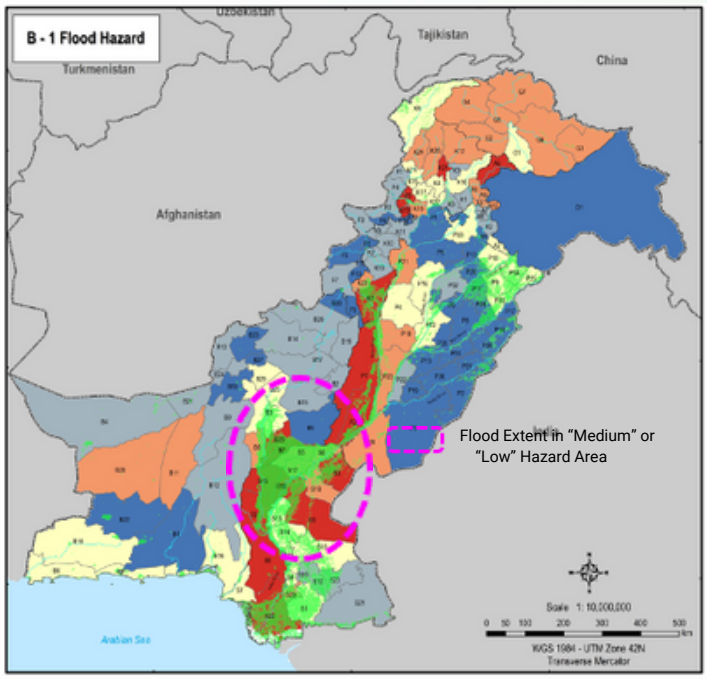
Table 1.2: List of Vulnerable Districts to Flood Hazard

Figure 1.9: Superimposition of Flood Extent by the 2010 Flood on Flood Hazard Zone



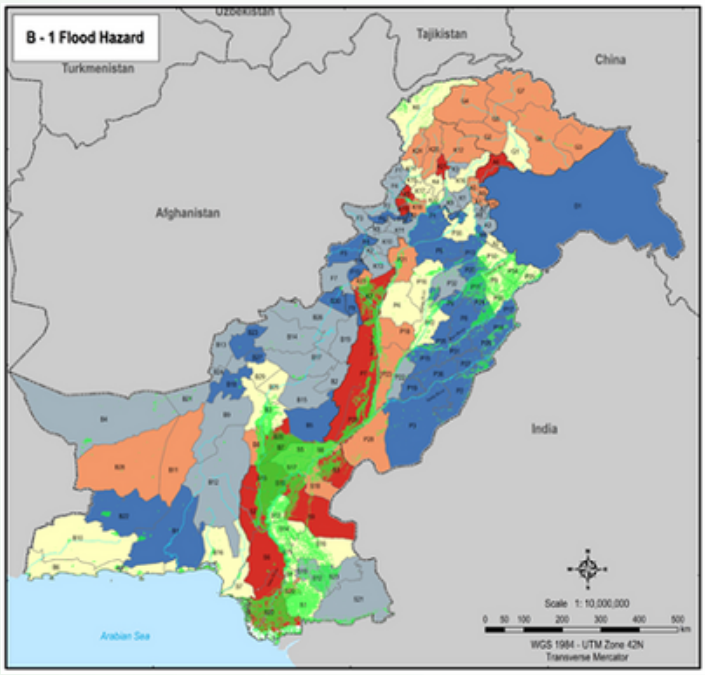
Source: of Flood Extent: United Nations Satellite Centre (UNOSAT)

Figure 1.10: Superimposition of Flood Extent by the 2022 Flood on Flood Hazard Zone



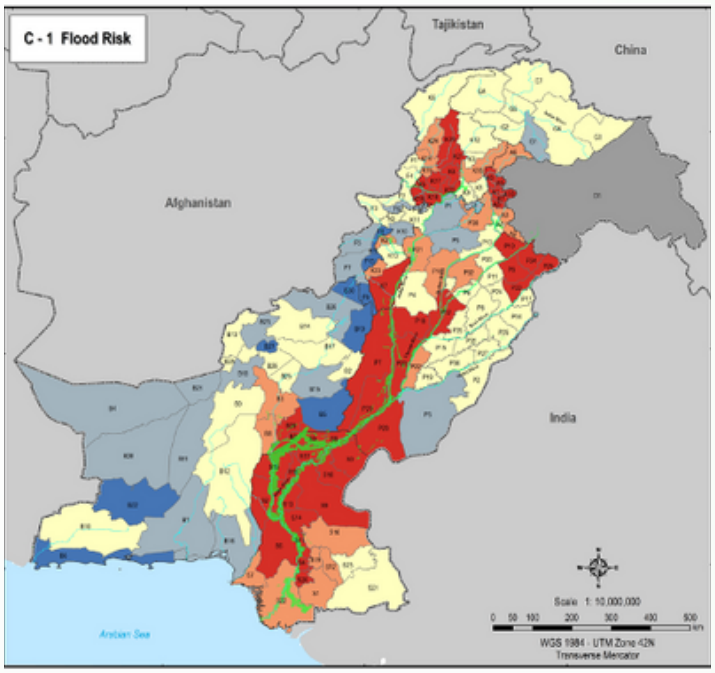
Source: of Flood Extent: United Nations Satellite Centre (UNOSAT)

Figure 1.11: Superimposition of Flood Extent by the 2010 Flood on Flood Risk Zone



Source: of Flood Extent: United Nations Satellite Centre (UNOSAT)

Figure 1.12: Superimposition of Flood Extent by the 2022 Flood on Flood Risk Zone



Source: of Flood Extent: United Nations Satellite Centre (UNOSAT)

Drought

17. During recent years, droughts have been reported to have extensive damage in Balochistan, Sindh, and Southern Punjab where average annual rainfall is as low as 200-250 mm. The Punjab province experienced the worst droughts in 1899, 1920 and 1935. The Khyber Pakhtunkhwa Province experienced the worst droughts in 1902 and 1951, while Sindh had its worst droughts in 1871, 1881, 1899, 1931, 1947, and 1999. The most severe drought at the national scale occurred in 1998-2001, with serious adverse impacts.

Province	Districts
Balochistan	**Severe:** Awaran, Gwadar, Kech, Kharan, Nushki, Panjgur and Washuk **Moderate:** Chaghai, Killah Abdullah and Pishin.
Punjab	**Severe:** Bahawalnagar, Bahawalpur, Bhakkar, Dera Ghazi Khan, Muzaffargarh, Rajanpur and Rahim Yar Khan **Moderate:** Attock, Chakwal, Jhelum, Khushab, Layyah and Mianwali
KP	Chitral
Sindh	**Severe**: Dadu, Jamshoro, Qambar Shadadkot, Tharparkar and Umerkot **Moderate**: Badin, Benazirabad, Karachi, Khairpur, Mirpur Khas and Thatta

Table 1.4: List of Vulnerable Districts to Drought Hazards

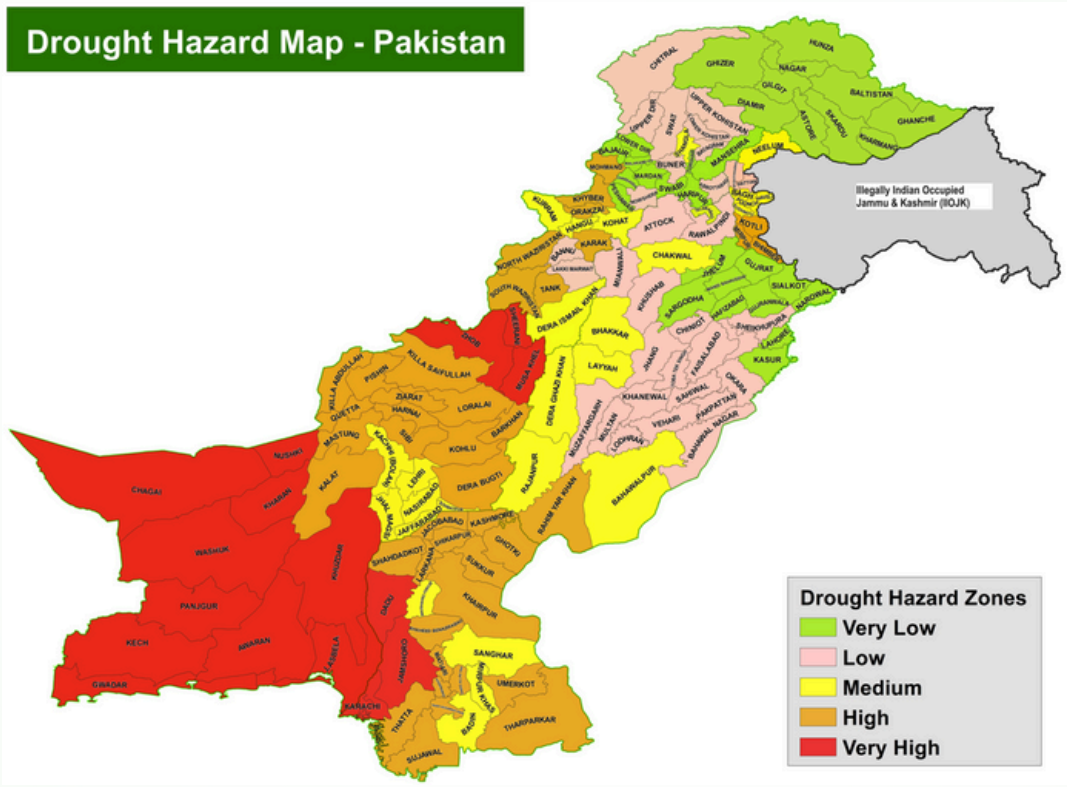


Figure 1.13: Distribution of Drought Prone Districts (Source: NEOC)

Earthquake

18. It is noted that a severe earthquake struck regions around Mirpur of Azad Jammu Kashmir in 2019. There was severe damage to MMI VII including 40 dead, and 850 injured. The area adjacent to Rawalpindi should remain on alert for future seismic activity.

Pakistan lies in a seismic belt along the Himalayas, Karakorum and partly Hindu Kush ranges in the north; Suleiman range in the west with Chaman fault line along Quetta, and Makran fault line along the seacoast. Many earthquakes have struck the area constituting Pakistan in the previous and present century as can be seen in the following map. Earthquakes normally occur along the Himalayas, Karakoram and partly Hindu Kush ranges in the north Koh-e-Suleiman range, in the west with Chaman fault line along Quetta and Makran fault line along the coast. In 1935, an earthquake of above 6.5 on Richter scale rocked Quetta leaving 35,000 people dead.

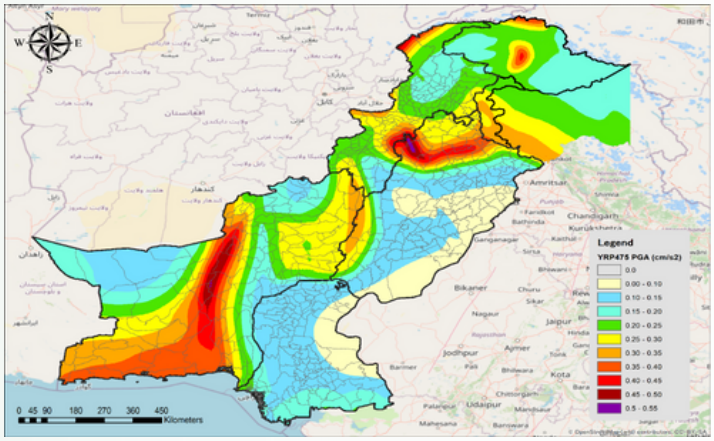


Figure 1.14: Seismic Zonation of Pakistan (Source: NEOC)

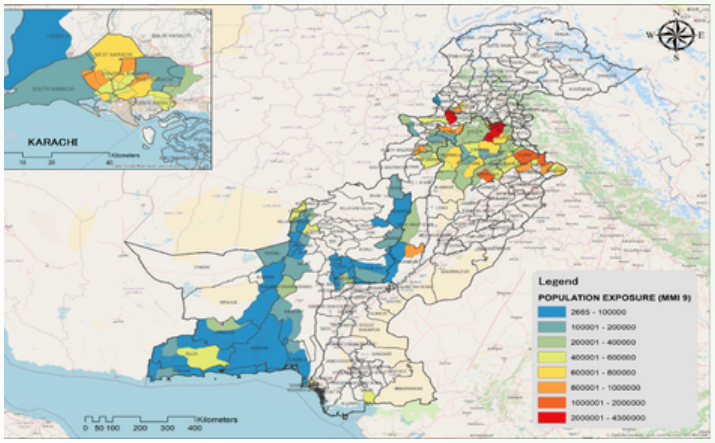


Figure 1.15: Distribution of Tehsils/Districts Prone to Earthquake in Pakistan (Source: NEOC)

Year	Location	Magnitude	Deaths	Losses
Jun 2022	North Waziristan	6.2	10	25 injured & 600 affected
Oct 2021	Harnai, Balochistan	5.9	42	300 injured & 10,000 houses
Sep 2019	Mirpur, AJ&K	5.4	40	850 injured & 135 houses severe, 319 partially damaged
Oct 2015	KP, Punjab, AJ&K & G-B	8.1	280	98,069 houses & 479 schools
Sep 2013	Awaran	7.7	376	6,842 houses
Oct 2008	Ziarat	6.4	160	5,943 houses
Oct 2005	KP & AJ&K	7.6	73,338	208,091 houses
Dec 1974	Northern Area	7.4	5,300	4,400 houses
Nov 1945	Makran Coast	8.3	4,000	-
May 1835	Quetta	7.7	60,000	-

Table 1.5: Major Earthquake Disasters in Pakistan

Province	Districts
Balochistan	Awaran, Barkhan, Dera Bugti, Gwadar, Jhal Magsi, Kachhi, Kallat, Kech, Kharan, Khuzdar, Killa Abdullah, Lasbela, Loralai, Mastung, Musakhel, Nasirabad, Nushki, Panjgur, Pishin, Quetta, Sherani, Sibbi, Sohbatpur, Washuk
Punjab	Attock, Bhakkar, Chakwal, Dera Ghazi Khan, Gujranwala, Gujrat, Jhelum, Khushab, Mandi Bahauddin, Mianwali, Narowal, Rajanpur, Rawalpindi
KP	Bannu, Charsadda, Hangu, Karak, Kohat, Lakki Marwat, Mardan, Peshawar, Swabi, Khyber, Kurram, Mohmand
Sindh	Badin, Central Karachi, East Karachi, Korangi, Malir, South Karachi, West Karachi
Islamabad	Islamabad

Table 1.6: Vulnerable Districts to Earthquake Hazard

Landslides

Pakistan is at considerable risk to landslide hazard. Landslides can occur on any terrain having the right conditions of soil, moisture, and the angle of slope. They can be triggered by rains, floods, earthquakes, and by other natural as well as human induced causes, such as grading, terrain cutting and filling, excessive development, etc. Major landslides have triggered in the aftermath of the 1972, 2005and 2010 earthquakes in Northern Pakistan. The cracks and unstable earth resulting from the earthquakes may cause massive landslides and loss of life and agricultural land in the event of heavy or extended rains. Some of these have posed major threat to the lives and livelihoods of a large population.

Year	Areas of Landslide Activity	Remarks
1982	Murree-Muzaffarabad Road and Ghari Habib Ullah Road	During Moderate Rains
1983	Murree-Kohala Road and Karakoram Highway	After Heavy Rains
1984	Hunza Valley, Karakoram Highway	Dry Season
1985	Murree-Kohala-Muzaffarabad Road and Karakoram Highway	During Monsoon
1987	Karakoram Highway (KKH)	Dry Season
1989	Kohala-Muzaffarabad-Ghari Habib Ullah Road and Karakoram Highway (Hunza Valley)	During Monsoon
1990	Hunza Valley and Batgram-Thakot Road (KKH)	Dry Season
1991	Various Sections of KKH and Murree-Kohala Road	During Heavy Rains
1992	Abbottabad-Nathiagali, Lowargali, and Kohala Road	Brief Rains
2005	Several Thousand Landslides or Rock Falls and Debris Falls in Muzaffarabad, Neelum Valley, Lamnian Valley, Balakot, and Kaghan Valley	Earthquake and Heavy Rains
2010	Formed Atta Abad Lake by Damming Hunza River, Blocked KKH.	Flood
2011	Tablislis sub division mashabrum district ghanche in GB hit by flood on 30 July 2011, 129 households completely destroyed	Flood, Landslide

Table 1.7: Major Landslide Disasters in Pakistan

Other Hazards

Tsunami

19. A major tsunami was experienced on November 28, 1945, due to a great earthquake with a magnitude of 8.3 offshore the Makran Coast, south of Pasni, during the early hours. The tsunami generated sea waves of 12-15 meters in height that claimed the lives of at least 4,000 people in Pasni and adjacent areas.

20. Approximately 450 km from the epicenter, sea waves reaching a height of 6 feet impacted harbor facilities in Karachi. The proximity of cities like Karachi to potential epicenters for large submarine earthquakes underscores the need to enhance local capacities for disaster risk reduction, early warning, and response to minimize losses to life, property, and the environment from future earthquake or tsunami events. The vulnerable district, including Gwadar, Lasbela, Korangi, Malir, South Karachi, Thatta, Sujawal, and West Karachi, are vulnerable to tsunami hazards.

Due to the tectonic setting in the Arabian Sea where the Arabian plate Subducts beneath the Eurasian plate, large earthquakes along the Arabian coast have occurred historically. However, all of the earthquakes cannot generate Tsunamis.

Date	Time	Magnitude	Run up (In meter)	Location
28 Nov 1945	21:56:40	8.3	15.24	Karachi, Gwadar, Ormara, & Pasni
27 Aug 1883	02:59	Volcano	0.50	Karachi

Table 1.8: Major Tsunami Disasters in Pakistan

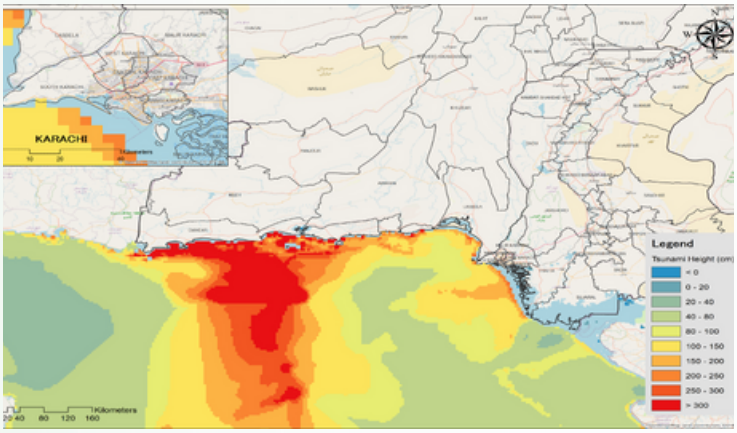


Figure 1.16 Tsunami Simulation Result along the coastal area of Pakistan (Source: NEOC)

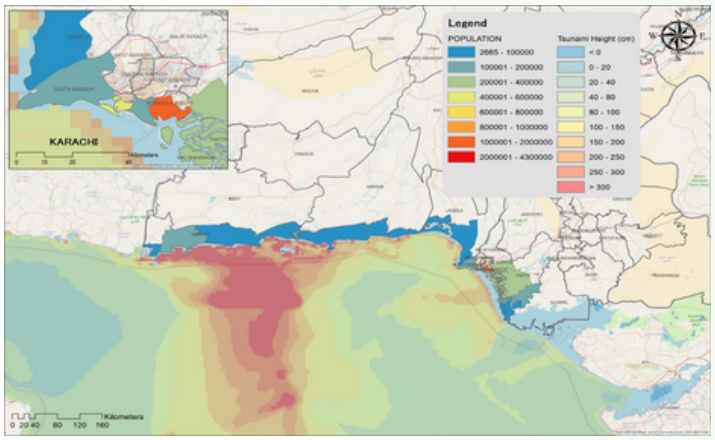


Figure 1.17: Distribution of Tsunami Prone Tehsil / Districts in Pakistan (Source: NEOC)

Smog

21. The smog is primarily caused by emissions from vehicles and industries, excessive waste production, rubbish incineration, dust from surrounding deserts, the excessive consumption of fuel due to a high population and cold winters, burning in agricultural fields, and smoke emanating from brick kilns in the vicinity of Lahore city [8]. The problem has worsened over the last few years, particularly during December and January. Consequently, it leads to hazy air, making breathing difficult and resulting in severe disruptions to human activities, including highway and road accidents, flight disruptions, health issues, and compelling people to stay at home, especially in the morning.

During the month of December, the thick fog descends upon the major cities of Punjab blocking out the winter sunshine especially in the morning time. According to the air quality index especially for the month of December, the Lahore normally placed among the top three worst cities affected by the smog[7].

Province	Districts
Punjab	Lahore, Faisalabad, Sheikhupura, Nankana Sahib, Kasur, Gujrat, Narowal, and Sialkot are vulnerable to smog during the winter season.

Table 1.9: List of Vulnerable Districts to Smog

Avalanche

22. According to a study conducted by WAPDA in 1985-1989 under the Snow and Ice Hydrology Project, identified the following potential avalanche paths. The Siachen-Kariyan avalanche is normally called glacier surge, a new phenomenon caused either by a rise in temperature or some tectonic movement, where glacier advances move at velocities up to 100 times faster than normal avalanches. Due to heavy precipitation in the late winter, the Northern areas of Pakistan i.e., Kaghan Valley, district Nagar, Ghizer, and Skardu of Gilgit-Baltistan are prone to snow avalanches.

Province	Districts
KP	Chitral and Upper Kohistan
AJ&K	Neelum and Hattiyan Bala
Gilgit-Baltistan	Astore, Gilgit, Ghanche, Ghizer and Skardu

Table 1.10: List of Vulnerable Districts to Avalanche Hazard

Gilgit-Baltistan, Azad Jammu & Kashmir regions and northern parts of Khyber Pakhtunkhwa experience snow avalanches on seasonal basis. Local communities surrounding the avalanche prone areas are vulnerable to this disaster. Avalanches are a kind of local natural disaster and their impact is localized to the communities living nearby or in areas where avalanches happen on regular basis. Therefore, the impact of avalanches is area minimal.

23. On 9th April 2012, a deadly avalanche engulfed Pakistan Army Headquarters near the Siachen Glacier in the eastern Karakoram Range in the Himalayas. The tragedy occurred at an altitude of 15,000 feet, the avalanche has left snow up to 25 meters. Around 130 soldiers have lost their lives due to the incident. [9]

Heatwave

24. Karachi suffered from severe heat waves during 2014 and 2015. In June 2015, it experienced a particularly intense heat wave that resulted in over 1,200 deaths, while 65,000 were affected and 1,200 cases of heat-related illness were recorded [10]. The temperature recorded during those days ranged between 40 to 49C.

25. The heat wave phenomenon is becoming more common with climate change, global warming, and environmental pollution. Consequently, Karachi is more vulnerable to climate change during the hot summer season, given its population of more than 16 million people.

During recent years, the heatwave phenomenon is becoming potential threats especially to urban areas like Karachi, Hyderabad, Sukkur and other cities where the excessively high temperatures and humidity last for several days with no or less blow of winds.

Cyclone

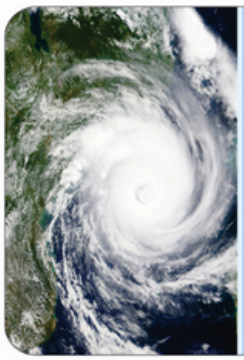
26. Historically, cyclones have caused large-scale damage to the coastal area of Pakistan. The coastal belt of Pakistan, especially Sindh is highly vulnerable to tropical cyclones associated with storm surges.

Province	Districts
Balochistan	Awaran, Gwadar, Kech and Lasbela
Sindh	Badin, Karachi, Sujawal and Thatta

Table 1.11: List of Vulnerable Districts to Cyclone

Year	Death	Number Affected	Districts Affected
2010	15	0.2 M	Balochistan 30, Sindh 3
2007	Balochistan 380, Sindh 250	1.5 M	Balochistan 10, Sindh 4
1999	202	0.6 M	Badin and Thatta

Table 1.12: Major Cyclone Disasters in Pakistan



Although the Cyclones occur in Pakistan occasionally, still the intensity, magnitude and track change have been observed more severe during recent years due to climate change and global warming of the surrounding sea. On average, the cyclone happens about two times a year. The typical cyclone season depends on the summer monsoon. In the months before (May to June) and after (October to November).

The weather system passed through four stages before it matured into a cyclone; the system first developed into a low-pressure area, then a well-marked low-pressure area followed by depression and deep depression before a cyclone was born and named.

Snowstorms/Blizzards

27. Although in the Northern part of the country, this phenomenon is commonly occurring, due to the low or no population in the upper part of the country, the effects might not have been observed so severely. However, the snowstorm that occurred on the 7th of January 2022 brought huge devastation to Murree Hill Station of Rawalpindi district, where a painful incident occurred when a substantial number of local tourists were trapped due to severe snowstorms at night.

Snowstorm or Blizzard is a type of precipitation that falls on the earth in the form of snow. It is more commonly occurring during the month of winter season specifically during December and January in Pakistan, where mostly the precipitation occurs in the form of snow within the clouds because temperatures at the top of the storm are cold enough to make snowflakes. When the snowflakes are accompanied by strong gusts of wind and accumulation of lots of snow, the snowstorm or blizzard happened. It lasts for few hours and often leads to the accumulation of lots of snow, either as new snowfall or as redistribution of previously fallen snow as blowing snow.

Locust Infestation

28. In Pakistan, the history of Locust attacks revealed that during the last 100 years before partition, the country remained under the grip of desert Locust invasions in 1926, 1952, 1962, and 1992. Approximately 38% of the area of Pakistan (60% in Balochistan, 25% in Sindh, and 15% in Punjab) are breeding grounds for the Desert Locust, whereas the entire country is under threat of invasion, in case if the Desert Locust is not contained in the breeding regions [13].

Province	Districts
Balochistan	Chaghai, Kharan, Panjgur, Khuzadar, Awaran, Pishin, Barkhan, Harnai, Kohlu, Washuk, Gwadar, Kech and Lasbela
Sindh	Badin, Sukkur, Khairpur, Shaheed Benazirabad, Sanghar, Tharparkar, and Ghotki
Punjab	Rahim Yar Khan, Bahawalpur, Bahwalnagar, Bhakkar, Khushab, Rajanpur, and Muzaffargarh
KP	Dera Ismail Khan, Bannu, Lakki, Orakzai, Kurram and Tank

Table 1.13: List of Vulnerable Districts to Locust Hazard

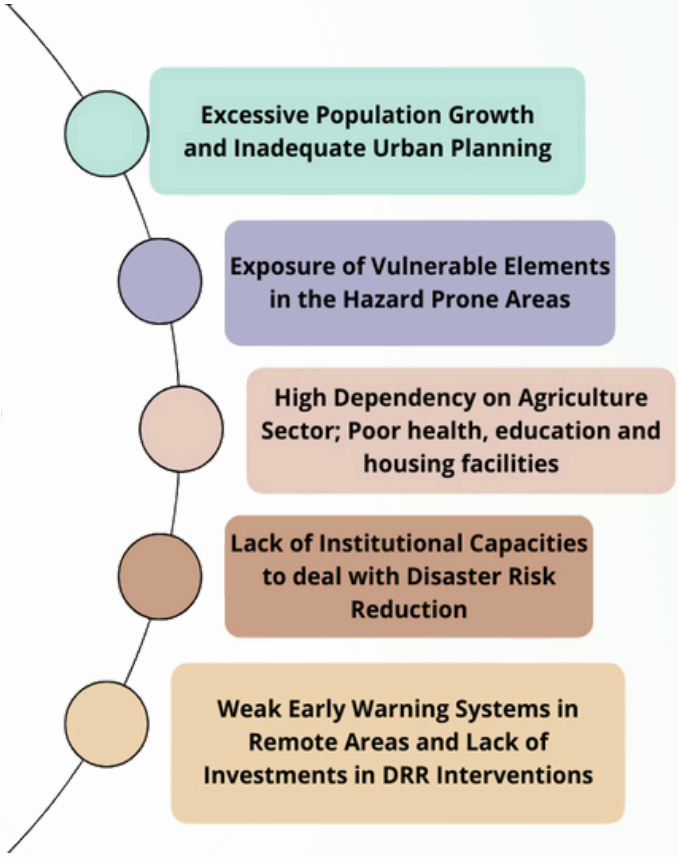
29. During the tenure (2019-20), locust attacks extremely damaged the cropped area and fruit orchards in 54 districts of the country, including 31 districts of Balochistan, 08 of Khyber Pakhtunkhwa, 10 of Punjab, and 05 districts of Sindh.

The Locust is one of about a dozen species of short-horned grasshoppers that are known to change their behavior and form swarms of adults or bands of hoppers. The swarms that form can be dense and highly mobile. The arid areas of Balochistan and Punjab are becoming ideal breeding habitats for locusts due to which these provinces always remained under threat of Locust attack. It is a transboundary pest that traveled freely in large parts of Africa and Asian countries where it attacks nearly all crops and rangeland vegetation.

Industrial and Technological Hazards

30. There are certain cities in Pakistan, such as Karachi, Lahore, Faisalabad, Gujrat, Gujranwala, and Sialkot, that are at risk of potential industrial disasters. These incidents can involve problems in industries like oil spills and chemicals, as well as potential threats from biological, radiological, and nuclear sources. Moreover, Pakistan's ports are susceptible to accidents involving ships posing a threat to the surrounding areas. For example, in Karachi (July 2023), an old Greek ship called Tsunami Spirit caused a significant environmental disaster. The wreckage led to the release of around 28,000 tons of oil into the harbor, causing harm to marine life. The spill had severe consequences for businesses, port workers, and nearby communities. People in the area reported health issues such as headaches, nausea, and respiratory problems within the weeks following the incident. It took authorities several months to clean up the affected areas.

31. **Factors Contributing to Existing Vulnerabilities**



Chapter 02

Disaster Management System in Pakistan

Disaster Preparedness and Response Mechanism

Mitigation (Pre-Investment for DRR) and Preparedness Phase

1. The importance of pre-disaster investment in risk assessment and preventive measures cannot be overstated, as it serves as a crucial first step in minimizing the impact of disasters. Here are key directions and strategies outlined by the National Disaster Management Authority (NDMA) to reduce the risk of future disaster damages:

a) **Promoting Proper Strategies and Programs**

NDMA, based on disaster risk assessments, will advocate for and implement strategies, plans, and programs. These measures will include both structural and non-structural approaches, with a specific focus on reducing economic losses and damage to critical infrastructure and basic services, aligning with the Sendai Framework for Disaster Risk Reduction (SFDRR).

b) **Strengthening Critical Infrastructure**

NDMA recommends the enhancement of critical infrastructure resilience. This involves not only developing disaster-resistant infrastructure but also integrating a risk reduction perspective into development plans across all sectors. This proactive approach aims to minimize damage to essential structures during disasters.

C) **Addressing Climate Change and Urban Expansion**

To prevent increased disaster risks due to climate change and uncontrolled urban expansion, stakeholders are urged to focus on specific disaster risk reduction efforts in crucial cities and regions where capital accumulation is progressing. This targeted approach aims to mitigate new risks associated with changing environmental and urban conditions.

d) **Formulating Disaster Prevention Investment Projects**

NDMA recommends the formulation of plans for disaster prevention investment projects. This involves capacity building for diverse stakeholders and human resource development to ensure the effective and efficient implementation of countermeasures directly contributing to disaster risk reduction.

e) **Integrating Disaster Risk Reduction with Sustainable Development Goals (SDGs)**

Recognizing the interconnectedness of disaster risk reduction and sustainable development, NDMA emphasizes the need to integrate efforts. Collaboration with SDGs, such as environmental conservation and social inclusivity, allows for a more comprehensive and sustainable approach to mitigating disaster risks.

f) **Prepare Inclusive Disaster Risk Reduction Plans Targeting Gender and Vulnerable Groups**

NDMAs Gender and Child Cell Prepares inclusive and cross cutting gender disability and old age Disaster Risk Reduction / Disaster Risk Management Plans which target gender specific risks, ensuring sex disaggregated data (regularly updated) assessments and research.

g) **Operationalization of the National Emergencies Operation Centre (NEOC)**

The operationalization of a National Emergencies Operations Center (NEOC) is a strategic and dynamic process aimed at transforming a designated facility into a fully functional hub for managing and coordinating responses to national emergencies and disasters. The key steps in operationalization are as follows;

(1) **Protocols**

Clear activation protocols are established to determine when and how the NEOC should be activated. This involves defining triggers based on the type, scale, and nature of the emergency.

(2) **Personnel Mobilization**
Trained personnel from various agencies and organizations are mobilized to staff the NEOC. This includes representatives from emergency management, public health, law enforcement, and other relevant sectors

(3) **Communication Infrastructure**
The NEOC relies on a robust communication infrastructure, including secure and redundant communication channels. Activation ensures that these systems are operational to facilitate seamless information exchange.

(4) **Situational Awareness**
The NEOC is equipped with tools for real-time monitoring and assessment of the situation. Data feeds, GIS mapping, and other technologies are employed to enhance situational awareness for informed decision-making.

(5) **Coordination Mechanisms**
Coordination mechanisms are put in place to facilitate collaboration among different agencies. This involves regular briefings, information sharing, and the establishment of clear lines of communication and authority.

(6) **Resource Allocation**
Adequate resources, including personnel, equipment, and supplies, are allocated based on the identified needs of the emergency. This ensures that the NEOC can respond effectively.

(7) **Public Information and Warning**
Protocols for public information dissemination and warning are activated to keep the public informed and safe. This may involve press briefings, public service announcements, and the use of various communication channels.

(8) **Training and Drills**
Regular training and emergency response drills contribute to the smooth operationalization of the NEOC. Personnel are familiarized with their roles, technology, and communication procedures to enhance readiness.

(9) **Adaptive Response**
The NEOC remains adaptable to changing circumstances. Continuous assessment and feedback mechanisms allow for adjustments to response strategies based on the evolving nature of the emergency.

(10) **Post-Event Evaluation**
After the emergency, a comprehensive evaluation is conducted to assess the effectiveness of the NEOC's operationalization. Lessons learned are documented to improve future responses. The successful operationalization of an NEOC is essential for maximizing the capabilities of emergency response agencies and ensuring a unified, efficient, and coordinated approach to managing crises at the national level. To ensure better coordination and synergy of efforts, the establishment of a mobile emergency operation center directly linked with NEOC is recommended.

Figure 2.1: NEOC

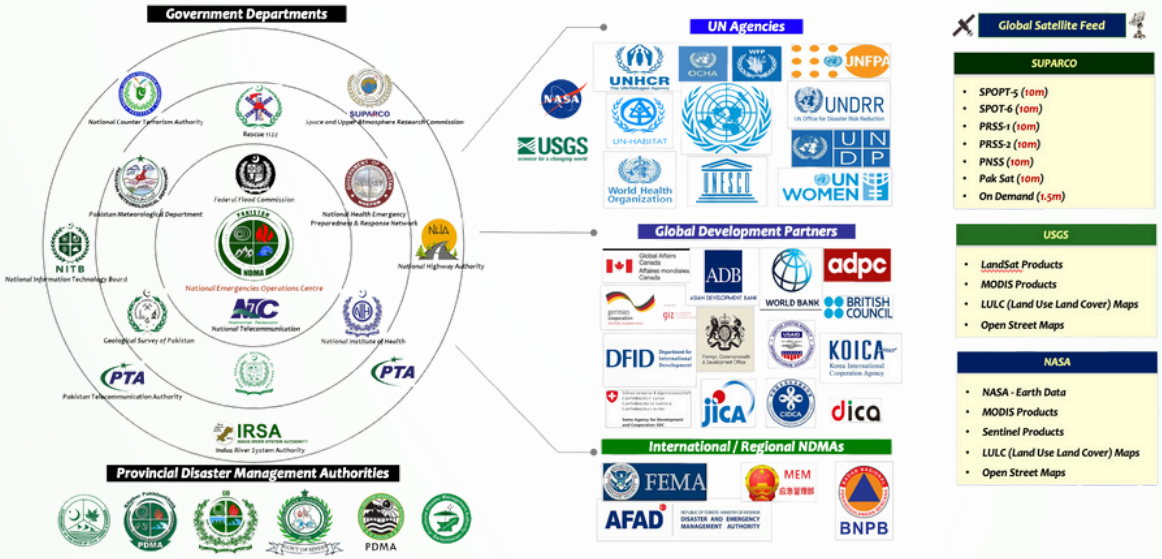


Figure 2.2: NEOC's Collabration

Disaster Preparedness and Response Phase

2. Over time, and in the aftermath of major disasters tackled by the NDMA in recent years, there has been a substantial increase in awareness about disaster preparedness and emergency response in Pakistan. The NDMA, recognizing the importance of proactive measures, collaborates closely with PDMAs and relevant government departments.

3. Together, the disaster management authorities regularly update contingency plans at national, provincial, and district levels, with a particular emphasis on monsoon and winter preparedness. This collaborative, bottom-up approach involves compiling plans based on local considerations, improving readiness measures, mapping resources, refining

coordination mechanisms, disseminating early warnings, and updating data for emergencies. The formulation of these contingency plans enables the NDMA and its partners to maintain and update resource inventories at various levels, ensuring a more organized and effective response to any emergency.

4. In addition to contingency plans, the NDMA, with the support of partner organizations, conducts regular simulation exercises, especially before the monsoon season, to assess the readiness of government departments and district administrations. These exercises are a fundamental component of the NDMA's strategy, requiring coordination with PDMAs and federal/provincial government organizations. The National Simulation Exercise (SIMEX) conducted by the NDMA evaluates preparedness and coordination for multi-hazard scenarios at national and provincial levels, extending to provincial and local exercises involving the public and local government.

5. Furthermore, the NDMA and PDMAs have developed contextualized guidelines for managing major disasters, disseminating them through contingency plans and making them accessible on their website. The expansion and strengthening of the early warning system will enhance disaster response, and evacuation procedures, and helps in reducing casualties. The development of disaster management plans, guidelines, and standard operating procedures supports a smooth response mechanism for emergent situations. In addition, capacity-building for professionals and communities is deemed crucial for the effective utilization of Early Warning Systems.

6. To conclude, these comprehensive strategies contribute to an integrated approach to disaster management in Pakistan. Here are some of the initiatives undertaken by the NDMA to enhance disaster preparedness and ensure a prompt and efficient emergency response.

Some of the main initiatives for 2024 are as follows:

Sr #	Strategy	Necessity
1	Functionalize Disaster Management System	Sustain a functional Disaster Management system at all levels for organized disaster preparedness and response.
2	Develop Multi-Hazard Vulnerability and Risk Assessment	Create a national MHVRA profile for informed decision-making, detailing risks, vulnerabilities, and enabling tailored mitigation.
3	Climate Change Adaptation	Proactively adapt to climate change, reducing vulnerability, promoting sustainable practices, and ensuring long-term stability.
4	Promote Climate Smart and Disaster Resilient Development	Balance economic growth with environmental conservation for long-term prosperity through resilient development practices.
5	Build Capacities Through Training and Research	Invest in capacity building to equip individuals and organizations with skills for effective disaster response and risk reduction.
6	Community Based Disaster Risk Management (CBDRMs)	Through robust and tailored CBDRMs through the Gender and Child Cell ensuring the participation of Vulnerable groups.
7	Preparedness for Effective Emergency Response	Establish a well-prepared emergency response system for swift and organized reactions, reducing response time, improving effectiveness, and ensuring requisite logistics buildup.

Table 2.1

Standard Guidelines for Taking Preventive Measures Against Various Hazards

7. To meet any emergency, the NDMA has developed standard guidelines for coping with major disasters in the country. These guidelines have been circulated through contingency plans and are also available on the NDMA's official website. Below are some of the guidelines for major hazards.

a) Measures against Riverine and Urban Flooding

Based on past experiences, the following measures will help to mitigate disaster/losses:

i. Respective PDMAs have already identified low lying areas prone to pondage/inundation not only at the province and district levels but also in the urban areas.
ii. Preparation of hazard maps of major cities against urban flooding based on recorded history for sensitization, awareness, early warning, and evacuation of vulnerable communities.
iii. Capacity building of Municipal Corporations with priority to Municipal Corporations of megacities. Attention must be given to the availability of a requisite number of heavy-duty de-watering pumps and generators in the most vulnerable areas of city centers.
iv. Widening, dredging, and de-silting of water/ sewerage drains.
v. Removal of encroachments along the flood plains and sewerage drains, thus reclaiming the original extent of such drains.
vi. Serviceability and operability of pumping stations.
vii. Provision of backup electricity arrangements in the form of generators for sewage disposal/pumping stations.
viii. Establishment of the committee for planning and implementation of contingency plans at the municipal level especially in cities like Karachi, Lahore, and Rawalpindi.
ix. Identification of likely evacuation sites and relief camps.

b) Measures against Flash Flood

Flash flood phenomena have become more destructive in recent years due to disturbances in weather patterns posed by climate change, unplanned development, deforestation, and encroachment. During recent years, serious damages occurred due to flash flooding in the Monsoon season of 2016, 2017, 2018, 2019, 2020, and most recently during 2022. Following preparedness and mitigation measures will help in reducing the losses from flash floods:

i. Collect data and record flash flood history in regions prone to such hazards.
ii. Signposting of waterways in local language with known flash flood history. It should demarcate the threat level of waterways thereby sensitizing the public.
iii. Long-term planning for introducing new DRR structural and non-structural measures, relocation, and rehabilitation of population living under threat of flash floods.
iv. Strengthening local early warning system with community-based vigilance during dark hours and periods of intense rains by using sirens or announcements on loudspeakers of mosques.
v. Giving priority to the commissioning of emergency services like Rescue-1122 and civil defense in inaccessible mountainous areas.

c) Measures against Earthquake

The following preparedness and mitigation measures will help in reducing the damages caused by the earthquake:

i. Map out the active fault lines and identify the population living close to the active faults. Especially identify people that are more vulnerable to earthquakes and require special attention.
ii. Collect records of major faults and earthquakes triggered by these faults.
iii. Establishment and fully capacitate the local level DRM committees for planning and implementation of contingency plans at local levels.

iv. Introduce structural and non-structural DRR measures and arrange necessary repairing and retrofitting to make disaster-resilient infrastructure.
v. Strengthening the community-based early warning system and providing proper training.
vi. Conduct regular drills and simulation exercises by involving local communities and government machinery .
vii. Identify schools and safer areas that can be utilized for evacuation and relief operations
viii. Capacity building of Municipal Committees with due attention to the availability of a requisite number of heavy-duty machinery for pre-placing/ deployment at most vulnerable areas.
ix. Removal of encroachments/hindrances to provide full access/ way to traffic and rescue personnel with their machinery to the earthquake-affected areas.
x. Ensure serviceability and operability of available machinery with sufficient fuel etc. Provision of backup electricity arrangements in the form of generators.
xi Availability of paramedics and ambulances with respective district health departments.
xii. Identification and coordination with local health officials for stocking medicine, in case of being cut off or likely outbreak of health emergency, especially against diseases likely in winter.
xii. Vulnerability-based stockpiling of commodities is required during emergencies by the local administration and line departments.

d) Measures against Landslides/Avalanches

The threat of landslides/avalanches in vulnerable areas underscores the outlook of the impending Monsoon 2021. It merits reappraisal of basic precautionary measures such as:

i. Prepare hazard and risk assessments and map the active landslide-prone areas.
ii. Refresh the recorded history of landslides/ avalanche-prone areas. Besides vulnerability risk assessment; personal experience of notables of such areas can also prove beneficial.
iii. Local communities of vulnerable areas be sensitised to pay special attention to weather forecasts/alerts as heavy rains can trigger landslides/avalanches. Sudden temperature variability has the potency to trigger avalanches in vulnerable areas.
iv. Community based early warning system as part of response mechanism be instituted in landslide/ avalanche prone areas by nominating local notables to ensure that alerts are timely disseminated. Measures may include the use of watchmen, loudspeakers/megaphones, loudspeakers of Mosques, whistles, SMS alerts, telephone, and any other arrangements of a similar nature.
v. Based on landslide/avalanche alerts issued by PMD, local administration may consider precautionary closure of roads/ tracks to avalanche/landslide-prone areas and evacuation to safer places as a contingency plan.

e) Measures against GLOF

To prevent the lake outburst, the following civil engineering interventions may be considered:

i. Prevent overtopping of the lake water and strengthen the moraine dam by concrete cementing, gabion wall, etc.
ii. Keep the volume of stored water in the lake to a safe level; initially by dropping the level and then by excavating a tunnel or deepening the breach of the moraine dam to retain the lower level through any one of the following:
    - Siphon system
    - Electrical pumping
    - Controlled blasting of the moraine-dam
iii. Preparation of hazard and risk maps of the GLOF-affected areas.
iv. To predict and understand GLOF on its occurrence, evaluation of possible hydrograph along water channel downstream.
v. Placement of round-the-clock monitoring and early warning systems at identified GLOF sites.

vi. Construction of adequate trapping dams with the capacity to dissipate the GLOF impact.
vii. Strengthening infrastructures to make these robust enough to resist GLOF destruction.
viii. Measures to timely disseminate information to the vulnerable populace.
ix. Rehearsal/contingency planning to shift vulnerable communities to safer places

f) Measures against Cyclones

The following guidelines can help/ protect people in vulnerable areas:

i. Carryon risk assessment and enlist villages and UCs prone to Cyclone hazards. Inventory of resources available at local levels and plan for further enhancement of resources.
ii. Prepare contingency plans at local levels to prepare for any emergency. Collect important contact details of government and non-government stakeholders and focal persons
iii. Provision of emergency kits and provide training on the use of emergency response equipment.
iv. Develop liaisons with the local television, radio station, and social media activists to keep abreast with the developing situation.
v. Removal of billboards and any heavy objects especially in urban areas.
vi. Necessary repairing/retrofitting at houses, offices, and commercial markets to strengthen buildings
vii. Provide necessary training and conduct mock exercises involving all machinery and local communities
viii. Formation and activation of local committees that will support the evacuation to the nearest safe zone or high ground and in charge of local arrangements at the relief camps.
ix. Collect data on fishermen working in the surrounding sea and plan to inform them while they are at sea.

g) Measures against Winter Hazards

Following protective measures based on past experiences will help to mitigate disaster/ losses:

i. Preparation of hazard maps of major cities, districts, and known vulnerable areas based on recorded history for sensitization, awareness, early warning, and evacuation of vulnerable communities.
ii. Establishment of committees of volunteers for planning and implementation of contingency plans at the municipal level.
iii. Identification of vulnerable areas especially near communication arteries and population.
iv. Awareness and sensitizing the local community and tourists of possible risks and adherence to laid down guidelines.
v. Strengthening the community-based early warning system and providing proper training.
vi. Capacity building of Municipal Corporations with due attention to the availability of a requisite number of heavy-duty machinery for pre-placing/ deployment at most vulnerable areas.
vii. Widening, dredging, and de-silting of water channels to prevent waterlogging and saturating soil.
viii. Removal of encroachments/hindrances to provide full access/ way to traffic and rescue personnel with their machinery when in case of need.
ix. Serviceability and operability of available machinery with sufficient fuel etc. Provision of backup electricity arrangements in the form of generators.
x. Identification of likely evacuation sites and relief/ medical camps.
xii. Coordination with all stakeholders for keeping communication arteries open and immediate mobilization of required machinery in time of need.
xiii. Identification and coordination with local health officials for stocking medicine, in case of being cut off or likely outbreak of health emergency, especially against diseases likely in winter.

xiv. Availability of paramedics and ambulances with respective district health departments.
xv. Coordination with private and government hospitals to prepare a synergized plan for meeting emergent requirements.
xvi. Measures for creating redundancy in utility supply to inaccessible areas especially drinking water.
xvii. Pruning of trees especially ones close to roads, electricity supply lines, homes and other infrastructure.
xviii. Emergency contact numbers of local and other emergency services must be displayed at various locations and made part of all coordination meetings for maximum awareness.
xix. Fixing of loose billboards, hoardings, sign posts and other similar fixtures must be ensured.
xx. Encouragement of communities to remain indoor and restrict movement immediately upon development of weather and especially when a weather advisory/ alert is issued.
xxi. Vulnerability-based stocking be carried out under local administration and line departments.
xxii. Utilization of all possible platforms for spreading required information and keep local radio stations involved in relaying critical information.

Prerequisites to Implement Interventions for the Strategy of Preparedness and Response Phase

Developing Contingency Plans

8. With the collaboration of respective PDMAs, and relevant Government departments at the Federal level, the NDMA regularly prepares contingency plans to meet any emergency, especially developing a Monsoon contingency plan is a regular activity before the onset of Monsoon season. Adopting a bottom-up approach, the NDMA compiles a Monsoon contingency plan based on the DDMAs and PDMA's contingency plans. Contingency planning helps in exploring readiness measures, resource mapping, strengthening the coordination mechanism, early warning dissemination, and updation of data to meet any emergency.

Resource Inventory

9. The NDMA updates resource inventories throughout the country with the support of all respective PDMAs and relevant Government and International Organizations. The resources available at the HRF and warehouses are reviewed and cross-checked for their durability and integrity. In section 2.4, detailed resource mapping has been made available at various localities throughout the country.

Conducting Regular Drills and Simulation Exercises

10. In close coordination with the PDMAs and Federal/Provincial Government Organizations, the NDMA conducts regular simulation exercises by involving key emergency response organizations. One of the prominent activities is conducting the National Simulation Exercise (SIMEX) regularly at the National and Provincial levels. SIMEX is aimed at evaluating preparedness and coordination between the national and provincial disaster management authorities and humanitarian community by rehearsing coordination arrangements and emergency response at different tiers in given situations. Moreover, at the province levels, the respective PDMAs regularly conduct Mock exercises with the support of other Provincial Government and Non-Government Organisations. They conduct Mock exercises at the local level by involving the general public and local government.

Multi-Hazard EWSs

11. The vision of the Multi-Hazard EWSs is to reduce the vulnerability to multi-hazards and decrease, especially personal damage by informing the populace of disasters in advance. Until now, several EWSs have been established and operated against multiple hazards such as floods, GLOFs (Glacial Lake Outburst Floods), earthquakes, tsunamis, landslides, cyclones, heat waves, and drought. The losses from multi-hazards can be further reduced by expanding the coverage of EWSs (e.g. increasing observation stations and radar systems or installing new prediction models for local areas) and improving the accuracy of prediction models that support EWSs.

Declaration of Emergency

12. The declaration of emergency depends upon the nature and magnitude of the disaster. Disaster situations of a smaller scale which are within the capacity of District authorities would be managed by the respective District Authorities on the declaration of emergency by the province. In case of a disaster situation of a relatively larger scale that overwhelms the capacities of District Governments/Authorities but is within the capacities of Provincial Governments/Authorities to manage shall be declared by the province. In case of a disaster situation on a large scale that overwhelms the capacities of provincial Government/Authorities but is within the capacities of the Federal Government to manage primarily through National Emergency. However, international assistance can be requested by the Government in case of a disaster situation of a mega scale when the National Capacities are overwhelmed.

Activation of Clusters

13. Depending upon the severity and magnitude of the disaster, the clusters are activated by the UN agencies upon request from the Government of Pakistan. The clusters are designated by the Inter-Agency Standing Committee (IASC) and have clear responsibilities for coordination.

14. These clusters during emergencies are led by the UN Humanitarian Coordinator and the Government, to support emergency response and recovery operations. During recent disasters, specifically in the earthquake in 2005, and floods in 2010 and 2022, the cluster approach works very successfully to avoid duplication, strengthen partnerships, and the predictability and accountability of international humanitarian actions, by improving prioritization and clearly defining the role and responsibilities of humanitarian organizations. At respective levels, the various clusters are activated which have been closely working with the District, Provincial, and National Disaster Management Authorities to get updates and take appropriate actions to provide relief. Services to the disaster-affected areas. At present, operational working groups have assumed the functions typically carried out by clusters.

The Minimum Response Package (MRP)

15. MRP plays a critical role in providing immediate and essential assistance to affected populations. Comprising necessities such as food, clean water, shelter, and medical aid, the MRP is designed to address urgent needs swiftly and efficiently. Below is a suggested MRP:

Food Security and Agriculture	
Emergency Food Assistance • 100% ration/cash in flood impacted districts with IPC 4	Livelihood and Livestock Support • Fodder, vaccination, and animal health support. • Crop seeds, fertilizers, gardening, or other agricultural inputs. • Rehabilitate damaged irrigation channels and animal shelters.
Shelter & Non-Food Items	**Education**
• NFI Kit: (2 Blankets, 2 Plastic Mats, 1 Mattress, and 1 bag for transportation) • Emergency Shelter Kit: (1 or 2 Tarpaulin Sheets (4x6m), 1 rope (30m), and 1 pole and pegs set) • Hygiene Kit: (2 combs, 1 lota, 1 mug with handle, 14 soap bars, 1 laundry detergent 250g, 1 nail cutter, 3 toothpaste, 7 toothbrush, 2 jerrycans, 1 plastic bucket)	• Temporary learning centres • Child friendly centres • School in a box • Flood awareness messages for children and women
Wash	**Protection**
Standard WASH package • Aquatabs (225 tabs) with corresponding IEC materials • 45 pur sachets (water treatment chemicals) • 2 pcs collapsible jerry cans (10 litre volume) • 1 x 10 litre-bucket with cover - storage of drinking water • Lota (medium size, plastic) • Filter cloth (1 pc) • 14 pcs soap (200g,) • 1 x mug with handle • Health and hygiene messages (IEC materials) WASH prepositioned package. • Bladder/plastic tanks (at least 5,000L) • Tarpaulin, timber, and squat pans for emergency toilets • Tool sets for pit excavation (toilet construction)	• Dignity kits (GBV) and key messages • MHPSS kits (CP) • Recreational kits (CP) • Key messages for protection risks and available services • Guidelines on dignity kits and women and girls' friendly spaces • GBV pocket guide in Urdu language for frontline workers • IEC material on PSEA available in local languages • GBV/CP case management services • High performance tents for space (CP) • Minimum Initial Service Package Kits (MISP Kits)
Health	**Nutition**
• COVID-19 masks • First aid kits at community level • Mobile clinics • Basic health emergency kit • IARH kits (Inter-Agency Reproductive Health Kits) • NBBK (New-born Baby Kits)	• RUTF. Therapeutic diet. • F75, F100 Therapeutic milk. • RUSF, Supplementary Food. • Multi-Micronutrient tab and Powders. • IYCF educational awareness material. • MUAC Tapes and Anthropometric equipment.

Table 2.2

Multi-Sector Initial Rapid Assessment

16. Multi-sector Initial Rapid Assessment (MIRA) has been conducted in Pakistan twice after the floods of 2012, 2014, and 2022. MIRA-2014 lessons learned exercise highlighted two major gray areas in implementation including the unavailability of trained enumerators at the time of assessment and the lack of a validation mechanism.

Figure 2.3: MIRA

17. Subsequently, rounds of revisions were conducted to keep MIRA up-to-date and relevant in emerging situations. The standard guidelines for MIRA have been developed by NDMA with the technical support of UNOCHA to provide operational guiding principles on the roll-out and implementation of MIRA. The approach adopted for these Guidelines is inclusive, comprehensive, decentralized, and focused on institutionalization of initiatives.

18. MIRA methodology document has been exclusively consulted for the development of these Guidelines. To familiarize and practice the MIRA tools, NDMA has conducted a series of trainings throughout the country and has developed a pool of trained professionals from various government organizations. Currently, the National Disaster Management Authority (NDMA) is in the process of developing a more straightforward and accessible questionnaire for the Multi-Hazard Risk Assessment (MIRA).

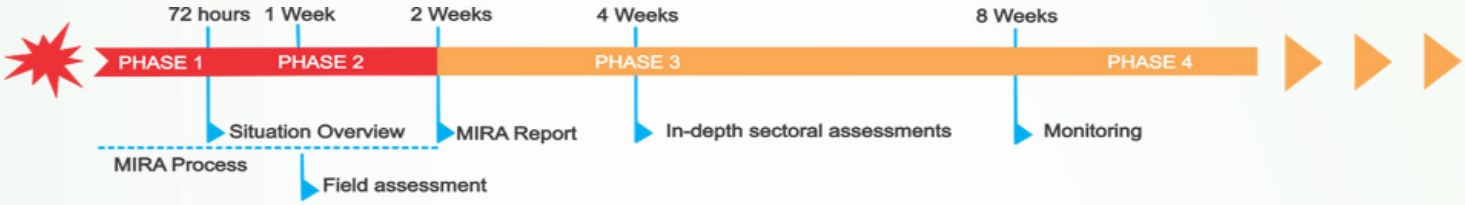


Figure 2.4: MIRA Timeline

Media Management During Emergencies

19. Media can play a vital role in disaster response/management. Therefore, a well-organized arrangement be made at all tiers for information sharing/periodic media briefs by appropriate spokespersons. Efforts must be made to provide timely updated and accurate information to media houses for dissemination. Delays in the provision of information may lead to frustration and misunderstanding, and disinformation should be discouraged at all levels. To disseminate authentic and up-to-date information, the NDMA dedicates spokespersons for a briefing on the current situation and provides data to media personnel on a day-to-day basis. This information was further updated on the website as well and a media briefing was organized for electronic and print media to inform the general public about the situation.

20. The strategy for recovery, rehabilitation, and reconstruction focuses on preparing guidelines for hazard-specific issues, enhancing organizational capacity, and conducting extensive public awareness campaigns. Notably, compensating disaster victims is pivotal for providing financial support during the rehabilitation process. To ensure transparent compensation disbursement, hazard-specific committees were established at the provincial and district levels, supported by robust monitoring and evaluation mechanisms. Concurrently, the government and non-government stakeholders are engaged through regular meetings, public-private partnerships, and collaboration with financial institutions for the rehabilitation and reconstruction process.

21. In this regard, the NDMA conducts post-damage needs assessment, leveraging collaborative efforts between NEOC, PEOCs, and other organizations to expedite quick data acquisition, emphasizing thorough analysis, filtering, and equitable fund distribution throughout the recovery process. Regular updates and data dissemination by the NDMA and PDMAs across clusters during and after disasters are essential. Addressing the critical need for post-disaster recovery capacity development involves establishing specialized units, adhering to building codes, prioritizing "build back better" principles, organizing conferences for knowledge sharing, and fostering international collaboration. Engaging engineering bodies and universities in scientific research on disaster-resilient infrastructure, along with integrating psycho-social aspects into recovery training, ensures a comprehensive approach to post-disaster recovery.

22. The major strategies are as follows:

Strategy	Necessity
Compensation Strategies for Disaster Victims	Develop guidelines and form committees to ensure fair, transparent, and accountable compensation post-disaster, fostering public awareness and collaboration.
Post Damage Need Assessment	Use satellite images for rapid damage assessment to prevent duplication, enhance decision-making, and improve coordination among key sectors for an effective response.
Capacity Development for Post Disaster Recovery	Establish a recovery unit, adhere to PEC2021 codes, prioritize "build back better," organize knowledge-sharing conferences, foster international collaboration, conduct research, and develop psycho-social training courses for resilient recovery.

Table 2.3

INSARAG Regional Chair

23. The INSARAG is organized into three regional groups: Africa/Europe/Middle East Region, Americas Region, and Asia/Pacific Region. These Regional Groups meet annually to take measures to strengthen regional USAR response and ensure the strategic direction and policies of the INSARAG. The Steering Groups are implemented to assimilate relevant information from participating countries for submission to the INSARAG Steering Group. In addition, Regional Groups encourage the participation of all countries in their region and aim to provide a forum to discuss USAR-related issues, regional cooperation, and capacity building. One of the primary outcomes of these meetings is an annual regional work plan that addresses capacity building, training, and other issues relevant to integrated approaches to disaster response.

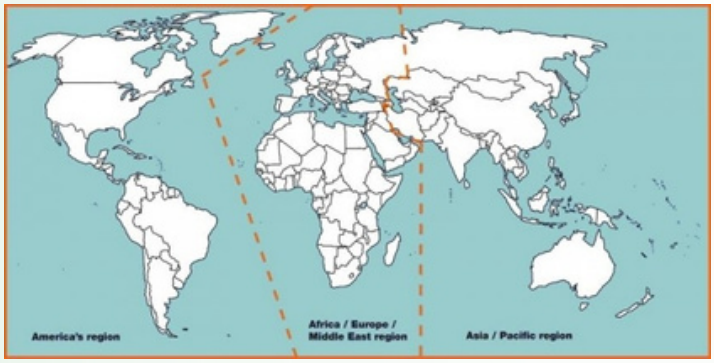


Figure 2.5: Regional Groups - INSARAG

24. Each Regional Group has at least one Chairperson and Vice-Chairperson, elected annually and sits on the INSARAG Steering Group. The INSARAG Asia-Pacific Regional Meeting was held on 26-27 September 2023 in Christchurch, New Zealand. It was hosted by Fire and Emergency New Zealand, with support from New Zealand Foreign Affairs and Trade (MFAT) and the National Emergency Management Agency (NEMA). Pakistan has been designated as the INSARAG. Regional Chair for the Asia Pacific Region for 2024. However, the program for the year 2024 is appended as an annex. The regional conference for INSARAG member states is scheduled for October 2024, followed by an earthquake response exercise and an international teams challenge.

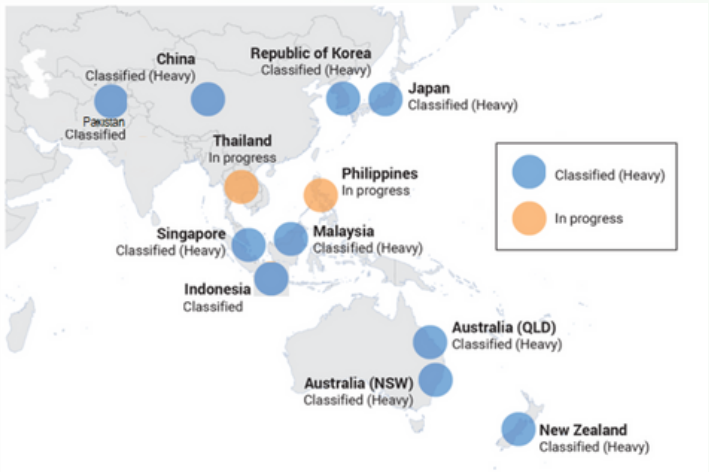


Figure 2.6: INSARAG Classified Teams in Asia-Pacific Region

Pakistan Expo on Disaster Risk Reduction (PEDRR)

25. In the quest to transform NDMA from a reactive to a proactive organization, there was a recognized need for a vibrant platform to gather and network with stakeholders, and disaster and relief management professionals under one roof. This platform aims to anticipate challenges, learn from each other's experiences, collaborate to synergize efforts and manage natural disasters and emergencies in a more coordinated and effective manner. This goal could be achieved through the incorporation of the concepts of resilience, innovation, and collaboration to make Pakistan safer and better prepared. To fulfill this purpose, the first-ever Expo on DRR was conducted in August 2023.

26. Key Objectives of PEDRR:

i. Mutual Cooperation and Experience Learning.
ii. Exchange of Ideas on Disaster Management and Global Best Practices.
iii. Alignment of Research objectives along with gaps and development of the roadmap.
iv. Adaptation of Technology and Futuristic Environment.
v. Talent Hunt & Star-Up solutions related to Disaster Management.

Figure 2.7: PEDRR

27. Moreover, the lessons learned from the expo emphasized sustainability and inclusivity, strengthening the role of women and local communities, localization, and technically driven solutions. A conference for INSARAG member states is planned in October 2024, followed by an earthquake response exercise and an international teams challenge.

Conference of Parties (COP-28)

28. The Technical Team of the National Emergencies Operation Centre (NEOC) participated in COP28 in the United Arab Emirates (UAE) for four days from 3-6th Dec. The visit centered on leveraging advanced technologies, specifically satellite communication, geospatial technology, remote sensing, and artificial intelligence (AI), and machine learning (ML). Our primary focus was on the intricate domains of hydrometeorological hazard assessments, impact analysis, and risk assessments utilizing satellite and high-altitude platforms. The technical team remained engaged in the COP28 conference during the aforesaid dates to explore innovative solutions and forge strategic partnerships.

29. Throughout the event, NDMA strategically engaged with key stakeholders, including entities such as Grace Satellite, Space 4 Climate, Digital Transformation for Sustainable Tomorrow, Space-tech for Climate Solution, Khalifa University, Critical Minerals for Energy Transition, and the Risk and Emergency Preparedness Network. These interactions were instrumental in gaining insights into risk assessment procedures, hazard analysis, and the optimal utilization of satellite communication for addressing climate challenges.

Figure 2.8: COP28UAE Outcomes

COP28 unfolded its activities at Expo City Dubai, serving as a pivotal forum for shaping the trajectory of global climate action. The event attracted prominent leaders, officials, and more than 70,000 delegates from 198 countries, all converging to participate in COP28. The atmosphere was charged with a shared commitment to addressing climate issues collaboratively and advancing sustainable practices.

30. Recognizing the imperative for heightened global climate action, COP28 highlighted the requirement for substantial increases in ambition to achieve the 1.5°C objective. The key directives included the collective strengthening of nationally determined contributions (NDCs), a global phase-out of unabated fossil fuels with consumption peaks within this decade, and the pursuit of a fully or predominantly decarbonized global power system by the 2030s. The agenda further emphasized the need to phase out fossil fuel subsidies, integrate climate change adaptation and resilience into existing policies, and scale up efforts to mobilize finance for climate action.

31. In essence, NDMA's participation in COP28 provided a significant opportunity for engaging with diverse stakeholders, including government bodies, development partners, international communities, UN agencies, NGOs, civil society, private sector representatives, and academia. The collaborations formed during this visit contribute to our collective efforts in strengthening climate resilience and charting a course toward a sustainable and climate-resilient future.

32. **Recommendations/Way Forward**

Improving local adaptation capacity through the provision of seed security is an area of mutual interest where collaboration is required. Boosting dissemination of Early Warnings through cellular networks (Apps) is also a key area where both parties will work together. NDMA is launched an Anticipatory Action dialogue in the last week of December 2023 where IRC was invited to participate in sharing insights/experiences. Risk financing is also being initiated in Pakistan which will further strengthen anticipatory actions in the country. Both sides agreed on the development of an integrated plan for Early Warning and Risk Communication which should also contain funding plans. World Bank will provide technical support to NDMA for developing proposals and a follow-up meeting with World Bank Pakistan Office will be arranged to decide on the future course of action. NDMA may proceed with its initiatives on both counts i.e., accreditation process and simultaneously developing proposals through already accredited organizations. In addition, NDMA will develop project proposals and share them furthur, preferably for technical grant support. Hydro-meteorological disasters are most relevant for Pakistan, hence project proposals will be developed along these lines.

Anticipatory Actions

33. The National Disaster Management Authority (NDMA) took the lead in planning and conducting the first-ever National Dialogue on Anticipatory Actions. Some of the anticipatory actions that have been identified are as follows:

a) **Early Warning Systems:** Implement and maintain early warning systems for various types of disasters, such as floods, earthquakes, cyclones, and tsunamis. This includes the establishment of monitoring mechanisms and communication channels to provide timely alerts to vulnerable communities.

b) **Vulnerability and Risk Assessments**

Conduct comprehensive vulnerability and risk assessments for different regions to identify areas prone to specific types of disasters. This information helps in developing targeted mitigation and preparedness measures.

c) **Capacity Building**

Facilitate training programs and workshops to build the capacity of local communities, government agencies, and first responders.

This includes training in disaster response, search and rescue operations, medical assistance, and other relevant skills.

d) **Public Awareness Campaigns**

Launch public awareness campaigns to educate citizens about potential risks and the actions they should take before, during, and after a disaster.

This includes the dissemination of educational materials, conducting drills, and leveraging media channels for outreach.

e) **Simulation Exercises**

Conduct simulation exercises and mock drills to test the readiness of emergency response mechanisms. This involves simulating disaster scenarios to evaluate the effectiveness of communication, coordination, and evacuation procedures.

f) **Pre-positioning of Resources**

Pre-position essential resources and supplies in strategic locations to ensure a swift response. This includes stockpiling emergency relief items, medical supplies, and equipment that may be required in the aftermath of a disaster.

g) **Coordination with Stakeholders**

Foster collaboration and coordination with relevant stakeholders, including government agencies, non-governmental organizations, international partners, and local communities. Establishing clear lines of communication and coordination ensures a unified response to disasters.

h) **Infrastructure Resilience**

Promote and enforce building codes and standards that enhance the resilience of infrastructure against natural disasters. This may involve retrofitting buildings, bridges, and other critical infrastructure to withstand seismic activity, floods, or other hazards.

i) **Contingency Planning**

Develop and regularly update contingency plans for various types of disasters. These plans outline specific actions to be taken at different stages of a disaster, including evacuation procedures, resource mobilization, and communication strategies.

j) **Research and Development**

Invest in research and development activities to stay abreast of emerging risks and technologies. This includes studying climate patterns, geological trends, and other factors that may influence the occurrence and intensity of disasters.

k) **International Collaboration**

Engage in international collaboration and information-sharing to benefit from global expertise, resources, and best practices in disaster management.

Anticipatory actions by NDMA are essential for fostering resilience, reducing vulnerabilities, and ensuring a prompt and effective response to potential disasters.

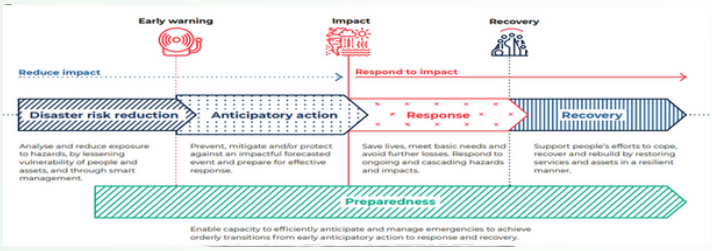


Figure 2.9: Anticipatory Actions

Figure 2.10: Anticipatory Actions

Chapter 03

Proposed DRM Strategy and Implementation Framework

Proposed DRM Strategy and Implementation Framework

1. **Priority Interventions and Actions by Major Hazards (Flood, Landslide, Earthquake and Drought)**
   a. **Flood**

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Flood Risk Reduction	Update the National hazard & risk assessment and its database	National database development of the historical flood disasters and its impact	Priority 4	NDMA	• SUPARCO • NDRMF • PDMAs	✅			
	Update runoff and inundation analysis model	Development of risk atlases including flood hazard, risk maps with catalogues (National Level)	Priority 2	NDMA	• FFC • SUPARCO • NDRMF • PDMAs		✅	✅	✅
		Development of probabilistic flood hazard and risk maps along the Indus River with CC Impact			• FFC • NDRMF • SUPARCO • PDMAs				✅
		Research studies on selected cities prone to urban flooding		Respective MCs and Development Authorities	• SUPARCO • Academia • NDRMF	✅	✅	✅	✅
	Update the database of Hydrological Structures for the planning of better risk management	Mapping the Nullahs/hill torrents responsible for flash flooding	Priority 4	PIDs	• FFC • PDMAs • NDMA	✅	✅	✅	✅
		National Drainage Master Plan (Undertake hydrological modeling and food-plain mapping and zoning of the Indus River system using climate change scenarios to estimate various projected flood levels)		FFC	• PID	✅	✅	✅	✅
		O&M Plan of the Bunds of Indus River		PID	• FFC	✅	✅	✅	✅
		Development of the Bund Training Manuals						✅	✅
		Development of planning & design criteria				✅	✅	✅	✅

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Flood Risk Reduction	Update and formulation of Laws, Guidelines and Act	Guidelines of CC Impact involvement to Flood Protection Plan and Design	Priority 4	FFC	• MoCC • PMD • PID	✅	✅	✅	✅
		Revision of National River Act		PID	• FFC	✅	✅	✅	✅
		Preparation of Tools and System for Projects' Management	Priority 2	FFC	• PID	✅	✅	✅	
		Development of planning & design criteria						✅	✅
	Flood Management and Development of Flood Disaster Risk Management Information System & sharing	Establishment of Project Management System		FFC, PID	• MoWR				✅
		Update of hydro-metrological Information sharing mechanism and system		FFC	• PID, • WAPDA • PDMAs			✅	✅
		Provision of technical experts/staff for flood risk analysis on Hill torrent and regional rivers capacity enhancement to understand flood disaster mechanism and hydrological analysis		PID	• FFC	✅	✅	✅	✅
		Update of hydro-metrological Information sharing mechanism and system					✅	✅	✅
Institutional Improvement	Provincial-level institutional strengthening for robust flood disaster risk management	Provincial Level Flood Hazard & Risk Map Strengthen the capacities to address on the Flood DRM system			• PDMA • NDMA	✅	✅	✅	✅
	Development of Flood Disaster Risk Management Information System and sharing	Update of hydro-metrological Information sharing mechanism and system		PDMA	• NDMA	✅	✅	✅	✅

b. Landslide

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Comprehensive Landslide Management: Assessment, Awareness, and Stabilization Strategies	Conducting landslide risk assessment	Conduct a landslide risk assessment for Northern areas of Pakistan at the macro scale	Priority 1	NDMA	• PDMAs • Forest Department • Land Use Planning Department	✅			
		Identify highly vulnerable areas for mitigating the landslides and slope instabilities				✅			
		Develop an Atlas of landslide hazard-prone areas and develop the profile					✅		
	Community Awareness	Conduct CBDRMs regularly to ensure outreach to the most vulnerable specially women, girls, children, elderly and person with disabilities, and teach / prepare communities on exclusive DRM practices		DDMAs	• INGOs • UNO • PDMAs • NDMA	✅	✅	✅	✅
		Provide training on recognizing early signs of instability and appropriate response actions.				✅	✅	✅	✅
		Promote social forestation to plant climate-smart vegetation to stabilize slopes and reduce soil erosion in their field and near residential areas.						✅	✅
	Strengthening land stabilization through structural measures	Construct retaining walls or terraces to break up steep slopes and minimize the risk of mass movement.	Priority 2	PDMAs	• Forest department • Irrigation department • Land use planning department				✅
		Construct gravity retaining walls to support soil and reduce the risk of slope failure.				✅	✅	✅	
		Use gabion walls (wire mesh baskets filled with rocks) to stabilize slopes and prevent erosion.					✅	✅	✅
		Use bioengineering techniques such as erosion control mats and blankets for slope stabilization.				✅	✅	✅	✅
		Retrofit structures to improve their resistance to seismic activity, reducing the likelihood of landslide-triggering earthquakes.						✅	✅

d. Earthquake

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Enhancing Earthquake Monitoring and Assessment	Establishment of a committee for the evaluation of earthquake faults and the practice of fault evaluation.	Announcement and selection of the committee members	Priority 4	NDMA	• Academic • PEC		✅	✅	
		Hold regular meetings for institutionalization							✅
		Assessing the active and non active faults and their mapping							✅
	Maintaining record and publication of epicenter rapture (real-time) and estimated intensity data	Collect historical data of earthquake disasters, and update it with epicenter rupture / estimated intensity data	Priority 2	PMD	• PMD • GSP • PDMA • DDMA			✅	✅
		Present and approval from the committee						✅	✅
		Information sharing about the seismic data to relevant government authorities (e.g., to EOCs)						✅	✅
		Publication and dissemination of data and reports							✅
	Scenario earthquake-based seismic risk assessment of selected earthquake-prone cities deriving the geotechnical information including urban-level details, liquefaction, etc. Updating hazard assessment by probabilistic seismic risk assessment using soil amplification factors.					Suggested for long-term planning			
Upgrading the Damage and Loss Assessments Procedures	Develop guidelines for an earthquake damage assessment (scenario-based earthquake micro zoning assessment)								
Capacity Enhancement of Human Resources for Earthquake Safer Construction	Training of the concerned technical officers of the government sector								

e. Drought

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Comprehensive Landslide Management: Assessment, Awareness, and Stabilization Strategies	Numerical modeling on water allocation and case study with hydrological perspective	Aggregation of data (water right, traditional water extraction without registrations. standard discharge for wet and dry season etc.)	Priority 1	IRSA	• PCIW • MoWR	✅	✅	✅	✅
		Analysis of flow duration curve for understanding water regime (High-, Normal-, Low- and Drought- Water) and its probability					✅	✅	✅
		Review on water consumption amount by crops and irrigation efficiency					✅	✅	✅
		Establishment of the water allocation model					✅	✅	✅
	Revision and update of current IRSA Act for smoothing information consensus in terms of hydrological mechanism in the Indus River	Case study on water allocation on dry seasons by using the model	Priority 2					✅	✅
		Analyze of distribution during drought						✅	✅
		Revision and update of IRSA Act							✅
Promotion of Water conservation and harvesting	Planning on improvement and construction of structural measures for water storage	Improvement and construction of reservoirs and ponds		PID	• PCRWR • WAPDA	✅	✅		
	Promotion water-saving agriculture and update of cropping pattern information	Study and planning of appropriate water-saving agriculture				✅	✅		
	Implementation of constructions and improvement of water storage, conveyance and field distribution structures	Improvement and construction of ponds and reservoirs; improvement of irrigation efficiency such as lying channels, dripping pipes and sprinkler; and water harvesting measurements with climate change viewpoints	Priority 3					✅	✅

2. Priority Interventions and Actions by Misc. Hazard (Smog, Heatwave, GLOF, Snow Storm, Avalanche, Forest Fire, Industrial and Technological Hazards)

a. Smog

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Comprehensive smog management through effective assessment and planning	Urban Smog Risk Assessment and Management for Punjab	Conduct smog risk assessment of Karachi and Lahore cities	Priority 1	PDMAs	• Urban units • Respective District Authorities	✅			
		Mapping of vulnerable areas and developing a catalog				✅			
		Develop a smog risk assessment report and its dissemination to concerned organizations				✅			
		Conduct awareness-raising sessions at the city level					✅		
	Develop Provincial level smog contingency plans	Develop a provincial-level smog contingency plan for Punjab Province	Priority 2		• Urban Units • Respective District Administration				✅
		Conduct proper consultations with key stakeholders							✅
		Develop a draft plan for review							✅
		Organize a one-day validation workshop to refine the plan							✅
		Publication and wide dissemination							

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Comprehensive smog management through effective assessment and planning	Continue awareness-raising sessions and campaigns	Promote the use of public transportation	Priority 3	EPAs	• INGOs • UNO • DDMAs • PDMAs • NDMA	✅	✅	✅	✅
		Compliance with strict emission standards				✅	✅	✅	✅
		Implement effective waste management practices to reduce open burning of waste, a significant contributor to air pollution				✅			✅
		Enforce and improve traffic management strategies to reduce traffic-related emissions				✅	✅	✅	✅
		Encourage public transportation to reduce the number of individual vehicles on the road, thereby decreasing emissions.				✅	✅	✅	✅

b. Heatwave

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Integrated Heatwave Preparedness and Response System	Comprehensive heatwave management framework: coordination, contingency, and alert	Develop a coordination committee among the PMD, NDMA, DDMAs, health department, and development authorities to keep vigilance of heatwaves during the summer season.	Priority 4	NDMA	• PDMAs • PMD	✅			
		Develop contingency plans for cities exposed to heatwave				✅			
	Predict and share forecasts, advisories, and alerts with relevant government and non-government stakeholders	Issue heat alerts based on the PMD advisory with the guidance of recommended thresholds and issue daily weather outlook and its dissemination to wider audiences.	Priority 3	PMD	• Electronic Media • PEMRA • Press Clubs • PDMAs • DDMAs • Development Authorities		✅	✅	
		In consultation with the district administration, issue alerts when heat-related cases are recorded.					✅	✅	
		Organize training for employees, and outdoor laborers/workers on the impacts of heat and how to protect themselves.					✅	✅	

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Integrated Heatwave Preparedness and Response System	Initiate Awareness Campaigns	Develop Information, Education, and Communication (IEC) material and its printing for wide dissemination.	Priority 4	PDMAs	• DDMA • INGOs • UNOs • Electronic & Print Media Institutions	☑			
		Display all emergency numbers and nearby hospital details in offices/schools/universities and factories.					☑	☑	
		Notify post heat-related illness prevention tips and how to stay cool in locations in and around hospitals and first response centers.					☑	☑	
		Hold awareness workshops at the school and community levels.				☑	☑		
		Expand access to shaded areas for outdoor workers, slum communities, and other vulnerable populations.				☑	☑	☑	
		Issue warnings using SMS the WhatsApp source, broadcasting it on local TV and radio channels for local citizens about heatwave awareness and ways to remain protected.					☑	☑	

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Integrated Heatwave Preparedness and Response System	Maintain an adequate stock of emergency medicines for heat wave-related health problems	Establish heat response centers in urban areas, especially in congested areas.	Priority 4	Health Department	• PDMAs • Rescue 1122 • NDMA		✅	✅	
		Keep ready an adequate supply of ice packs and fluids required for heatstroke patients.					✅	✅	
		Stockpiling of medicines in bulk for ready use.				✅	✅		
		Open wedding halls during days and mosques so that people can sit under the shade.					✅	✅	
		Equip certain ambulances that can be used at various localities for early-cooling treatment.					✅	✅	
		Create 'displays' on ambulances during local events to enhance public awareness.					✅	✅	
	Set up an Information Center to share information amongst all hospitals, health centers, and health professionals.	Produce weekly reports of the public health impact for PDMA, DDMA Emergency Response Coordinator during a heat alert.	Priority 4	Information Department	• PDMAs • Health Depart-ment		✅	✅	
		Produce weekly reports of the public health impact for PDMA, DDMA Emergency Response Coordinator during a heat alert.					✅	✅	

c. GLOF

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Glacial Lake Outburst Flood (GLOF) Risk Mitigation and Preparedness"	Establish a robust Early Warning Systems for monitoring GLOF	Establish an early warning system that integrates real-time monitoring of glacial lakes and weather conditions.	Priority 4	PDMAs	• DDMAs • PMD • NDMA	✅	✅	✅	✅
		Implement automatic sensors and monitoring devices to detect changes in lake volume, temperature, and other relevant parameters.				✅	✅	✅	✅
		Ensure timely communication of alerts to vulnerable communities through various communication channels.				✅	✅	✅	✅
	Risk Assessment and Mapping	Conduct comprehensive risk assessments to identify vulnerable areas prone to GLOFs.		PDMAs NDMA	• INGOs • DDMAs	✅	✅	✅	✅
		Develop detailed maps of glacial lakes, potential flood pathways, and at-risk communities.				✅	✅		
		Use advanced remote sensing technologies to monitor glacier dynamics and lake expansion.				✅	✅		

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
	Community Awareness and Preparedness	Conduct CBDRMs regularly to ensure outreach to the most vulnerable specially women, girls, children, elderly and person with disabilities, and teach / prepare communities on exclusive DRM practices	Priority 2	DDMAs NDMA	• INGOs • PDMAs	✅	✅	✅	✅
		Conduct regular drills and training sessions to enhance community preparedness and response capabilities.				✅	✅	✅	✅
		Enhance the capacity of local authorities, emergency responders, and relevant stakeholders to effectively respond to GLOF events.					✅	✅	
		Provide training on search and rescue operations, medical assistance, and evacuation procedures.				✅	✅		

d. Snow Storm

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Snowstorm Preparedness: Strengthening Early Warning Systems and Emergency Shelter Planning"	Strengthening the Early Warning Systems with Public Awareness and Education	Establish and maintain an advanced early warning system for snowstorms.	Priority 2	NDMA	• PDMAs • DDMA • District Administration				✅

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
		Develop close liaison with the PMD, for getting updates on the prediction and monitoring of the snowstorm patterns.		NDMA	• PDMAs • DDMA • District Administration	✅			✅
		Disseminate timely alerts through various communication channels to inform the public and authorities.				✅			✅
		Conduct regular public awareness campaigns about the risks and safety measures during snowstorms.				✅	✅		✅
		Provide guidelines on preparing emergency kits, winterizing homes, and safe travel practices in snowy conditions.				✅			✅
	Emergency Shelter Planning	Prepare snowstorm/winter contingency plans at the district levels to prepare for swift emergency response.	Priority 1	DDMAs	• PDMAs • INGOs • UNO			✅	
		Identify and designate emergency shelters in vulnerable areas.				✅			✅
		Equip shelter places with proper heating, blankets, food, and medical supplies.				✅	✅		

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
		The local authorities should prepare efficient evacuation plans and transportation during snow emergencies.				✅			✅
Winter Resilience: Strengthening Infrastructure and Enhancing Emergency Preparedness	Resilient Infrastructure	Implement measures to strengthen critical infrastructure against snow-related damage, such as power lines and transportation networks.	Priority 4	DDMAs	• PDMAs • INGOs • UNO	✅	✅	✅	✅
		Regularly inspect and maintain infrastructure to prevent failures during heavy snowfall.				✅	✅	✅	✅
		Plan for alternate rescue operations in case the roads are blocked				✅			✅
		Ensure the availability of snow removal equipment and road-clearing machinery.				✅			✅
	Emergency Preparedness	Train healthcare professionals to deal with cold-related illnesses and injuries.				✅			✅

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
		Stockpile medical supplies and coordinate with hospitals and clinics to ensure continued healthcare services during snowstorms.	Priority 4	PDMAs	• NDMAs • DDMAs • District Administration • INGOs • UN	✅			✅
		Maintain stockpiles of essential supplies, including food, water, medications, and fuel, in strategic locations.				✅			✅

e. <u>Forest Fire</u>

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Integrated Fire Management: Early Detection, Public Awareness, Communication, and Resource Collaboration	Formulate Early Detection Systems	Mapping of areas prone to forest fires	Priority 3	Forest department PDMAs	• DDMA • PMD • SPARCO • NDMA		✅		
		Invest in early detection systems, including surveillance cameras and aerial monitoring.					✅		
		Use satellite technology and drones to identify and track potential fire hotspots.					✅		

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
	Public Awareness and Safe Evacuation	Conduct regular awareness campaigns to educate the public about fire risks and safety measures.	Priority 4	DDMAs, PDMAs	• Forest Department • PDMAs	✅	✅	✅	✅
		Develop guidelines on creating defensible space around homes and forest areas.				✅			
		Develop and communicate clear evacuation plans for communities in fire-prone areas.				✅			
		Conduct regular drills to ensure that residents and emergency responders are familiar with evacuation procedures.					✅	✅	
	Communication Systems	Establish reliable communication systems to disseminate timely information about fire risks and evacuation orders.	Priority 2	DDMAs PDMAs	• Forest Department • NDMA		✅	✅	
		Utilize sirens, mobile notifications, and community networks for alerts.					✅	✅	

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
	Firefighting Resources	Equip firefighting crews with proper training and equipment.	Priority 2	District Administration	• Forest Department • Rescue1122 • DDMAs • PDMAs	✅	✅	✅	✅
		Collaborate with neighboring districts to share firefighting resources during large-scale incidents.				✅	✅	✅	✅

f. <u>Tsunami</u>

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Developing/ Revising the Tsunami Hazard /Risk Assessment Database	Establishment of a committee for the evaluation of earthquake faults and the practice of fault evaluation.	Announcement and selection of the committee members	Priority 4	NDMA	• Academic • PEC		✅	✅	
		Hold regular meetings for institutionalization							✅
		Assessing the active and non-active faults and their mapping							✅
	Updating of the tsunami and inundation simulation (by scenario earthquakes)					Suggested for Long Term Planning			

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
	Developing simulation models for damage and loss estimation on the basis of tsunami risk assessment (by scenario earthquakes)					Suggested for long-term planning			
	Develop tsunami risk assessment for Gwadar city / Karachi city at micro-scale								
	Updating of tsunami hazard by probabilistic approach								
Mainstreaming Tsunami Risks in the Development Plans	Revise the Gwadar / Karachi development plan based on tsunami risk assessments and reflect them in land use planning					Suggested for long-term planning			
	Developing scenario-based tsunami risk reduction plans and their integration into the tsunami investment and evacuation plans								
	Developing tsunami evacuation plans for major cities based on the results of tsunami risk assessments.	Develop guidelines for evacuation plans							
		Carry out consultations and validations with major stakeholders							
		Conduct tsunami drills on safer evacuations	Priority 2	Dev authorities / MCs	• PDMA • Balochistan • DDM • TMA	✅	✅	✅	✅
		Develop evacuation maps for major cities		Dev authorities /MCs	• PDMA Balochistan • DDMA • TMA				✅
		Reporting of a lesson learned and its dissemination				Suggested for long-term planning			
Enhancing Tsunami Early Warning System	Engaging electronic and print media personnel for tsunami EWS and its reach out to the tsunami hazard-prone areas	Identifying relevant media platforms for early warning dissemination, studying the bottlenecks, and suggesting recommendations for improvement of EWS	Priority 2	PDMAs	• PEMRA • Press Clubs • Electronic and Print • Media Agencies	✅	✅		
		MOUs signing with the TVs, radios, and important newspapers					✅	✅	
		Enhancing communication networks through seminars, drills, and training					✅	✅	✅

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
	Defining SOPs disseminating the tsunami EWS and developing thresholds for evacuation						✅	✅	
Reducing the Impact of Tsunami Hazard	Construction of seawalls					Suggested for long-term planning			

g. Industrial and Technological Hazards

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Holistic Industrial and Technological Safety and Preparedness: Risk Assessment, Emergency Response, and Public-Private Collaboration	Risk Assessment and Mapping	Conduct comprehensive risk assessments both at macro and micro levels for industrial and technological facilities.	Priority 1	NDMA PDMAs	• Ministry of Industries & Production	✅			
		Develop risk maps to identify vulnerable areas and potential impact zones.				✅			
	Emergency Response Management in the Industrial Zones	Develop and regularly update emergency response plans in the industrial areas.	Priority 3	NDMA, PDMAs, Ministry of Industries and Production	• Industrial zones • DDMAs • PDMAs	✅	✅		
		Conduct drills and exercises to test the effectiveness of emergency response procedures.				✅	✅	✅	✅
		Conduct public awareness campaigns to educate communities about potential industrial hazards.				✅	✅	✅	✅
		Provide information on emergency procedures and evacuation routes.						✅	✅
	Promote public-private partnership	Establish working committees to promote public-private partnerships for reinvestment in disaster preparedness	Priority 2	NDMA	• PDMAs • Industries and Production Division • Industrial Zones	✅	✅		
		Enforce and update regulations for industrial safety, ensuring compliance with international standards.				✅	✅		
		Implement strict penalties for non-compliance to encourage adherence to safety protocols.				✅	✅	✅	✅
		Encourage industries to invest in and implement advanced safety technologies.				✅	✅	✅	✅

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Holistic Industrial and Technological Safety and Preparedness: Risk Assessment, Emergency Response, and Public-Private Collaboration	Training and Capacity Building	Provide training programs for industrial workers, emergency responders, and local authorities.	Priority 2	DDMAs	• PDMAs • Health Department, • Industries and Production Division • Industrial Zones	✅	✅	✅	✅
		Build the capacity of local emergency services to respond effectively to industrial incidents.				✅	✅	✅	✅
		Develop plans for medical response and mass casualty management in the event of industrial accidents.				✅			
		Ensure that hospitals and healthcare facilities in proximity to industrial zones are adequately equipped.				✅	✅	✅	✅

h. Multi-Hazard Early Warning System

Strategy	Intervention	Action	Linkage with SFDRR	Execution Agency		2024			
				Main	Support	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Multi-Hazard Early Warning System	Strengthen Forecasting and Early Warning System	Strengthen Weather Observation Network Including AWS, Radars, Upper Air Observation and Satellite.	Priority 2	NDMA	• PDMA	✅	✅	✅	✅
		Establish Forecasting Center Including RFFWC and Urban/Flash Flood Early Warning Center in Major Cities.			• PDMA • FFC		✅		
		Strengthen Flood Forecasting and EWS Including GLOF.			• PDMA, • IRSA • WAPDA		✅	✅	
		Strengthen Earthquake & Tsunami Forecasting and EWS			• GSP • PDMA	✅	✅	✅	✅
		Strengthen Forecasting and EWS Including Landslide, Cyclone, Heat Wave & Marine, Drought and Extreme Weather.			• PDMA	✅	✅	✅	✅
	Prepare for Emergency Response	Strengthen Early Warning Dissemination System between PMD, DMAs and Other Agencies or Departments.		PMD	• NDMA • PDMA	✅	✅	✅	✅
		Develop National Plan, Guidelines and SOPs for EWS and HEPR (Health)		NHSRC	• NDMA • PDMA	✅	✅	✅	✅
Anticipatory Action (AA)	AA Framework	Establishment of Tech Wing	Priority 4	NDMA	• NDMA • PDMA • UN • INGO's	✅	✅	✅	✅
		Development of National AA Strategy				✅	✅		
		Second National Dialogue Platform				✅			✅

ANNEX-I

List of Concerned Organizations at National and Provincial Levels

Serial No.	Department	Contact Number
1	Pakistan Meteorological Department (PMD)	051-9250367 051-9250368 051-9250364
2	Flood Forecasting Division, Lahore	042-99200208
3	Army Flood Control Centre, Engineers Directorate	051-5202059 051-5202060 203525 (DEFCOM) 8000-30855 (PASCOM)
4	DG NHES	051-9255708-9
5	Federal Flood Commission	051-9244604 051-9244616
6	IRSA, Islamabad	051-9244600 051-924459
7	SUPARCO Islamabad	051-9075265
8	Nullah Lai Control Room	051-9250566
9	Rescue 1122 Punjab	042-37423372
10	Rescue 1122 Rawalpindi	051-9291185
11	Rescue 1122 Khyber Pakhtunkhwa	091-9222483-4
12	Rescue 1122 Gilgit Baltistan	05811-922137
13	Rescue 1122 Azad Jammu & Kashmir (SDMA)	0333-3331122
14	Geological Survey of Pakistan, Islamabad	051-9269579 051-9255141
15	Pakistan Maritime Security Agency, Karachi	021-99214624 021-99214625

16	PCIW (Pakistan Commission for Indus Water) Lahore	042-99212783-86
17	GM, Pakistan Railway Lahore	042-99201700
18	Punjab Irrigation Department	042-99212117-8
19	Balochistan Irrigation Department	081-9201074
20	Sindh Irrigation Department	021-99222949 021-99222950
21	Azad Jammu & Kashmir Irrigation Department	05822-921596 05822-921157
22	KP Irrigation Department	091-9210845 091-9212116
23	Civil Defence Punjab	042-99212109 042-99212111
24	Civil Defence Sindh	021-99243765
25	Civil Defence KP	091-9212176 091-2263158-59

ANNEX-II

Contact Details of NEOCs and PEOCs

Serial No.	Emergency Operation Centers	Contact No.
1.	National Emergency Operation Centre (NDMA) Islamabad	UAN-051-111-157-157 051-9030788
2.	Provincial Emergency Operation Centre (PEOC) Punjab	042-99204408 042-99203163
3.	Provincial Emergency Operation Centre (PEOC) Sindh	021-35381810
4.	Provincial Emergency Operation Centre (PEOC) Balochistan	081-9241122 081-9241118
5.	Provincial Emergency Operation Centre (PEOC) KP	091-9219636
6.	State Emergency Operation Centre (SDMA) SDMA ,AJ&K	05822-921536 05822-921643 05822-921101
7.	GBDMA Emergency Operation Centre, Gilgit	05811-922030 920874-75

ANNEX-III

Basic Concepts used in this Plan

- **Capacity**

The combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience.

- **Disaster**

A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

- **Disaster Management**

The organization, planning and application of measures preparing for, responding to and recovering from disasters.

- **Disaster Management Planning**

Participatory disaster management planning is process in which the community members are involved in analyzing the participatory disaster risk assessment information, towards developing an action plan for disaster risk reduction measures that will help in reducing the prioritized risk of the target communities.

- **Disaster Risk**

The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

- **Disaster Risk Assessment**

A qualitative or quantitative approach to determine the nature and extent of disaster risk by analyzing potential hazards and evaluating existing conditions of exposure and vulnerability that together could harm people, property, services, livelihoods and the environment on which they depend

- **Disaster Risk Management**

Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

- **Disaster Risk Reduction**

Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.

- **Emergency**

Emergency is sometimes used interchangeably with the term disaster, as, for example, in the context of biological and technological hazards or health emergencies, which, however, can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.

- **Hazard**

A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

- **Mitigation**

Lessening or minimizing of the adverse impact of a hazardous event. Mitigation include undertaking both structural and non-structural measures aimed at reducing the risk from disasters. Structural measures are any physical construction to reduce or avoid possible impacts of hazards, or the application of engineering techniques or technology to achieve hazard resistance and resilience in structures or systems. Non-structural measures are measures not involving physical construction that uses knowledge, practice or agreement to reduce disaster risks and

impacts, in particular through policies and laws, public awareness raising, training and education.

- **Preparedness**

The knowledge and capacities developed by the governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters.

- **Prevention**

Activities and measures to avoid existing and future disaster risks.

- **Reconstruction**

The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risks. Permanent measures to repair or replace damaged dwellings and infrastructure and to set the economy back on course.

- **Recovery**

The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster affected community or society, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk.

- **Rehabilitation**

The restoration of basic services and facilities for the functioning of a community or a society affected by a disaster.

- **Relief**

Measures that are required in search and rescue of survivors, as well to meet the basic needs for shelter, water, food & health care. Intervention aimed at meeting the immediate needs of the victims of a disastrous event.

- **Resilience**

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

- **Response**

Actions taken directly during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

- **Risk**

The combination of the probability of an event and its negative consequences

- **Vulnerability**

The conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

ANNEX-IV

Prioritized Hazards Prone Districts of Pakistan

District	Province	Flood Risk	Landslide Risk	Earthquake Risk	Tsunami Risk	Cyclone Risk	Drought Risk	Forest Fire	Smog	Avalanche	GLOF Risk	Total Risk
Hattian	A.J.K	5	5	5	-	2	3		-	1	1	22
Muzaffarabad	A.J.K	5	5	5	-	2	3	2	-	5	5	32
Sudhnoti	A.J.K	5	5	5	-	2	5		-	1	1	24
Poonch	A.J.K	5	5	5	-	2	5		-	1	1	24
Haveli	A.J.K	5	5	5	-	2	5		-	1	1	24
Bagh	A.J.K	5	5	5	-	2	5	2	-	1	1	26
Neelum	A.J.K	4	4	4	-	1	2	2	-	4	4	25
Kotli	A.J.K	4	3	5	-	2	5		-	1	1	21
Mirpur	A.J.K	3	3	4	-	2	5	2	-	1	1	21
Bhimber	A.J.K	4	2	3	-	2	4		-	1	1	17
Bolan	Balochistan	4	3	3	-	2	3		1	1	1	18
Jaffarabad	Balochistan	5	1	3	-	2	3		1	1	1	17
Nasirabad	Balochistan	5	1	3	-	2	2		1	1	1	16
Quetta	Balochistan	3	1	5	-	2	5		1	1	1	19
Jhal Magsi	Balochistan	4	1	2	-	2	2		1	1	1	14
Sibi	Balochistan	3	1	2	-	1	3		1	1	1	13
Loralai	Balochistan	3	2	3	-	2	4		1	1	1	17
Killa Saifullah	Balochistan	3	3	3	-	1	3		1	1	1	16
Kech	Balochistan	3	1	1	-	4	4		1	1	1	16
Kalat	Balochistan	3	3	3	-	1	1		1	1	1	14
Pishin	Balochistan	2	1	4	-	1	3		1	1	1	14
Awaran	Balochistan	2	1	1	-	3	4		1	1	1	14
Harnai	Balochistan	3	1	2	-	1	3		1	1	1	13
Chaman	Balochistan	3	1	5	-	1	3		1	1	1	16
Duki	Balochistan	3	1	3	-	1	3		1	1	1	14
Shaheed Sikandarabad	Balochistan	3	1	3	-	1	3		1	1	1	14
Sohbatpur	Balochistan	3	1	3	-	1	3		1	1	1	14
Lehri	Balochistan	3	1	3	-	1	3		1	1	1	14
Barkhan	Balochistan	3	1	3	-	1	2		1	1	1	13
Mastung	Balochistan	2	2	3	-	1	2		1	1	1	13
Killa Abdullah	Balochistan	3	1	3	-	1	2		1	1	1	13
Khuzdar	Balochistan	3	1	1	-	1	4		1	1	1	13
Gwadar	Balochistan	1	1	2	1	3	1		1	1	1	12
Lasbela	Balochistan	2	1	1	1	3	1		1	1	1	12
Ziarat	Balochistan	1	1	4	-	1	1		1	1	1	11
Kohlu	Balochistan	2	2	2	-	1	1		1	1	1	11
Chagai	Balochistan	2	1	1	-	1	2		1	1	1	10
Washuk	Balochistan	2	1	2	-	1	1		1	1	1	10
Zhob	Balochistan	2	1	2	-	1	1		1	1	1	10
Panjgur	Balochistan	1	1	1	-	1	3		1	1	1	10

Nushki	Balochistan	2	1	2	-	1	1		1	1	1	10
Kharan	Balochistan	2	1	2	-	1	1		1	1	1	10
Dera Bugti	Balochistan	1	1	2	-	1	1		1	1	1	9
Sherani	Balochistan	1	1	2	-	1	1	5	1	1	1	14
Musakhel	Balochistan	1	1	2	-	1	1		1	1	1	9
Hunza-Nagar	Gilgit-Baltistan	3	4	2	-	1	-		1	3	3	17
Diamir	Gilgit-Baltistan	3	4	2	-	1	-		1	3	3	17
Skardu	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Gilgit	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Ghizer	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Ghanche	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Karmang	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Rondu	Gilgit-Baltistan	3	3	2	-	1	-		1			10
Gupis-Yasin	Gilgit-Baltistan	3	3	2	-	1	-		1			10
Darel	Gilgit-Baltistan	3	3	2	-	1	-		1			10
Shigar	Gilgit-Baltistan	3	3	2	-	1	-		1	3	3	16
Astore	Gilgit-Baltistan	2	3	2	-	1	-		1	3	3	15
Islamabad	ICT	2	3	5	-	2	3	4	2	1	1	23
Indian Illegally Occupied Kashmir	Indian Illegally Occupied Kashmir	-	-	-	-	-	-	-	-	-	-	0
Bajaur	KP MERGED DISTRICTS	3	3	5	-	2	2	3	1	1	1	21
Mohmand Agency	KP MERGED DISTRICTS	3	4	4	-	1	2	1	1	1	1	18
Khyber Agency	KP MERGED DISTRICTS	3	4	3	-	1	2	3	1	1	1	19
Orakzai Agency	KP MERGED DISTRICTS	2	4	3	-	2	4	3	1	1	1	21
FR Peshawar	KP MERGED DISTRICTS	2	3	3	-	2	3	1	3	1	1	19
South Waziristan Agency	KP MERGED DISTRICTS	2	2	2	-	1	1	3	1	1	1	14
FR D.I. Khan	KP MERGED DISTRICTS	1	1	2	-	1	2	-	3	1	1	12
FR Kohat	KP MERGED DISTRICTS	2	3	3	-	1	1	-	2	1	1	14
FR Bannu	KP MERGED DISTRICTS	1	2	2	-	1	1	-	2	1	1	11

North Waziristan Agency	KP MERGED DISTRICTS	2	2	2	-	1	2	2	1	1	1	14
Kurrum Agency	KP MERGED DISTRICTS	3	2	2	-	1	1	2	1	1	1	14
FR Tank	KP MERGED DISTRICTS	1	1	1	-	1	1	-	2	1	1	9
FR Lakki Marwat	KP MERGED DISTRICTS	1	1	2	-	1	1	-	2	1	1	10
Charsadda	KPK	5	3	5	-	2	3	-	2	1	1	22
Shangla	KPK	5	4	5	-	2	4	3	-	2	2	27
Sawat	KPK	5	5	4	-	2	2	3	-	2	2	25
Nowshera	KPK	5	3	5	-	2	3	-	2	1	1	22
Mansehra	KPK	4	5	4	-	2	1	2	1	1	1	21
Buner	KPK	5	4	4	-	2	4	2	-	1	1	23
Peshawar	KPK	5	3	5	-	2	3	-	5	1	1	25
Upper Dir	KPK	4	5	4	-	2	2	2	-	1	1	21
Swabi	KPK	5	3	5	-	2	2	-	1	1	1	20
Bannu	KPK	4	2	5	-	2	4	-	3	1	1	22
Abbottabad	KPK	3	5	5	-	2	2	2	-	1	1	21
D. I. Khan	KPK	5	1	2	-	2	2	-	3	1	1	17
Batagram	KPK	3	4	4	-	2	3	2	-	1	1	20
Mardan	KPK	5	3	5	-	2	1	-	2	1	1	20
Lower Dir	KPK	4	4	5	-	2	1	-	1	1	1	19
Haripur	KPK	3	5	4	-	2	1	-	1	1	1	18
Hangu	KPK	3	3	4	-	2	3	-	1	1	1	18
Malakand	KPK	4	3	5	-	2	1	-	-	1	1	17
Tank	KPK	4	1	3	-	2	4	-	2	1	1	18
Kohistan	KPK	3	4	3	-	1	1	2	-	1	1	16
Kohat	KPK	3	2	3	-	2	2	-	2	1	1	16
Chitral	KPK	3	4	2	-	1	1	2	-	3	3	19
Lakki Marwat	KPK	3	1	3	-	2	1	-	2	-	-	12
Karak	KPK	2	2	2	-	1	1	-	1	-	-	9
Rawalpindi	Punjab	4	5	5	-	2	3		3	-	-	22
Sheikhupura	Punjab	5	2	4	-	2	4		4	-	-	21
Rahim Yar Khan	Punjab	5	1	3	-	2	5		4	-	-	20
Multan	Punjab	4	1	4	-	2	5		5	-	-	21
Gujranwala	Punjab	5	2	4	-	2	2		5	-	-	20
Okara	Punjab	3	1	5	-	2	4		4	-	-	19
Nankana Sahib	Punjab	3	2	4	-	2	4		4	-	-	19
Muzaffargarh	Punjab	5	1	3	-	2	4		4	-	-	19
Mianwali	Punjab	4	4	3	-	2	2		3	-	-	18
Gujrat	Punjab	5	2	5	-	2	1		4	-	-	19
Faisalabad	Punjab	3	1	4	-	2	4		5	-	-	19
Toba Tek Singh	Punjab	3	1	4	-	2	4		4	-	-	18

Sialkot	Punjab	5	1	5	-	2	1		4	-	-	18
Sahiwal	Punjab	3	1	4	-	2	4		3	-	-	17
Narowal	Punjab	5	1	5	-	2	1		3	-	-	17
Jhang	Punjab	5	1	3	-	2	3		3	-	-	17
D.G. Khan	Punjab	5	1	2	-	2	3		2	-	-	15
Sargodha	Punjab	4	2	3	-	2	2		3	-	-	16
Rajanpur	Punjab	5	1	2	-	2	3		3	-	-	16
Lodhran	Punjab	3	1	3	-	2	4		3	-	-	16
Leiah	Punjab	5	1	2	-	2	3		2	-	-	15
Khushab	Punjab	4	2	3	-	2	2		2	-	-	15
Khanewal	Punjab	3	1	3	-	2	4		3	-	-	16
Kasur	Punjab	3	1	4	-	2	3		3	-	-	16
Jhelum	Punjab	3	2	4	-	2	2		2	-	-	15
Chiniot	Punjab	3	1	3	-	2	3		2	-	-	14
Vehari	Punjab	3	1	3	-	2	3		2	-	-	14
Pakpattan	Punjab	3	1	3	-	2	3		3	-	-	15
Mandi Bahauddin	Punjab	3	1	4	-	2	2		3	-	-	15
Lahore	Punjab	3	1	4	-	2	2		5	-	-	17
Bahawalnagar	Punjab	3	1	2	-	2	3		3	-	-	14
Hafizabad	Punjab	3	1	3	-	2	2		3	-	-	14
Bahawalpur	Punjab	2	1	2	-	2	3		3	-	-	13
Chakwal	Punjab	2	1	3	-	1	2		2	-	-	11
Attock	Punjab	2	2	3	-	1	1	-	2	-	-	11
Bhakkar	Punjab	3	1	2	-	1	1	-	3	-	-	11
Hyderabad	Sindh	5	1	4	-	4	5	-	2	-	-	21
Thatta	Sindh	4	1	2	3	4	1	-	1	-	-	16
Tando Muhammad Khan	Sindh	5	1	4	-	4	5	-	1	-	-	20
Dadu	Sindh	5	1	2	-	2	5	-	1	-	-	16
Qamber Shahdadkot	Sindh	5	1	3	-	2	4	-	1	-	-	16
Badin	Sindh	4	1	3	-	5	2	-	1	-	-	16
Tando Allahyar	Sindh	4	1	4	-	4	5	-	1	-	-	19
Matiari	Sindh	5	1	4	-	2	5	-	1	-	-	18
Kashmore	Sindh	5	1	3	-	2	5	-	1	-	-	17
Jamshoro	Sindh	5	1	2	-	3	5	-	1	-	-	17
Jacobabad	Sindh	5	1	3	-	2	5	-	1	-	-	17
Shikarpur	Sindh	5	1	3	-	2	5	-	1	-	-	17
Nawabshah	Sindh	5	1	2	-	3	5	-	1	-	-	17
Naushahro Feroze	Sindh	5	1	3	-	2	5	-	1	-	-	17
Mirpur Khas	Sindh	4	1	3	-	4	4	-	1	-	-	17
Khairpur	Sindh	5	1	2	-	2	5	-	1	-	-	16
Ghotki	Sindh	5	1	2	-	2	5	-	1	-	-	16
Sukkur	Sindh	5	1	2	-	2	5	-	1	-	-	16
Tharparkar	Sindh	3	1	2	-	4	4	-	1	-	-	15

Larkana	Sindh	5	1	2	-	2	4	-	1	-	-	15
Umerkot	Sindh	3	1	2	-	3	3	-	1	-	-	13
Sanghar	Sindh	4	1	2	-	3	2	-	1	-	-	13
Sujawal	Sindh	3	1	4	5	5	4	-	1	-	-	29
Kambar Shahdad Kot	Sindh	3	1	2	-	2	4	-	1	-	-	13
Central Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24
West Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24
East Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24
Korangi Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24
Malir Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24
South Karachi	Sindh	3	-	5	5	5	1	-	5	-	-	24

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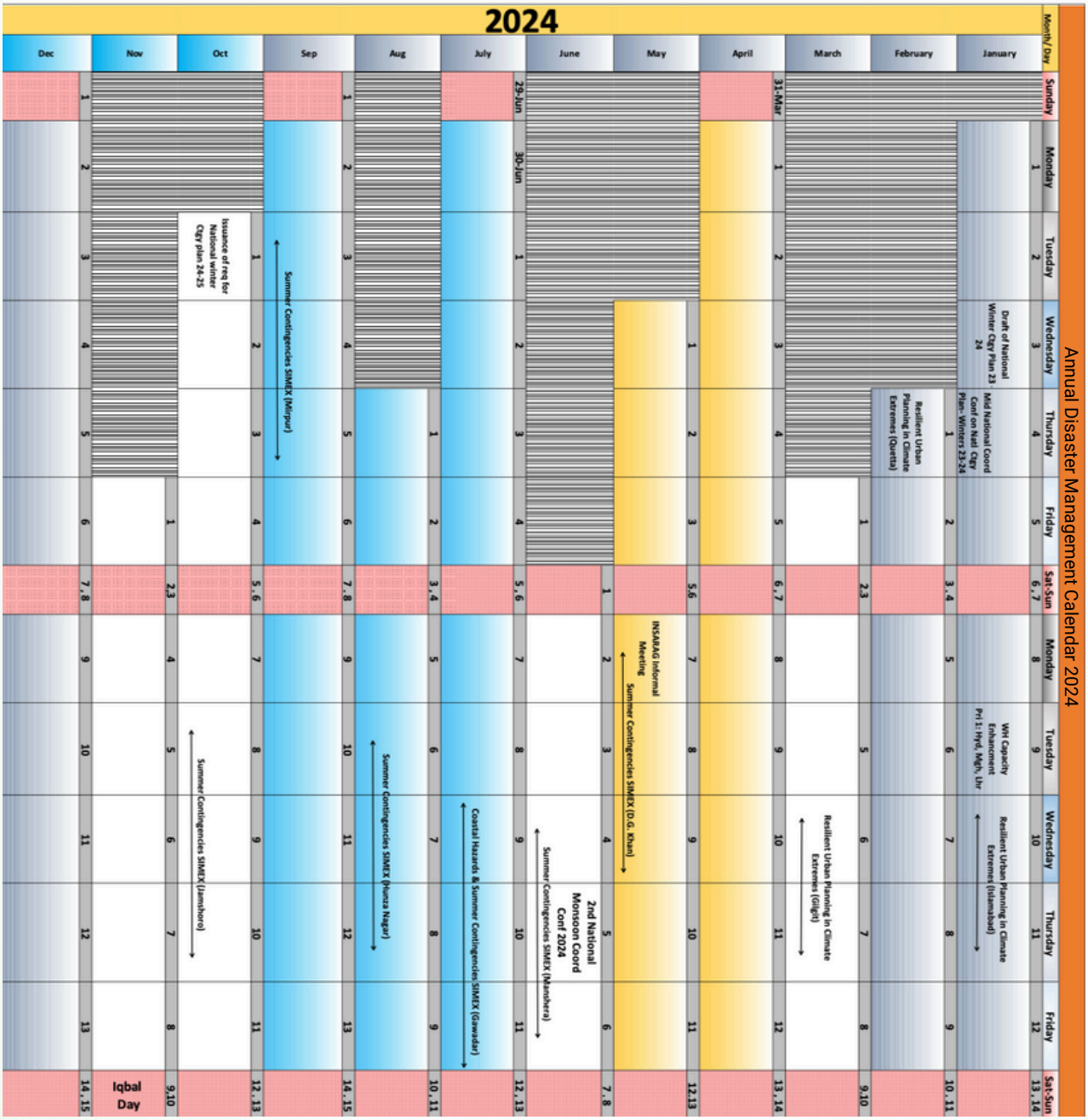
ANNEX-V

Annual Disaster Management Calendar 2024



*continued on next page

Annual Disaster Management Calender - 2024

Monday	Tuesday	Wednesday	Thursday	Friday	Sat-Sun	Monday	Tuesday	Wednesday	Thursday	Friday	Sat-Sun	Monday	Tuesday	Wednesday	Thursday		
15	16	17	18	19	20 , 21	22	23	24	25	26	27 , 28	29	30	31			
		Draft - Revised Ex-Gratia Asst Guidelines, INSARAG New Year Teleconference Resilient Urban Planning in Climate Extremes (Karachi)	Draft NDRP 2024/25							Camera Instl- WHs Kci, Hyd, Skr, Lhr, Jlz, Qta			WH Quality Inspection 1st Qts 24 Lhr, Mzd, GB	Completion of Re-Stoking Phase-3, Resilient Urban Planning in Climate Extremes (Quetta)			
12	13	14	15	16	17 , 18	19	20	21	22	23	24 , 25	26	27	28	29		
							Disaster Response SIMEX (Quetta)			WH Quality Inspection 1st Qts 24 Mgh, Hyd, Skr, Kci, Qta		Technical Working Group on Anticipatory Actions)		WH Capacity Enhancment Pri 2: Kci, Hyd, Mgh, Lhr, Jlz, Qts			
11	12	13	14	15	16.17	18	19	20	21	22	23.24	25	26	27	28	29	30
		Draft - Template of Flash appeal					Post winter cum summer Ctgy Coord Conf				Pakistan Day			Draft Summer Ctgy Plan Winters -24	Ex-Gratia Assistance Portal		
15	16	17	18	19	20 , 21	22	23	24	25	26	27 , 28	29	30				
						Summer Contingencies SIMEX (Lahore)	Coastal Hazards & Summer Contingencies SIMEX (Karachi)	International Expo				WH Quality Inspection 2nd Qts 24 Isb, Jlz, Lhr, Mzd, GB	Coord Conf -Pre Monsoon 2024				
14	15	16	17	18	19.20	21	22	23	24	25.26	27	28	29	30	31		
						Summer Contingencies SIMEX (Upper Dir)	National Monsoon Coord Conf 202										
9	10	11	12	13	14 , 15	16	17	18	19	20	21 , 22	23	24	25	26	27	28
				Issuance of National Monsoon Ctgy Conf 2024									INSARAG Methodology & Concept Course for National Teams Coastal Hazards & Summer Contingencies SIMEX (Quetta)					
14	15	16	17	18	19 , 20	21	22	23	24	25	26 , 27	28	29	30			
								Summer Contingencies SIMEX (Ghizer)									
12	13	14	15	16	17 , 18	19	20	21	22	23	24 , 25	26	27	28	29	30	31
	Mid Monsoon Coord Conf 2024						Summer Contingencies SIMEX (Muzaffarabad)										
16	17	18	19	20	21 , 22	23	24	25	26	27	28 , 29	30					
		Summer Contingencies SIMEX (Peshawar)															
14	15	16	17	18	19 , 20	21	22	23	24	25	26 , 27	28	29	30	31		
	Post mosoon coord conference 2023	New South Wales Task Force AUS-02 - Heavy IER, APMCDRR				INSARAG Regional Conference	Summer Contingencies SIMEX (Rahim Yar Khan)	AP ERE		Feedback from all st-holders of Natl W-Ctgy plan 24-25		International Rescue Challenge					
11	12	13	14	15	16,17	18	19	20	21	22	23,24	25	26	27	28	29	30
			Coord Conf Winters 24-25									COP-29		Issuance of National Ctgy Plan- Winters 22-25			
16	17	18	19	20	21 , 22	23	24	25	26	27	28 , 29	30	31				
							New Year Call						Issuance of DM Calander				


PAKISTAN
National Disaster Management Authority
NDMA