



NDMA Summer Hazards Contingency Plan 2024

1. **General.** Summer Season in Pakistan is experienced from March to May annually, which is categorized by higher temperatures and comparatively less rainfall. Likely hazards associated with summers include heatwaves; which can induce forest fires, urban fires and health conditions such as heatstroke; high temperatures resulting in glacial melt may result in glacial lake outburst flooding (GLOF) and flash flooding; as well as drought caused by little to no precipitation. In addition to common summer hazards, extreme hydro-meteorological events, partly driven by adverse effects of climate change such as hailstorms, thunderstorms, cloudbursts and tropical cyclones, can also be experienced in the country. Climate change has also led to erratic weather patterns, increased frequency and intensity of hazards and compounded impacts of regularly experienced hazards.
2. National Disaster Management Authority (NDMA) under clause 9(a) and 9(b) of National Disaster Management Act 2010 (**Annex-A**) deals with complete spectrum of disaster management (DM) activities in the paradigm of **PR³** (Preparedness, Response, Recovery & Rehabilitation). **NDM Act 2010** is so structured that DM is a subject devolved to the provinces and federating units. Nonetheless, NDMA coordinates and generates national response in face of large-scale calamity, renders guidance, early warnings, advisories and alerts to all concerned federal and provincial departments and stakeholders to initiate mitigation and preparedness measures for potential disaster risks and contingency plans for likely disaster situations arising out of contemplated hazards. Recognizing the threat posed by the recurrent disasters vis-à-vis vulnerabilities, NDMA developed a comprehensive **National Disaster Management Plan (NDMP) 2024**, encompassing disaster interventions. NDMP is further **augmented by National Disaster Response Plan (NDRP) 2024/25**, which gives broad guidelines for response related activities. In the same context, issuance of “**NDMA Summer Hazards Contingency Plan**” is a yearly practice, undertaken before the start of every summer season.
3. Accordingly, “**NDMA Summer Hazards Contingency Plan 2024**” has been prepared in coordination with all disaster management stakeholders, both at federal and provincial levels based on analysis of seasonal outlook by the Pakistan Meteorological Department (PMD) and relevant technical input from NDMA Tech Team. In this Plan, **guidelines have been outlined for all disaster management tiers and relevant stakeholders** for adopting a proactive approach towards all aspects of mitigation, preparations against the most probable and against possible worst-case scenarios to coordinate a timely response. This Contingency Plan is meant to be **read in conjunction** with NDRP-2024/25 and other relevant documents & plans.
4. **Aim.** To formulate “**NDMA Summer Hazards Contingency Plan 2024**” for proactive preparations and an effective response against likely hazards associated with summers.

5. **Scope.** The Plan shall encompass following: -
- a. **Part I - General Aspects**
 - (1) Hazard Profile.
 - (2) Organizational / Departmental Responsibilities.
 - (3) Likely Response Challenges.
 - b. **Part II - Threat and Vulnerabilities**
 - (1) PMD's Summer Seasonal Outlook 2024.
 - (2) Perceived Impact of Summer Seasonal Outlook 2024.
 - (3) Major Conclusions from Summer Seasonal Outlook 2024.
 - (4) Summer Season Hazard Contingencies.
 - c. **Part III - Anticipatory Actions & Response Guidelines for Summers 2024**
 - (1) Preparedness Phase.
 - (2) Early Warning Phase.
 - (3) Response - Rescue, Relief & Early Recovery Phase.
 - (4) Coordination Aspects.
 - d. **Part IV - Risk / Vulnerability Maps**
 - (1) Heatwave Hazard Vulnerability Map.
 - (2) GLOF Hazard Vulnerability Map.
 - (3) Forest Fire Hazard Vulnerability Map.
 - (4) Avalanche Hazard Vulnerability Map.
 - (5) Drought Vulnerability Map.
 - (6) Tropical Cyclone Vulnerability Map.

PART I - GENERAL ASPECTS

6. **Hazard Profile - National Hazards & Risk Profile**. The hazard and risk profile of Pakistan against the perceived hazards of summer season has been outlined below (**Hazard Risk Maps for Summer Hazards** have been included in **Part-IV** of the plan): -

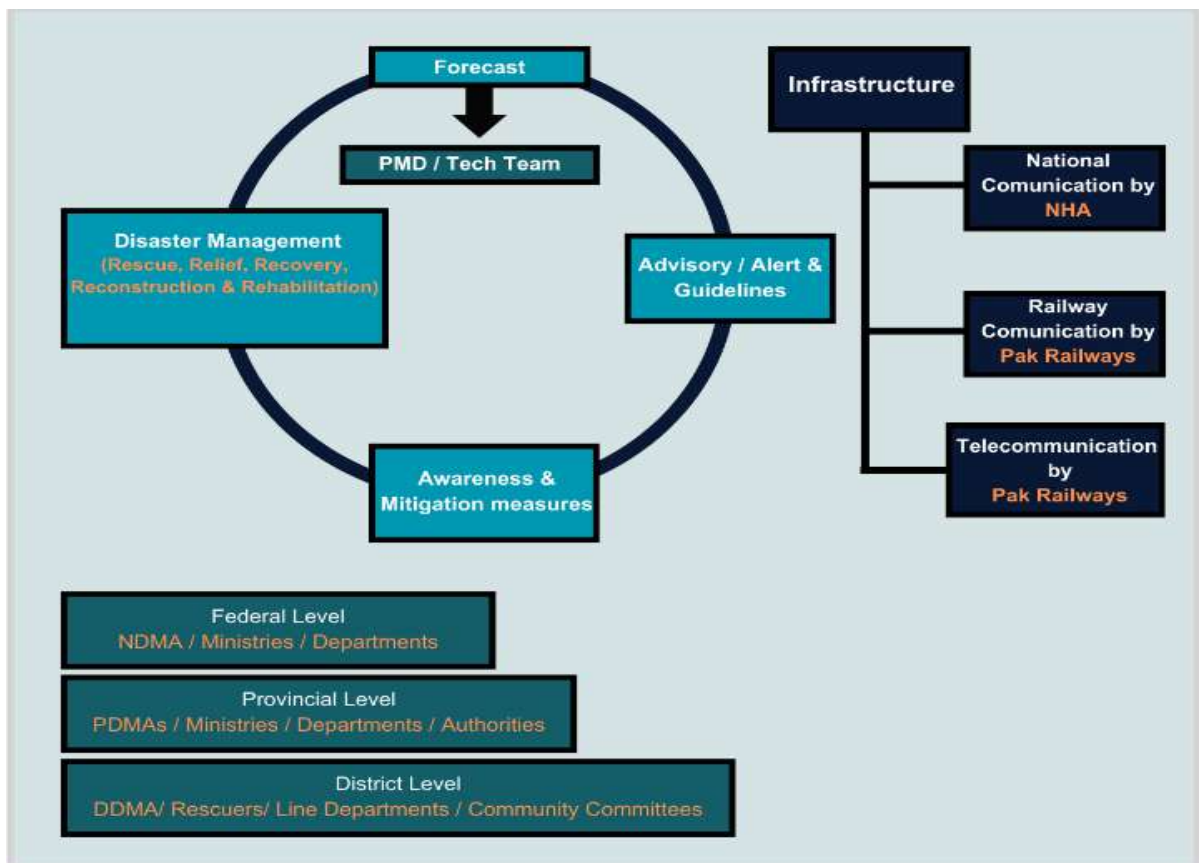
- a. **Heatwaves**. Pakistan experiences heatwaves every summer, with temperatures reaching above 50°C in some parts of the country. Heatwaves are defined as extended periods of abnormally high temperatures, which can cause direct or indirect risks to human health, livestock and crops. Certain parts of Punjab and Sindh provinces are vulnerable to heatwaves due to their high population densities and hot and arid climate. The risk of heatwaves is further exacerbated by climate change, which is causing an increase in the frequency and intensity of heatwaves in Pakistan.
- b. **Flash Floods**. Different regions of Pakistan are prone to hill torrents / flash floods. The phenomenon is sudden and rapid-onset of very high concentrated discharge of water caused by heavy rainfall, which can lead to extensive damage to infrastructure, crops and often loss of lives. Pakistan's geography, with its mountainous regions and extensive river systems, makes it particularly vulnerable to flash floods / hill torrents. Pakistan's northern regions, particularly Khyber Pakhtunkhwa, Gilgit-Baltistan and Azad Jammu & Kashmir, are most vulnerable to flash floods due to mountainous nature of terrain and proximity to major rivers.
- c. **GLOFs**. Pakistan is vulnerable to Glacial Lake Outburst Floods (GLOFs) due to the Hindukush, Karakorum and Himalayan Mountain ranges, which are home to thousands of glaciers. GLOFs are caused by the rapid release of water from glacial lakes, which can lead to sudden and catastrophic flooding downstream. Gilgit-Baltistan and Khyber Pakhtunkhwa are particularly vulnerable to GLOFs due to their mountainous terrain and presence of major glaciers.
- d. **Forest Fires**. Forest fires are a significant threat to Pakistan's ecosystems and biodiversity. Every year, during dry summer season, forest fires breakout in various parts of the country. These fires are primarily caused by human activities such as uncontrolled burning of agricultural waste, campfires and discarded cigarettes or even in certain cases intentional burning of grass land, which may turn uncontrollable / wide spread. Pakistan's forests cover approximately 4.8 million hectares, which is around 4.8% of the country's total land area.
- e. **Tropical Cyclones**. A weather system where powerful storms produce high winds, heavy rain, storm surges and flooding. These storms are typically formed over warm

ocean waters and can travel inland, affecting large areas of land. In Pakistan, the coastal areas of Sindh and Balochistan are particularly vulnerable to tropical cyclones.

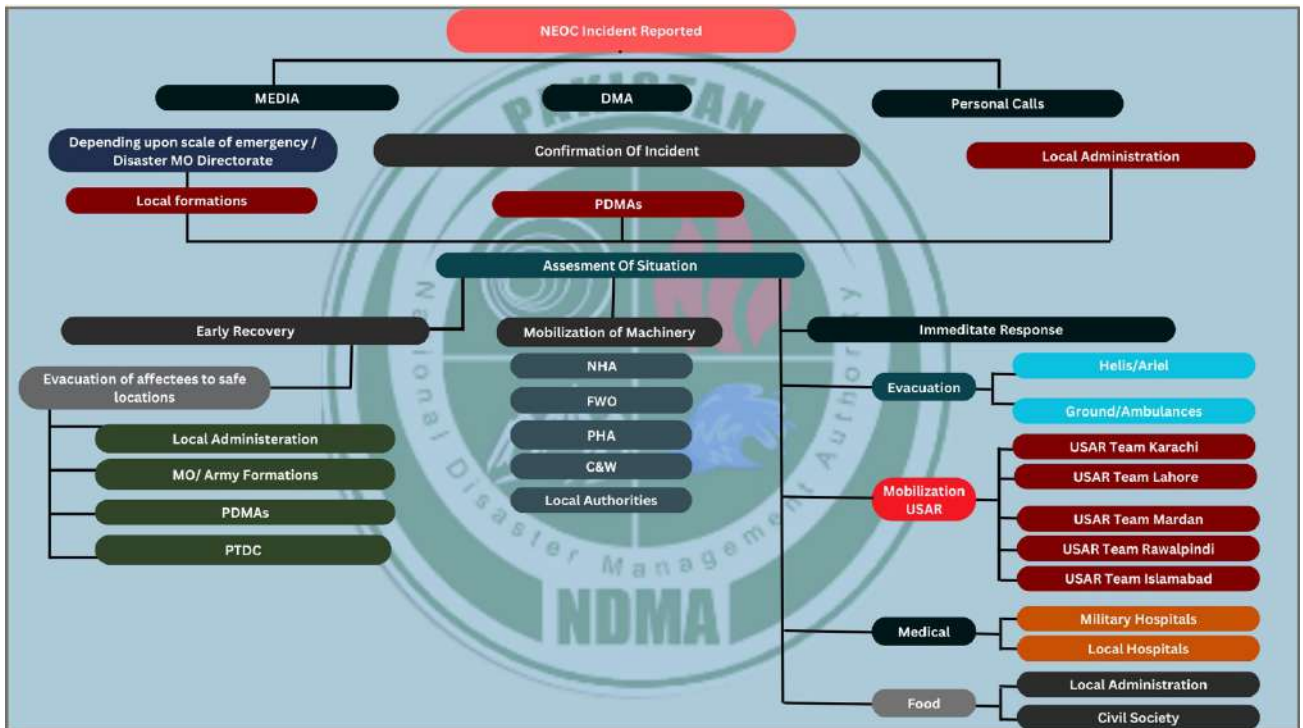
- f. **Tornados**. A phenomenon which is characterized by rotating columns of air that can cause high winds, flying debris and damage to buildings and infrastructure. The occurrence of tornadoes is relatively rare in Pakistan, but the regions that are particularly prone to these are Punjab and Sindh. The risk of tornados, like all other hazards, is further exacerbated by climate change.
- g. **Droughts**. Prolonged periods of abnormally low rainfall that result in water shortages and crop failures. In Pakistan, droughts primarily affect the southern and southwestern regions of the country, including provinces of Sindh and Balochistan and typically occur during the summer season. These are caused by a combination of factors, including climate change, deforestation and unsustainable water management practices etc.

7. **Responsibilities and Sequential Actions**

- a. **Responsibility Matrix**. Highlights the basic responsibilities of departments and is followed by sequence of actions by stakeholders in-line with their tasks and functions in case of emergency / disaster like situation. The actions under the Plan are set in motion as soon as an early warning / alert is issued by PMD / NDMA, based on developing weather system.



- b. **Sequence of Actions**. From occurrence / reporting of an incident sequence of actions envisaged from concerned stakeholders is depicted below. To deal with likely challenges, responsibilities of national and provincial DM departments are as under: -



- (1) **Weather Forecast**. PMD will provide updated seasonal outlook every month or on required basis. Furthermore, technical input and hazard modelling against weather forecast will be provided by NDMA Tech Team. Updates on developing weather systems will be issued as early as possible to forewarn DM stakeholders and local communities.
- (2) **Risk / Vulnerability Assessment**. Respective DDMA's / PDMA's / SDMA / GBDMA to carry out risk and vulnerability assessment to identify areas requiring special attention and focus. NDMA Tech Team will undertake hazard modelling and assessments of projected / forecasted risks. Moreover, timely stocking and supply of required amenities i.e. food, fuel, medicines etc to cater for any blockades / disruption of supplies be ensured.
- (3) **Reconnaissance of Vulnerable / At-Risk Areas**. DDMA's / PDMA's / SDMA / GBDMA and ICT administration to ensure timely reconnaissance of vulnerable / at-risk areas ensuring participation of all responders in respective areas to include Rescue 1122, paramedics, fire brigades, LEAs, Armed Forces, NHA, FWO and line concerned departments.
- (4) **Conduct of Mock Exercises**. PDMA's / SDMA / GBDMA and ICT Adm to plan & conduct mock exercises to rehearse and synergize response measures among all stakeholders including areas most vulnerable to likely hazards.

- (5) **Repair / Strengthening of Roads / Bridges / Railway Tracks.** NHA, FWO, Pakistan Railway, C&W and line departments to complete their maintenance / restoration works in time, especially in areas likely to be affected during the summers. PDMA's / GBDMA / SDMA and ICT Administration to ensure necessary coordination in this regard.
- (6) **Maintenance & Restoration of Communication Arteries.** PDMA's to coordinate with respective DDMA's to identify critical communication arteries and ensure their timely maintenance through concerned departments and place machinery at the preidentified critical points to manage restoration efforts in case of need. Ministry of Communications to ensure implementation of works required and take requisite actions through concerned departments.
- (7) **Coordination with Hotel & Transport Associations.** PDMA's / SDMA / GBDMA & ICT Administration in collaboration with PTDC and hotel and transport associations to hold coordination conferences at DDMA levels especially in areas likely to face influx of travelers / tourists during summer season. As an outcome of these conferences / coordination efforts, a set of guidelines / SOPs be issued to all stakeholders for accommodating and transporting stranded people during an emergency / disaster situation.
- (8) **Synergized Planning.** PDMA's / SDMA / GBDMA and ICT Administration to ensure necessary coordination among all stakeholders, avoid duplication of efforts and have clear demarcation of responsibility among all stakeholders in consonance with their capabilities and mandates.
- (9) **Mass Awareness.** Press Information Department and Ministry of Information & Broadcasting to plan and ensure maximum disbursement of weather advisories / alerts utilizing all possible platforms in all regional languages. The print / electronic / social media releases issued by NDMA / PDMA's / GBDMA / SDMA and ICT Administration will be picked up for further propagation through all available platforms. PDMA's and respective DDMA's will ensure sharing of advisories / alerts of NDMA / PMD with communities for timely sensitizing people in at-risk areas and with LEAs / traffic police for guidance of tourists / travelers. NDMA Media Directorate to ensure that full dissemination of public service messages, alerts and advisories is undertaken on all media platforms including electronic and social media.
- (10) **Maintenance & Restoration of Essential Utility Services.** All concerned departments i.e. electricity, telecommunications and natural gas, will be

responsible to devise respective contingency plans and ensure measures for immediate restoration of utility services as and when disrupted.

8. **Likely Response Challenges**. Aspects observed in the past that need to be considered / addressed for efficient coordination and response are enumerated below: -

- a. **Lack of Proactive Measures**. Preparation and response can be very effective if required measures are taken in time. Delayed actions compound the overall situation and consume much greater resources.
- b. **Lack of Planned Development**. Unplanned development, inadequate town planning and non-conformity to risk assessments coupled with exponential rise in population have exacerbated the existing vulnerabilities to summer hazards.
- c. **Stocking of Essential Items**. Due to delayed / inadequate stocking, DM stakeholders are often unable to respond to any emergent situations and to address needs of people, especially when some regions are cut off.
- d. **Lack of Resources**. Non-availability of adequate resources caused by delayed planning and inadequate measures taken by local authorities can complicate any emergent situation.
- e. **Prepositioning / Forward Placement of Resources**. Timely placement of resources and machinery i.e. earth moving machinery at critical choke points and firefighting equipment near at-risk areas especially in the difficult terrain can prevent prolonged delays in response and restoration of communication arteries.
- f. **Ad-hoc Functioning of District Disaster Management Authorities**. In most of the provinces, dedicated human resources have not been posted in DDMA's. The gap at this critical tier of "first response" causes an immediate and critical pull on provincial / national resources.
- g. **Encroachment in River Plains / Drainage / Sewage Channels of Major Cities**. Permanent settlements and encroachments in nullahs, rivers and sewage channels of major cities is a constant challenge for rescue and relief efforts, besides enhancing the threat levels with increased number of people vulnerable in any emergency.
- h. **Encroachment / De-silting of Nullahs / Water Channels**. Removal of encroachments and de-silting of nullahs / drains must be completed before onset of rains. Failure to complete the process in time poses a serious threat of flooding, especially urban flooding and greater losses in case of flash floods / hill torrents.
- i. **Lack of Redundancy**. Non-availability of electricity backup system / generators for keeping operation rooms and rescue communication functional during emergency / disaster situation hinders response measures.

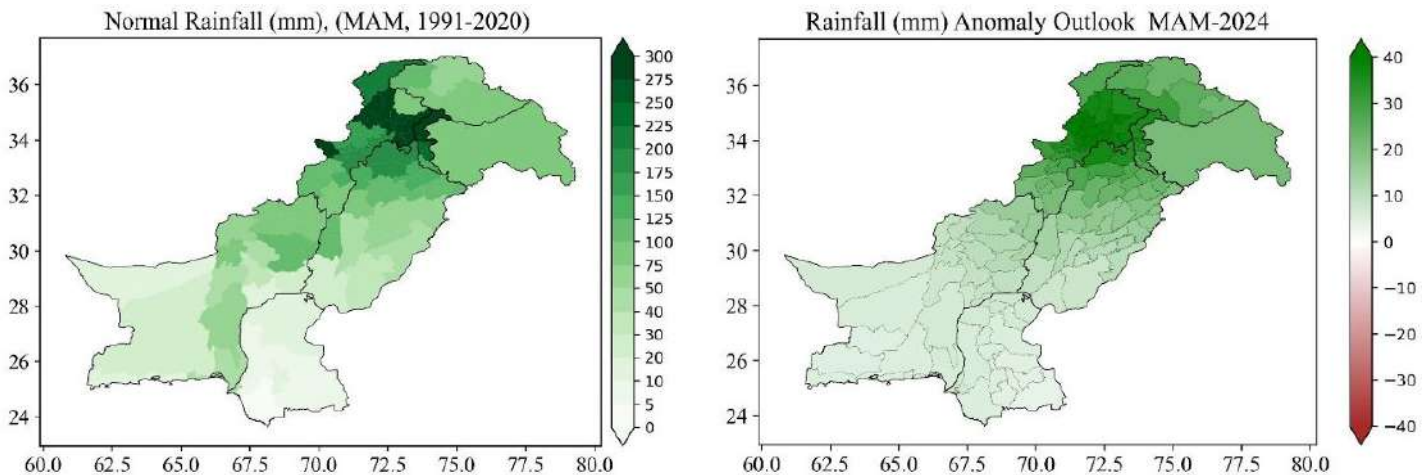
- j. **Weak Awareness Campaigns**. Lack of engagement and timely coordination with local communities, especially in formulating preparedness and response plans, leads to gap in cooperation / coordination efforts post-incident.
- k. **Social and Cultural Norms Constraining Disaster Response**. Resistance of residents from at-risk regions / vulnerable communities in following evacuation orders and following correct procedures to receive relief / assistance increases challenges associated with rescue and relief efforts. Similarly, keeping tourists and locals away from vulnerable / hazardous locations remains a challenge for local administrations and law enforcement agencies.
- l. **Multi Hazard Vulnerability Risk Assessment (MHVRA)**. To associate correct priorities and carry out effective planning against likely hazards, there is a dire need to undertake detailed hazard and risk assessments of respective districts / regions.

PART II - THREAT AND VULNERABILITIES

9. **PMD's Seasonal Summer Outlook 2024.** The Seasonal Outlook for Summer 2024 covers the period from March to May (MAM): -

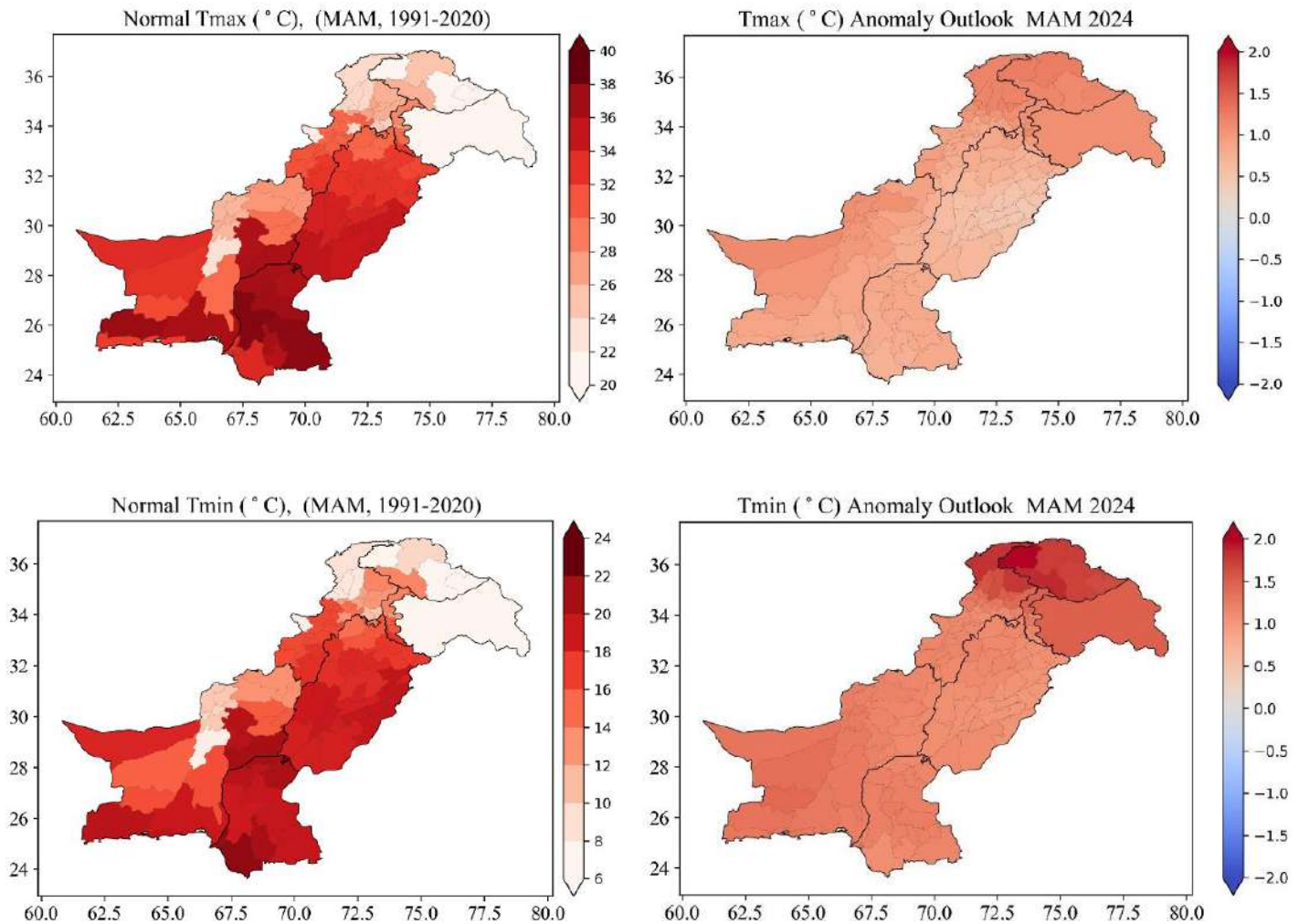
a. **Synoptic Situation**

- (1) **Positive phase** of El Niño-Southern Oscillation (ENSO) is **expected to persist** with a tendency towards a **neutral state at the end of the season.**
- (2) Indian Ocean Dipole (IOD) is **expected to persist** throughout the season of MAM.



b. **Seasonal Outlook.** Based on global and regional patterns and models, the outlook is as under: -

- (1) **Nearly Normal** (against thirty years average) rainfall is expected in most parts of the country.
- (2) Upper Half of country may receive **Slight Above Normal** rainfall during the period.
- (3) Temperatures are forecasted to be **Higher than Normal** (against thirty years average) and **daytime / nighttime temperatures may Surpass Normal** across most parts of the country, with the **most significant deviation expected in Northern Khyber Pakhtunkhwa and Gilgit Baltistan.**
- (4) Higher temperatures may develop during clear sky conditions, especially over parts of Northern Khyber Pakhtunkhwa and Gilgit Baltistan that **may contribute in towards GLOF incidents.**



c. Likely Impacts

- (1) Daytime temperatures **will increase with the progression of summer season** throughout the country.
- (2) Irrigation at **regular intervals** would be required for standing crops as the season progresses.
- (3) Atmospheric conditions are supportive for the likelihood of **heatwave development during the second half of summer season**, especially in plain areas of the country.
- (4) The onset of pollen season is anticipated to occur during the first week of March.
- (5) **Strong winds, dust storms and hailstorms may arise** because of spatial temperatures gradients (rate / direction of temperature changes in a location).

10. Perceived Seasonal Impacts - Summer 2024. Perceived impacts of summer climatic conditions throughout the country are as below: -

- a. Based on the expected warmer conditions, **Rabi crops may mature earlier**.
- b. Water requirements for the standing crops (Kharif Season) are **likely to be enhanced**.
- c. An increase in maximum temperature along with dry conditions would be supportive

for early onset of pollen season in major cities.

- d. Likely development of **heatwaves during the second half of season**; especially over the plain areas of the country.
- e. Higher temperatures and the possibility of heatwave conditions are likely to cause **GLOF incidents at vulnerable valleys** of Upper Khyber Pakhtunkhwa and Gilgit Baltistan.
- f. **Strong dust-raising winds and hailstorm events** are expected during the season.
- g. Due to paucity of precipitation during winter season 2023/24 and higher temperatures during summer season 2024, **water stressed environment** is predicted **during the season**.

11. **Major Conclusions - Seasonal Summer Outlook 2024**. Considering PMD's Seasonal Outlook for Summer (MAM), NDMA Tech Team input (Projections at **Annex-B**), past experiences and predominant factors of global climate change, the following can be concluded: -

- a. **Slightly Below Normal to Normal precipitation** is expected over most parts of the country and will remain beneficial for the overall environment, keeping summer temperatures in check for the first half of the season.
- b. Higher temperatures in high-altitude areas during summers may cause: -
 - (1) **Greater snow and glacial melt** leading to slightly increased river flows and may be beneficial for filling of reservoir.
 - (2) **Increased chances of GLOF in vulnerable and at-risk valleys** of Northern Khyber Pakhtunkhwa and Gilgit Baltistan.
 - (3) Weakened snow masses coupled with rainfall **may generate isolated flash floods and induce landslides / avalanches in vulnerable areas**.
- c. Based on past experiences, there is a **chance of isolated extreme weather events** which **requires strategic placing** of earth moving machinery along with food stocks, medicines and POL in vulnerable / at-risk areas.
- d. Dust raising winds or isolated hailstorms **may cause damage to crops and property**, mitigating measures are to be taken by all concerned.
- e. **Timely issuance of qualitative weather forecasts / alerts** by PMD and timely **early warning** issued by NDMA / PDMA's / GBDMA / SDMA will be essential to ensure effective early warning to at-risk / affected areas.
- f. Field reconnaissance **to identify weak / vulnerable areas** for timely implementation of mitigation / preparatory measures.
- g. All stakeholders must conduct mock / table-top exercises to **practice coordination and response mechanisms**.

- h. **Seasonal forecast / outlook will be updated each month by PMD**, therefore all concerned will be required to update their respective contingency plans for keeping their preparation in accordance with perceived outlook (if a major change is reflected in PMD's forecast).

12. **Summer Hazard Contingencies**. Visualized summer contingency scenarios derived from PMD's Seasonal Outlook for Summer 2024 (MAM) are as under: -

a. **Heatwaves**

- (1) With seasonal mean temperatures expected to remain **Higher than Normal**, episodes of heatwaves expected in plain areas of country affecting areas of Southern Khyber Pakhtunkhwa, Punjab, Balochistan and Sindh.
- (2) Furthermore, "**Urban Heat Islands Effect**" will exaggerate heatwave situation especially in municipal / urban centers across the country.

b. **Flash Floods / Hill Torrents**

- (1) There is a risk of **extreme hydro-meteorological events** such as **isolated heavy /very heavy rainfall** in short periods of time in mountainous / hilly areas of the country which may cause **flash flooding** in nullahs / rivers / ravines posing a substantial risk to settlements downstream.
- (2) Additionally, there is a risk that **vehicles crossing nullahs may be sweptaway** by fast moving water flows during flash floods.

c. **Glacial Lake Outburst Floods (GLOF)**

- (1) Due to risk of **higher temperatures / heatwave events** there is a risk of GLOF incidents in the **vulnerable glacial valleys** of Khyber Pakhtunkhwa and Gilgit Baltistan.
- (2) Subsequent **risk of flash flooding** in villages / settlements downstream from vulnerable / at-risk GLOF Sites.

d. **Forest Fires**

- (1) Due to **dry and hot weather** which can be caused by heatwaves or lightning strikes during extreme weather events, there is a risk of forest fires in **vulnerable forested areas** of Islamabad Capital Territory, Balochistan, Khyber Pakhtunkhwa, Punjab, Gilgit Baltistan and AJ&K.
- (2) Three types of forest fires can occur in vulnerable forested areas and it's not uncommon to have all three occur simultaneously. Details as below: -
 - (a) **Crown Fires**. Crown fires burn trees up their entire length to the top. These are the most intense and dangerous wildland fires.

- (b) **Surface Fires**. Surface fires burn only surface litter / duff. These are easiest fires to put out and cause the least damage to forest.
 - (c) **Ground Fires**. Ground fires occur in deep accumulations of humus, peat and similar dead vegetation that become dry enough to burn. These fires move very slowly, but can become difficult to fully put out or suppress. Fuel (shrubs, dead leaves, fallen pine needles, or underbrush), topography and weather drive a fire's behaviour and changes to any of three may cause a ground fire to emerge as a surface fire or a surface fire to escalate into a crown fire or vice versa.
 - (d) **High Winds**. Risk exists for forest fires to rapidly spread with high winds which are prevalent in hilly / mountainous forested areas of the country.
- e. **Tropical Cyclones**
- (1) Due to prevalent hydro-meteorological conditions in the Indian Ocean and Arabian Sea there is a risk for the formation of tropical cyclones that may affect coastal areas of the country including Karachi and the Makran Coast.
 - (2) Furthermore, due to tropical cyclone conditions coastal areas may be subjected to **storm surge phenomenon**.
- f. **Windstorms / Tornados**
- (1) There is a risk of windstorms or tornados in plain areas of Khyber Pakhtunkhwa, Punjab and Sindh.
 - (2) Highspeed winds pose **may knock down billboards / hoardings** in urban areas as well as trees and powerlines.
- g. **Urban Fires**
- (1) Due to the **extreme heat / high temperatures** which can be further exasperated by "**Urban Heat Islands Effect**" in major urban areas of the country, there remains of risk of urban fires in various municipalities which poses a clear threat to residential, commercial and industrial areas.
 - (2) Secondary fire risks in urban settings include the risk of combustive materials including petroleum and natural gas in the immediate vicinity of an urban fire.
- h. **Droughts**
- (1) As a water-stressed country, Pakistan is **highly vulnerable to droughts**. This risk is **further worsened by climate change** and its subsequent erratic weather changes.
 - (2) Rising temperatures and changing rainfall patterns are leading to **increased water scarcity and crop failure**, which can have devastating effects on the

country's economy and food security.

- (3) Droughts in Pakistan often lead to displacement and migration, as people are forced to leave their homes in search of water and food.

i. **Landslides / Avalanches**

- (1) Due to **heavy rainfalls**, there is a **risk of landslides** occurring at vulnerable mountainous / hilly areas of Balochistan, Khyber Pakhtunkhwa, Punjab, Gilgit Baltistan and State of AJ&K.
- (2) Risk is further **compounded by higher tourist traffic** in hilly / mountain areas which may be affected by landslide events.
- (3) Risk of **avalanche in vulnerable mountain areas** due to rising temperatures, snowpack on mountainsides may begin to lose integrity, which can lead to avalanche event that may impact settlements in vicinity.

PART III - ANTICIPATORY ACTIONS & RESPONSE GUIDELINES FOR SUMMERS 2024

13. Anticipatory actions for disasters involve measures taken in advance to mitigate the impact of potential disasters. These actions can include emergency preparedness, planning, early warning systems, community education and training, infrastructure improvements and disaster simulations or drills. The goal is to reduce vulnerabilities and enhance resilience in the face of future disasters.

14. Towards this end, suggested anticipatory actions and response guidelines for summer hazards are enumerated in ensuing paras as per Seasonal Summer Outlook (MAM) generated by PMD and projections by NDMA.

15. **Preparedness Phase**. Preparations for both natural and man-made disasters involve several key steps and considerations, some guidelines for the preparatory phase are as under:-

- a. **Risk Assessment**. Conduct comprehensive risk assessments to identify vulnerable areas, critical infrastructure, and populations at risk, enabling targeted planning and response efforts.
- b. **Emergency Plan**. Develop and update emergency response plans tailored to the specific needs and challenges posed by heavy rainfall events, outlining roles, responsibilities and procedures for effective coordination and deployment of resources.
- c. **Infrastructure Preparedness**. Assess and reinforce critical infrastructure resilience against heavy rainfall, including dams, levees, drainage systems and transportation networks.
- d. **Resource Mapping**. Resource mapping of respective provinces / state and its timely intimation to NDMA.
- e. **Early Warning Systems**. Ensure the establishment and functionality of robust early warning system to alert communities about potential risks associated with heavy rainfall, including flooding and landslides etc.
- f. **Community Engagement**. Engage with communities to raise awareness about the risks associated with heavy rainfall and empower them to take proactive measures to mitigate those risks, such as relocating to safer areas or securing property.
- g. **Resource Allocation**. Allocate sufficient resources, including personnel, equipment, and funding, to support preparedness, response and recovery efforts before, during, and after the impending disasters.
- h. **Public Communication**. Implement a clear and timely public communication strategy to disseminate relevant information, warnings, and guidance to the public, enabling

informed decision-making and promoting safety.

- i. **Placement of Earth Moving Machinery**. Placement of earth moving machinery at vulnerable areas for timely clearance of roads from landslides / debris.
- j. **Coordination Conferences**. Special conferences by relevant stakeholders on occurrence of any extreme events will assist timely decision-making process.
- k. **Conduct of Mock Exercises and Reconnaissance**. It is critical for all responders to carry out reconnaissance of the vulnerable areas to develop acquaintance with the area and gather local information.
- l. **Provision of Timely Information**. Timely provision of occurrence based SITREP by PDMA's / GBDMA / SDMA / ICT. PDMA's / GBDMA / SDMA / ICT to make use of NDMA's standardized SITREP format (***Annex-C***), which will be forwarded separately for all stakeholders. Uniformity of data reporting format enables quick compilation, timely reporting and generating adequate response.
- m. **Database Update**. DDMA's to update database of volunteers, miscellaneous resources, medicinal / health facilities, warehouses etc which will be required during disaster response.
- n. **Baseline Data**. For calculating accurate effects / impacts of disasters / emergency impacts it is essential to have baseline data for comparison with the post emergency / disaster situation.
- o. **Awareness Campaign**. Every possible means must be utilised for raising awareness among masses.
- p. **Completion of Mitigation Projects**. All planned mitigation projects and those already underway must be completed in time. Respective departments to ensure regular monitoring and completion of the project as per designed specifications.
- q. **Coordination with Armed Forces / CAFs / LEAs / Line Depts / Rescue Services**. DM stakeholders must ensure coordination with Armed Forces, LEAs, Line Depts and Rescue Services to have synergised response mechanism.
- r. **Inclusive Community Engagement**. Utilising on-ground presence NGOs and Community Based Organisations, undertake grassroots level community engagement through localised public awareness initiatives and risk / hazard auditing / assessments to ensure effective community-based preparedness.
- s. **Evacuation Planning & Identification of Safe Areas**. Undertake detailed community level evacuation planning through identification of safe evacuation routes and safe evacuation areas / camp. Safe evacuation areas / camp Furthermore, engage local communities in practicing evacuation drills to ensure grassroots level readiness.

- t. **Continuous Monitoring and Evaluation**. Establish mechanisms for continuous monitoring, evaluation, and lessons learned from previous heavy rainfall events to inform future planning and improve resilience-building efforts.
16. **Anticipatory Actions against Summer Hazards**. Following Anticipatory Actions may be taken by individuals and relevant departments to mitigate losses from summer hazards: -
- a. **Heatwave**. Guidance for Heatwaves is enclosed at ***Annex-D***.
- (1) **Individual / Community Level Anticipatory Actions**
- (a) Always stay tuned to local weather forecasts and remain aware of upcoming weather / temperature changes.
 - (b) Minimize outdoor activities, especially during the hottest parts of the day, typically from late morning to early evening.
 - (c) Regularly check on elderly neighbors, young children and individuals with chronic illnesses to ensure they are coping with the heat.
 - (d) Minimise direct exposure to the sun and spend time in shaded / well-ventilated / air-conditioned spaces.
 - (e) If you do not have access to shaded / well-ventilated / air-conditioned spaces, choose places you could go for relief from direct heat during the warmest part of the day. In some cases, areas like malls, libraries and offices buildings can provide immediate relief in case of emergency.
 - (f) Stay hydrated by drinking water and electrolyte-rich fluids throughout the day.
 - (g) Know the symptoms of heat-related illnesses and the appropriate responses.
 - (h) People with underlying health conditions must take extra precautionary measures as advised by doctor.
 - (i) In case symptoms of heatstroke appear in anyone (yourself or family member) immediately locate your nearest heatstroke center / hospital / clinic / BHU / RHU and available mode of transport to reach there in shortest timeframe.
 - (j) Reduce and slow down physical activity, stay indoors if possible, and avoid exhaustive activity during the hottest part of the day.
 - (k) Take frequent rest breaks if you work outdoors.
 - (l) Never leave children unattended / alone in parked vehicles with running air-conditioning. Stationary vehicles are more prone to developing a fault and

may result in creating an emergency.

- (m) People who are elderly, children, sick or having underlying health condition are more likely to be a victim of heatstroke.
- (n) Educate community members about the risks of heat waves and encourage them to take preventive measures to stay safe.

(2) **Organizational Level Anticipatory Actions**

- (a) PMD / NDMA / PDMAs / Ministry of Health / Provincial Health Departments to ensure monitoring of temperatures and humidity levels and disseminate weather advisories / forecasts / precautionary measures for the public.
- (b) NDMA / PDMAs and health authorities to develop Union Council- level Heatwave Response Units to effectively, timely and locally respond to heatwave affected populations.
- (c) NDMA / PDMAs to establish and maintain Control Rooms for information and coordination during heatwave season. It is imperative that relevant staff is trained in heat-related response and rehabilitation efforts.
- (d) Establish community cooling centers in public buildings where people can seek refuge from the heat if they do not have access to air conditioning at home.
- (e) Advocate for the creation and maintenance of green spaces and shaded areas in communities to provide relief from extreme heat.
- (f) Provide support and resources to vulnerable populations, such as the homeless and low-income individuals, to ensure they have access to adequate shelter and hydration during heat waves.
- (g) Ministry of Information and Broadcasting and PMD to raise heat- health awareness campaigns in the country before summer season.
- (h) Building and works departments to incorporate white / reflective materials to build houses, roofs, pavements and roads, thereby counteracting the heat island effect and increasing the overall albedo of the city.
- (i) Health authorities and NDMA / PDMAs to educate public on the early signs and symptoms of dehydration and subsequent evolving signs and symptoms of heat / sun stroke including muscle cramps, nausea, committing, light-headedness and heart palpitations.
- (j) Health authorities and NDMA /PDMAs to arrange first aid points in case of emergency stocked with sufficient essential medical supplies such as intravenous fluids and equipment for heatwave- related illnesses.

- (k) Agriculture / Irrigation departments to advise farmers to manage crop water responsibly and harvest wheat as required.
 - (l) Provincial Forest Departments / PHE / HUD to encourage green spaces by planting shade trees in cities.
 - (m) Build the capacity of government officials and emergency responders on heatwave preparedness and response through trainings / exercises.
 - (n) Limit outdoor work and encourage employers to provide appropriate protective measures for outdoor workers.
 - (o) Establish cooling centers stocked with cool drinks and heatwave related resources.
 - (p) Federal / provincial health department and relevant authorities to ensure adequate water supply to prevent dehydration.
- b. **Forest Fire.** National Forest Fire Guidelines and Public Guidance are attached as ***Annex-E.***
- (1) **Individual / Community Level Anticipatory Actions**
 - (a) Create clear spaces around residential areas by clearing flammable vegetation and debris from immediate vicinity including roofs and sewerage lines.
 - (b) Use fire-resistant materials to build or renovate homes and keep a safe distance between homes and forests.
 - (c) Create an emergency evacuation plan and practice it with family members.
 - (d) Keep important documents, such as insurance policies and identification papers, in a fireproof safe or away from vulnerable area.
 - (e) Prepare an emergency kit with essential items such as water, non-perishable food, first-aid supplies and a battery-operated radio.
 - (f) Participate in community fire prevention drills and become familiar with fire safety tips.
 - (g) Report any signs of a forest fire immediately to local authorities.
 - (2) **Organizational Level Anticipatory Actions**
 - (a) Local Administrations / DDMA's to devise a forest fire action plan with clear responsibilities, roles and activation triggers for all stakeholders.
 - (b) Collaborate with local forestry departments, fire departments, and other agencies to create a unified response to forest and coordinate fire-fighting efforts available in each district.
 - (c) Conduct regular training and drills for emergency responders on forest fire

preparedness and response.

- (d) Use technology, such as early warning systems, remote sensing, to detect forest fires early.
- (e) Maintain fire lines, fire roads, and fire hydrants to provide access to areas threatened by forest fires.
- (f) Dissipate information to the public about forest fire risks and prevention measures through broadcast / print / social media, community outreach programs and public education campaigns for responders and residents in fire-prone regions, which should be updated regularly.
- (g) Forestry Departments to routinely update and implement forest management plans to mitigate the risk of forest fires.

c. **Urban Fire**

(1) **Individual / Community Level Anticipatory Actions**. In addition to points highlighted against forest fires, following actions can be helpful: -

- (a) Check electrical wiring and appliances regularly to ensure they are in good working condition.
- (b) Avoid overloading electrical outlets and extension cords.
- (c) Keep flammable materials such as curtains and papers away from heat sources.
- (d) If possible, install smoke detectors on your property and maintain these regularly.
- (e) Use surge protectors within homes and businesses to prevent unnecessary spikes in voltage and reduce risk of fire.
- (f) Only smoke within designated areas.
- (g) Report any signs of a fire immediately to local authorities.
- (h) Do not use elevators during a fire.
- (i) Stay low to the ground and cover your mouth and nose with a wet cloth if there is smoke in air.
- (j) Turn off gas and electricity from the main switch if you are leaving your home during a fire.
- (k) Keep and maintain fire extinguishers around the house, especially near vicinity of heat / fire sources.

(2) **Organizational Level Anticipatory Actions**

- (a) Ensure that firefighting equipment and vehicles are in good working condition and that there is sufficient stock of fire extinguishers, hoses, and

other equipment.

- (b) Coordinate with local agencies, such as the fire departments and Rescue 1122, to create a unified response to urban fires.
- (c) Develop and implement building codes and standards to reduce the risk of urban fires.
- (d) Conduct regular inspections of commercial and residential buildings to ensure these are following fire safety regulations.
- (e) Provide information to the public about urban fire risks and prevention measures.

d. **Glacial Lake Outburst Flood (GLOF)**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Identify and establish safe evacuation routes and shelter locations.
- (b) Keep yourself informed about the potential risk of GLOFs in your area and stay updated on weather forecasts and warnings from PMD / NDMA and other DM agencies.
- (c) Do not venture near glacial lakes, especially during periods of high rainfall or rapid melting, as GLOFs can be triggered without warning.
- (d) Pay attention to warning signs and evacuation orders issued by relevant authorities / DDMA and follow their instructions.
- (e) Keep an emergency kit with essential items such as first-aid supplies, water, food and a flashlight in case of a GLOF.
- (f) Develop an emergency plan with your family or group and know how to evacuate to safe areas quickly.
- (g) Familiarise yourself with evacuation routes in your area and follow them when required.

(2) **Organizational Level Anticipatory Actions**

- (a) Monitor water levels, weather conditions and movement of glaciers and ensure warnings are timely dissipated for all concerned.
- (b) Establish communication networks to enable timely dissemination of warnings, alerts and subsequent emergency response instructions.
- (c) Timely identify glacial lakes and their outburst potential to determine high-risk areas and activate emergency response plans.
- (d) Build the capacity of local communities and authorities for disaster risk reduction including evacuation drills and emergency response training.
- (e) Identify and establish safe evacuation routes and shelter locations.

- (f) Provide trainings and drills to search and rescue teams and ensure they have adequate equipment to respond to GLOF emergencies.
- (g) Collaborate with PMD to ensure accurate and timely weather forecasts and alerts are available for all DM responders.
- (h) Regularly maintain and repair infrastructure such as bridges, roads and buildings to ensure their resilience against GLOFs.
- (i) Develop flood protection measures such as embankments, diversion channels and retaining walls.
- (j) Include GLOF risk reduction measures in regional development plans.
- (k) Conduct public awareness campaigns to educate communities about GLOFs and how to prepare for them.
- (l) Monitor and evaluate preparedness measures to identify gaps and areas for improvement.

e. **Flash Flood / Hill Torrent**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Keep track of weather to stay informed about the potential risk of flash floods and hill torrents.
- (b) If you are in a high-risk area, be prepared to evacuate quickly. Know your evacuation route and move to a safer location.
- (c) Do not attempt to cross flooded areas on foot or by vehicle.
- (d) If you are in a low-lying area, move to higher ground.
- (e) Stay away from fallen power lines or lines that are in contact with water as they are a serious hazard.

(2) **Organizational Level Anticipatory Actions**

- (a) Ensure installation / maintenance of flood gauges in strategic locations along rivers and hill torrent paths to monitor water flow levels, enable effective monitoring and forecast possible flash floods/ hill torrents.
- (b) Maintain adequate rescue equipment including inflatable boats, life jackets, and ropes. Rescue teams trained in water rescue and first aid techniques.
- (c) Construct retaining walls and embankments along rivers and hill torrents. Drainage channels should be built to divert water away from populated areas/ infrastructure.
- (d) Local Administration to issue evacuation plans that include identifying safe routes, shelters and transportation. These plans can be further communicated through public awareness programs and community elders/

community response teams.

- (e) Public awareness campaigns need to be conducted, which include information on how to recognize the signs of flash floods and hill torrents, what to do in case of emergency and how to access respective emergency departments.
- (f) Support diversification of livelihoods to reduce economic impact of flash floods/ hill torrents by promoting small scale agriculture, livestock rearing and other income generating activities that are less vulnerable to flash floods.

f. **Landslide / Avalanche**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Know the risk of avalanches and landslides in your area and be aware of possible signs / triggers. Check local reports and forecasts frequently.
- (b) Stay away from areas that are prone to avalanches and landslides such as steep slopes, gullies and cliffs.
- (c) Avoid travelling during periods of heavy rainfall, high winds, and rapid temperature changes. Pay attention to changing weather conditions as they can affect the stability of the soil and snow.
- (d) Choose safe routes that avoid areas that are prone to avalanches and landslides. If you are unsure about the safety of a particular route, choose an alternative route and seek guidance from DDMA
- (e) / LEAs.
- (f) Avoid traveling alone, as it can be difficult to rescue yourself in the event of an avalanche or landslide. Always travel with at least one other person and have an emergency contact you could call during an emergency.
- (g) If caught in an avalanche, try to stay on the surface of the snow by swimming or rolling. If you are buried during a hike, use your avalanche beacon to help rescuers locate you. If caught in a landslide, move away and to higher ground immediately and alert others if possible.

(2) **Organizational Level Anticipatory Actions**

- (a) Update hazard vulnerability mapping of avalanche and landslide prone areas to identify high-risk areas and enable public officials to develop and enforce effective mitigation measures.
- (b) Install early warning systems for both avalanches and landslides in areas with high risk. These systems can help provide timely warnings to the

public, giving them time to evacuate or take other necessary precautions.

- (c) Conduct public education campaigns to raise awareness of the risks associated with avalanches and landslides and provide information on best practices for staying safe during these events.
- (d) Develop and implement land use planning policies that consider the risk of avalanches and landslides, including the creation of buffer zones, the restriction of development in high-risk areas and the establishment of building codes and standards to minimize damage.
- (e) Establish emergency response plans that consider the risk of avalanches and landslides. This can include developing evacuation plans, training emergency response personnel and establishing communication systems to keep the public informed during events.
- (f) Take measures to protect critical infrastructure in areas with high risk of avalanches and landslides. This can include the installation of protective barriers, the stabilization of slopes and cliffs and the reinforcement of buildings and other structures.

g. **Windstorm / Tornado**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Take shelter immediately during a tornado warning.
- (b) If you are at home, go to your basement or an inside room without windows on the lowest floor.
- (c) If you live in a prefab home, go to a nearby building and take shelter.
- (d) If you are at work or school, follow your tornado drill. Stay away from windows and do not go to large open rooms such as cafeterias, gyms, or auditoriums.
- (e) If you are in a mall, theatre or gym, get to the lowest level of the building and stay away from the windows.
- (f) If you are in a vehicle, do not try to outrun a tornado. Drive to the closest shelter. Cars, buses, and trucks are easily tossed by tornado winds.
- (g) If you are outside when a tornado approaches, find shelter quickly. If there is no shelter nearby, go to a low-lying area such as a ditch or ravine and lie flat. Protect your head and neck with an object or with your arms. Avoid areas with many trees.
- (h) Do not waste time opening or closing windows and doors. It will not protect the structure and put you at greater risk.

(2) **Organizational Level Anticipatory Actions**

- (a) DM agencies / public safety officials / local weather experts to coordinate response efforts in the event of a tornado.
- (b) Local administrations to issue an emergency plan that includes evacuation procedures, shelter locations and communication protocols.
- (c) Establish a communication system to keep the public informed about the status of the storm, evacuation orders and other emergency information.
- (d) Identify safe locations for shelter, such as designated storm shelters or reinforced buildings, and ensure that they are well- equipped with emergency supplies.
- (e) Conduct regular drills and training exercises to ensure that all response team members and the public know what to do in the event of a tornado.
- (f) Conduct assessments of the damage caused by the tornado to determine the level of response required and to plan for future tornadoes.
- (g) Provide ongoing education and outreach to the public about tornado safety, including the importance of having an emergency plan and staying informed about weather conditions.

h. **Cyclone**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Ensure good condition of your house so that it can withstand strong winds.
- (b) Trim down trees to make sure they do not fall over telephone or electricity lines during the storm.
- (c) Keep your mobile phone fully charged and other appliances like torches handy as there may be power cuts during a cyclone.
- (d) Store essential items like groceries and medicines in advance. It is vital to keep dry foods that are not perishable during emergencies.
- (e) Prepare an emergency first-aid kit.
- (f) Store water because water supply may be disrupted during cyclones.
- (g) Do not leave any loose sharp objects lying around your property, as they can injure people during gusty winds.
- (h) It is vital to steer clear of demolished buildings during cyclones.
- (i) Do not keep dying and low-hanging branches of trees near your premises.
- (j) When the cyclone strikes, disconnect all electrical appliances. Listen to your battery radio for updates.
- (k) Protect yourself with mattresses, rugs or blankets under a strong table or

bench if the building starts to break up.

- (l) Drive carefully as roads may be filled with debris.

(2) **Organizational Level Anticipatory Actions**

- (a) Issue timely emergency alerts through websites / TV / radio / mobile devices to provide advance notice to people in the path of the storm.
- (b) Identify safe locations for shelter, such as designated evacuation centers or reinforced buildings, and ensure that they are well- equipped with emergency supplies and resources.
- (c) DM agencies, relevant government authorities and stakeholders to coordinate to ensure effective response. The coordination should include the deployment of search and rescue teams, medical teams and resources needed to respond to a Cyclone.
- (d) DM agencies / local administrations / community centers to stockpile essential supplies including food, water, medical supplies and other relief items in advance to cater to the needs of affected people
- (e) Conduct regular drills and training exercises to ensure that all response team members and the public know what to do in the event of a cyclone.
- (f) Provide ongoing education and outreach to the public about cyclone safety, including the importance of having an emergency plan and staying informed about weather conditions.

i. **Drought**

(1) **Individual / Community Level Anticipatory Actions**

- (a) Collect and store rainwater for uses such as irrigation, cleaning and toilet flushing.
- (b) Use treated wastewater for irrigation or industrial processes to reduce the demand for freshwater.
- (c) Conserve water by fixing leaks using low-flow toilets and showerheads and reducing outdoor water use.
- (d) Cultivate drought-resistant plants / crops that require less water and can withstand dry conditions.
- (e) Stock clean drinking water and non-perishable food items in case of an emergency.

(2) **Organizational Level Anticipatory Actions**

- (a) PMD / NDMA / PDMA's to monitor rainfall patterns, water levels and soil moisture levels to provide timely information on potential drought

conditions.

- (b) Launch awareness campaigns before the summer season to educate the public on the potential impacts of drought and how to prepare for them.
- (c) Ministry of Information and Broadcasting to raise awareness campaigns on drought mitigation measures and water conservation techniques.
- (d) Train government officials and emergency responders on drought preparedness and response through exercises and capacity building initiatives.
- (e) Ensure adequate stockpiling of food items, NFIs, drinking water and medication needed during drought emergencies.
- (f) Federal / provincial health departments and relevant authorities to ensure adequate water supply to prevent dehydration and reduce the impacts of drought on public health.
- (g) Agricultural and irrigation departments to advise farmers on drought-resistant crops and efficient water management techniques.
- (h) Provincial Forest Departments to promote afforestation and tree plantation campaigns to increase vegetation cover and reduce the impacts of drought.

17. **Early Warning Phase**. Following measures are to be undertaken by all concerned to ensure that timely and effective early warning / advisories / alerts are issued to all stakeholders.

a. **Early Warning / Advisories**. PMD will be the focal organization for providing weather based early warnings while NDMA will issue projections on perceived hazard risks and instructions for all DM stakeholders, while provincial / district DM authorities and line departments will be responsible for issuing and implementing area / region specific instructions for effective coordination / actions: -

- (1) Seasonal outlook will be updated by PMD, at least once a month, especially highlighting a major departure from original outlook.
- (2) Weather advisory will be issued as per developing situation by PMD.
- (3) Specific weather advisory of PMD and NDMA will be issued by respective PDMA's to disseminate warning to district authorities / relevant stakeholders via Fax/ Email / Telephone / SMS / WhatsApp Message / Twitter and will be immediately uploaded on their website / portals.
- (4) NDMA and PMD will also release breaking caption / news or tickers to all major TV stations / channels including PTV. Moreover, PMD has also constructed a fully equipped studio for TV broadcast in its own building. Radio broadcasts will also be used from national and FM radio stations to keep the public aware of any

upcoming disaster and related advisories.

- (5) PMD will nominate a focal person authorised to deal with weather and flood forecast which will be notified to all concerned and will be readily available to all stakeholders, when required.
- (6) PMD will also critically analyse and share any possibility heat waves in the country and will timely intimate the same to NDMA and other relevant stakeholders.

b. **Community Early Warning through Advisories**

- (1) Public Service Messages (PSMs) through print / electronic media be generated by PDMA / SDMA / GBDMA / ICT Administration, DDMA, relevant ministries and departments.
- (2) Billboards, posters, banners, brochures and warning signs may be used to educate / warn people of at-risk areas.
- (3) All departments concerned and local communities must be apprised about the forecast and it's likely unfolding at the onset.
- (4) Community must be informed about safer places, relief camps and evacuation plan by concerned departments.
- (5) To ward off "False Warning", all DM authorities will ensure implementation of Clause 35 of NDM Act 2010.
- (6) Community based indigenous early warning system must be institutionalized as part of response mechanism in areas vulnerable to landslides and avalanches by following means: -
 - (a) Placing of around the clock lookouts especially at night or during the period of intense rain / snow.
 - (b) Use of sirens or announcements on loudspeakers from mosques and vehicles for mass awareness and sensitizing local communities. These measures will be ensured by all DDMA.
 - (c) Lightening of fire and drum beating by the people living at higher places in such areas.
 - (d) Practicing evacuation drills.
 - (e) Conduct of mock exercises and reconnaissance of vulnerable / at-risk areas.
- (7) Issuance of SMS Alerts through Pakistan Telecommunications Authority (PTA) in only affected & threatened areas using GIS fencing.

18. **Response - Rescue, Relief and Early Recovery Phases**. Following measures are to be undertaken by all concerned to ensure that timely and effective response down to grassroots

level.

- a. **Tiers of Response**. The national contingency response plan has been evolved keeping in mind the structural challenges in response mechanism and experiences of past floods. National response will be based on following tiers: -
- (1) **1st Tier**. Local emergency response by DDMA's with the support of district / provincial / Armed Forces resources.
 - (2) **2nd Tier**. Provincial effort in support of district authorities.
 - (3) **3rd Tier**. NDMA response (national efforts / national resources) in support of Provinces / State of AJ&K and ICT with / without external assistance.
- b. **Disaster Management (DM) Planning**
- (1) PDMA's to ensure resource mapping of volunteers (Civil Defence, Pakistan Red Crescent Society (PRCS), Boy Scouts & Girl Guides), UN Agencies, NGOs / INGOs and ambulances at district level.
 - (2) Coordination must be carried out with Civil Defence, PRCS, Pakistan Boy Scouts Association and Pakistan Girl Guides Association at district level to provide support at various relief camps under the overall guidance and supervision of the district administration.
 - (3) Location of relief camps must be earmarked, and necessary administrative arrangements be made accordingly. It must be incorporated, keeping in mind past experiences and should be needs based. Relief camps should be accessible / closer to main arteries so that relief goods are easily delivered to the affected people.
 - (4) Fool proof measures be planned against rains / flash floods in relief camps established for Temporarily Displaced Persons (TDPs).
 - (5) Resource Mapping and prepositioning of dedicated earth moving machinery at landslide / avalanche erosion prone highways / link roads and isolated mountainous areas of KP, GB and State of AJ&K by respective Governments. Ministry of Communications, NHA, FWO, respective Communication and Works Departments and other relevant organizations to ensure such arrangements alongside Bailey Bridges and enhanced number of maintenance teams at all critical sections especially regions highlighted in hazard maps.
 - (6) Contingency Plans be updated by all concerned based on NDMA's National Summer Emergencies Plan-2023 as well as respective SOPs. Provincial / State and ICT plans will be shared with NDMA and relevant stakeholders by last week of November. All provincial / State / GB authorities will be responsible to collect

and analyse respective the DDMA plans.

- (7) To identify most vulnerable communities for sensitization, awareness, early warning and evacuation in emergency, district hazard maps must be updated down to the union council level.
 - (8) Planning for the needs of vulnerable groups be made based on authenticated gender, age and disabled disaggregated data.
- c. **Mitigation Works / Schemes**. All projects and schemes underway must be completed immediately. PDMA / SDMA / GBDMA and ICT administration to formulate monitoring mechanism for immediate completion, where possible and taking required measures for maximum safety where the projects / schemes are likely to be completed later (during or after the season).
- d. **Rescue Measures**
- (1) Availability and serviceability of rescue equipment will be ensured by all concerned.
 - (2) Respective departments / organizations / parent ministries / federal departments will be responsible to carryout audit of equipment held with sub-departments and expedite measures to make up deficiencies through procurement / coordination.
 - (3) Equipment be strategically placed to respond to hazards in different regions.
 - (4) Availability of trained operators must be coordinated and ensured during entire season.
 - (5) Readiness of Urban Search and Rescue (USAR) teams will be ensured for rescue operations in collapsed buildings / landslides in respective province or other provinces (when requisitioned).
 - (6) Availability of staff of all relevant departments especially hospitals and emergency services on holidays and during active weather systems must be ensured.
 - (7) PDMA / SDMA / GBDMA / ICT administration and ICT administration will incorporate input from Rescue 1122, emergency services, Civil Defence, volunteers and police / law enforcement agencies during planning process for effective coordination during response/ rescue operations.
 - (8) PDMA / SDMA / GBDMA / ICT administration will coordinate with respective governments / departments for aerial support for immediate evacuation.
 - (9) Aviation effort can be requisitioned through NDMA. Expenditures will be borne by respective province / region.

e. **Salient Preventive Measures**

- (1) Communities at-risk / vulnerable to landslides / avalanches, seasonal nullahs / river plains must be identified by local administration in collaboration with communities.
- (2) Evacuation plans and identification of relief camps must also be carried out in coordination with local communities to maintain awareness and facilitate early evacuations when required.
- (3) Travelers be advised to maintain a bag containing important utility items like first aid kit, medicines, dry ration, water, charged torch, radio set, mobile phone, power-bank, cells / batteries, match box, candles, charged batteries, mosquito repellent / net, dry clothes, plastic sheet and important documents including CNIC and some cash money should always be taken along during trips.
- (4) Preventive measures against infectious / skin diseases, cholera, COVID / flue and other seasonal likely diseases etc must be taken and vaccination done at first instance.
- (5) Animal vaccination along with arrangements of fodder be made in time.

f. **Rescue Operations**

- (1) Forced evacuation must be planned in case of limited warning time, by utilising all available resources at provincial / district levels.
- (2) DDMAAs as first responders should mobilize communities for disaster response. This will encourage community involvement, strengthen their own efforts and address the issue of absence of human resource.
- (3) Priority in rescue / evacuation will be given to vulnerable groups (age, disabled, women and children).
- (4) SUPARCO will provide satellite imageries and assessment of projected developments, where possible. Pre, during and post season and its impacts will also be compiled and shared with NDMA and relevant ministries / departments.
- (5) Traffic arrangements; creating diversions and guidance for tourists, be made for regulating traffic on national and provincial arteries in case of damage to infrastructure by floods.
- (6) Disaster tourism must be curbed.

- g. **Parameters of Deploying Machinery & Rescue Operations**. Needs based rationalization of quantity of heavy machinery deployment be carried out based on factors mentioned below to ensure optimal response against envisaged threat through availability of sufficient reserves at required tier of response: -

- (1) PDMA's / SDMA / GBDMA / ICT administration to devise internal tiers for response and deployment for deployment and response in coordination with rescuers / responders, volunteers, line departments, internal resources, traffic police, LEAs and local Pak Army Formations.
- (2) Respective provinces to ensure establishing the requirement and coordinating availability of machinery vis-à-vis threat / vulnerability / risk assessment.
- (3) All supporting agencies to maintain the capability based on the need of the provinces.
- (4) PDMA's / SDMA / GBDMA and ICT administration must prioritise districts as High Threat (Priority-I), Medium Threat (Priority-II) and Low Threat (Priority-III) based on following aspects: -
 - (a) Historical record of last 30 years.
 - (b) Population density.
 - (c) Urban / rural divide.
 - (d) Type of hazard-based vulnerability.
 - (e) Degree of vulnerability and exposure e.g. population centers in proximity of landslide/ avalanche prone areas.
 - (f) Reaction time for deployment.
- (5) Response action will have following sequence: -
 - (a) **1st Tier - Immediate Response (Immediate but Not Later than 30-40 Minutes)**. By District Administration through Rescue 1122 (if held), Police or trained volunteers (if held), Civil Defence
 - (b) **2nd Tier - Tier - Build up Response (Immediate but Not Later than 1- 2 Hours)**. By Armed Forces / Civil Armed Forces in vicinity, when requisitioned. Alongside, PDMA's may shift the resources of respective province from other less threatened districts.
- (6) **Priority of Districts**. Priority will be established by respective provinces after due deliberation / consultation and will share with all stakeholders for standardized planning. Priority should be based on districts with historic record and occurrences with greater frequency and magnitude:-
 - (a) Priority - I Districts (High Threat).
 - (b) Priority - II Districts (Medium Threat).
 - (c) Priority - III Districts (Low Threat).
- (7) **Relief Operations**. All stakeholders should incorporate NDMA's Guidelines on Multi-Sector Initial Rapid Assessment (MIRA), Minimum Standards of Relief in

Camp and Ex-gratia Assistance to the persons affected by natural and man-made disasters, in their respective plans. Moreover, special attention may also be given to following: -

- (a) A standardized food pack must be designed as per local requirements to meet the needs of affected persons. Items like rice, wheat bags, cooking oil and milk for babies etc should be included. However, energy biscuits and other such food items which are not part of the daily diet of local community, be avoided.
- (b) Drinking water should be provided for rehydration, along with measures to prevent heat stroke, dehydration and other summer- related illnesses.
- (c) Water purification tablets and filtration systems for the provision of clean drinking water to affected people must be stocked in advance.
- (d) Special attention be paid to protect the health and safety of rescue workers and volunteers, including providing them with necessary personal protective equipment (PPE).
- (e) Relief management is the most significant part of response to any disaster. The main purpose of the relief management is to provide life sustaining commodities to the affected communities through a fair and organized system; therefore, distribution method should be decided in consultation with local communities.
- (f) Based on past experiences, need must be formalized and the list of relief goods should be available with all DDMA's and displayed on websites to facilitate donors to provide need-based relief goods in emergency.
- (g) Relief packages should be according to the region's cultural context and food requirements be ensured for lactating mothers, pregnant women, infants, children and elderly persons. Also, stockpiling and contingency planning should incorporate special needs of older persons and persons with disabilities, particularly with regards to equipment such as wheelchairs etc and must be able to cater for the needs of the whole family.
- (h) The distribution method should be decided in consultation with local communities to provide life-sustaining commodities to the affected communities through a fair and organized system. Trained community-level teams should assist in planning and setting up emergency shelters, distributing relief among the affected people, identifying missing people, and addressing needs of education, health care, water supply, sanitation

and food etc. Relief teams should also engage active women from within the community in the distribution of food in the relief camp.

- (i) Minimum Initial Service Package (MISP) is an international standard of care which is normally implemented at the onset of every emergency to reduce mortality, morbidity and disability among populations (particularly women and girls) affected by crises. This can be achieved by increasing the provincial and district capacity to implement the MISP during disasters, creating a data bank of trainers and trainings, strengthening the coordination stakeholders for responding in a timely and effective manner.
- (j) Emergency preparedness planning within the education sector is a critical step towards ensuring access to quality education for all learners in times of crises. Minimum standards / guidelines on education in emergencies may be put in place to enable continuity of structured learning during disasters.
- (k) Dignity of all the affected persons should be especially ensured during all relief phases of rescue / relief / early recovery etc.
- (l) Disease early warning system to be put in place by provincial health departments, once a situation arises. National Health Emergency Preparedness and Response Network (NHEPRN) should establish liaison and necessary coordination with provincial health authorities. District and city administration should prepare for upcoming season in advance in coordination with health departments.
- (m) Health authorities must ensure stockpiling of medicines, vaccines in all health facilities with placement at lowest possible tier for distribution.
- (n) Supply chain of relief goods must be maintained and followed in true letter and spirit. DDMA's are the first tier supported by PDMA's to provide immediate relief. Similarly, second tier (PDMA's supported by NDMA) should be ready to render assistance once the stocks of DDMA's are exhausted. Third Tier of NDMA supported by national resources to extend relief support required by the provinces / regions.
 - i. NDMA maintains its stocks at strategic locations.
 - ii. PDMA's are responsible to collect the stocks once released by NDMA from a particular location.
 - iii. NDMA stocks will be requisitioned only in case of extreme emergency and with sufficient reaction time.
 - iv. Distribution of NFIs at site must be avoided. People must be motivated

to come to relief camps.

- v. At no point of time would NDMA's stocks placed in mutually shared warehouses to be utilized without prior approval of NDMA.

(8) **Relief Goods - Non-Food Items (NFIs)**

- (a) Logistics caseloads will be worked out on average relief rendered during hazards experienced in respective districts / regions / provinces by all PDMA's / SDMA / GBDMA and ICT administration.
- (b) Stockpiling of relief goods (NFIs) on envisaged caseload will be ensured at district level by PDMA's / GBDMA / SDMA.
- (c) An effective mechanism of supply chain management must be established including prequalified suppliers for provision of food items, relief goods (NFIs) and transport contractors for emergency transportation.
- (d) Federating Units including AJ&K and GB must ensure stocking of sufficient quantity of ration, food items and drinking water in vulnerable areas, owing to possible severance of road links.
- (e) Pakistan Utility Stores Corporation (USC) and Canteen Stores Department (CSD) will forward resource mapping along with inventory of items, contingency plan including capability of mobile utility stores to NDMA, PDMA and all concerned DDMA's timely. USC will further ensure maintenance of sufficient stock levels and supply chain to support community in all summer hazard prone areas.

(9) **Early Recovery / Damage Assessment**. MIRA is the first step of the Assessment & Monitoring Framework designed to identify strategic humanitarian priorities including scale of a disaster, priority areas of assistance and identify gaps in disaster response after the onset of natural disasters or complex emergencies. NDMA and UNOCHA have developed MIRA with the aim of sharing common procedures and assessment methodology for needs data collection as under: -

- (a) In case of need, MIRA module will be deployed for which PDMA's
- (b) / DDMA's will be required to provide requisite human resource, trained for the module.
- (c) Rapid assessment will be carried out by NDMA / PDMA / UN / INGOs / NGOs to identify needs and priorities of affected and vulnerable communities.
- (d) Initial report will be shared with Disaster Management Authorities within one

week and final report within two weeks.

- (e) Assessment team should be trained on how to identify summer hazards and their associated risks, based on local context and community knowledge.
 - (f) Assessment will consider the seasonality of the hazards and their effects on different sectors, such as agriculture, water supply, health and education. This will help identify the most urgent needs and priorities for early recovery and rehabilitation.
 - (g) Based on the assessment findings, a comprehensive early recovery plan will be developed that addresses the most urgent needs of the affected population, while also building the resilience of communities and infrastructure to future hazards.
 - (h) Early recovery plan will include measures to mitigate the long-term effects of summer hazards on the environment including soil erosion, water scarcity and biodiversity loss.
- (10) **Needs & Concerns of Vulnerable Groups**. Following aspects must be kept in special focus during all stages of flood management: -
- (a) Relief sites and camps should ensure attention to women's security / privacy needs like separate wash-rooms with locks, adequate lights, water and sanitation facilities etc.
 - (b) Women's fair and equitable access to basic services should be ensured, particularly in health and hygiene.
 - (c) Female doctors and psychosocial support personnel should be made available for women and children.
 - (d) Mobile medical units equipped with safe delivery, post-natal facilities and referral should be in place.
 - (e) Camp management should ensure registration, profiling and mapping systems record disaggregated data on age, gender and vulnerabilities to identify people with specific needs at the earlier stages of entering in the camp site and throughout the duration of camp stay.

19. **Coordination Aspects**. Being a primary aspect for ensuring effective response, it is important that following measures being ensured by all concerned.

- a. **Inter Provincial / Regional Coordination**. During management of disasters, inter provincial / regional coordination mechanism is essential to acquire assistance for affected areas especially in far flung regions for immediate availability of nearby

resources in shortest possible time thus reducing sufferings of distressed population. Information about resources of neighbouring provincial / regional government departments must be coordinated by DM stakeholders based on their respective vulnerability and these aspects need to be incorporated in contingency/ response plans.

b. **Coordination Spectrum**

- (1) All stakeholders will monitor situation by activation of Emergencies Operations Centres (EOCs). EOCs will be activated by NDMA, PDMAs / SDMA / GBDMA / ICT and DDMA, line departments / concerned ministries, LEAs and Pakistan Armed Forces and all relevant stakeholders as per respective SOPs.
- (2) All stakeholders will nominate respective Liaison Officers (LOs) for National Emergency Operation Centre (NEOC).
- (3) Daily coordination conference will be organized by NDMA in case of an emergency / disaster in NEOC at 1000 hours. All LOs will attend and brief the conference.
- (4) Information about any significant event will be interpreted and shared by PMD with NDMA.
- (5) All significant information will be immediately passed to NEOC by respective PDMAs.

c. **Coordination with UN Agencies and INGOs / NGOs**

- (1) Support of UN Agencies and INGOs / NGOs will be utilised in a coordinated manner, mostly in preparedness, relief, post disaster assessments and rehabilitation phases.
- (2) Capabilities of each organization must be ascertained to ensure its optimal utilisation.
- (3) Need based employment of UN Agencies will be regulated by NDMA and PDMAs.
- (4) NGOs / INGOs duly cleared / approved by concerned ministries will be allowed to assist in relief and rehabilitation operations.

d. **Assistance / Coordination with Ministries / Departments**. The role of every Ministry / Department / Organization; whether at federal or provincial level is already well defined for extending maximum assistance as and when required. NDM Act 2010 also grants NDMA powers to direct ministries for any specific task / requirement in case of national emergency. However, following aspects are highlighted specifically for likely

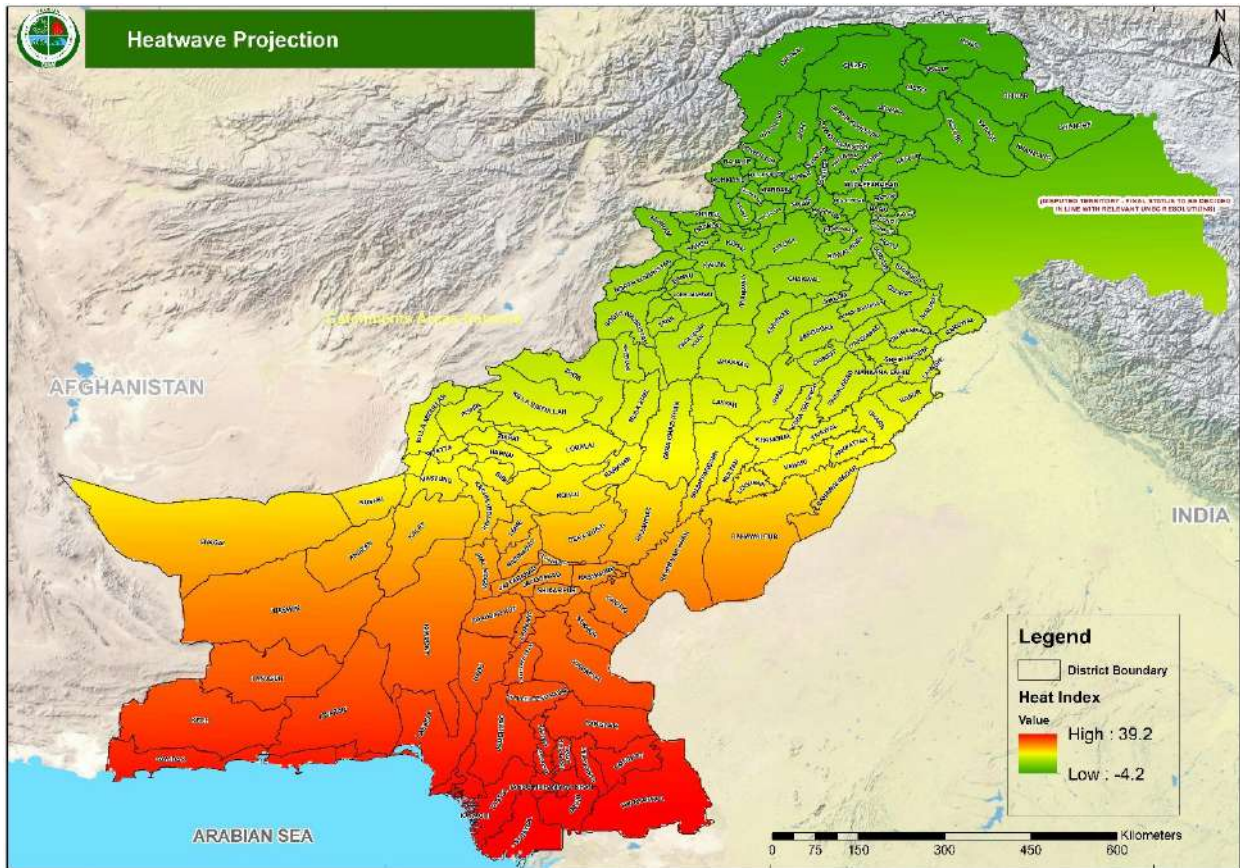
summers hazards: -

- (1) **Ministry of Defence**. Conduct of relief / rescue operations through integral resources and Pakistan Armed Forces (helicopters, troops & rescue equipment) when required.
 - (2) **Ministry of Interior & Anti-Narcotics Force**. Availability of aviation assets for emergency response, at a short notice.
 - (3) **Pakistan Electronic Media Regulatory Authority (PEMRA)**. Airing of public service messages for community awareness on all media channels during prime hours.
 - (4) **Pakistan Telecommunication Authority (PTA)**. To facilitate generation of SMS alerts for early warning, emergency relief and evacuation to required populace.
 - (5) **Pakistan Tourism Development Corporation (PTDC)**. Provision of timely hazard related information to tourists including protection from dangers of extreme heat, flash floods, landslides, GLOF, urban and forest fires etc and help evacuation of stranded tourists through local Government / Pakistan Armed Forces.
 - (6) **Ministry of Communication**. To conduct assessment for early restoration of communication infrastructure and remain prepared to shift earth moving machinery alongside respective first responders to affected areas.
 - (7) **Ministry of Railways**. To monitor railway tracks on regular basis and assist transportation of relief goods to affected areas. Devise plans and ensure restoration of tracks if damaged for maintain uninterrupted passage across Pakistan.
 - (8) **MoIB and PID**. Prepare own and assist other departments in running of awareness campaign through electronic and print media.
 - (9) **Ministry of Health**. Develop awareness campaigns against likely health hazards, ensure stocking of adequate medicine at all tiers and coordination for deployment of medical teams and equipment as and when required.
- e. **Requisitioning of Armed Forces**. Armed Forces will be requisitioned subject to provision of rules / regulations by PDMA's / DDMA's only in case of emergency. Aviation support will be coordinated centrally by NDMA based on request of provinces and regions when called to assist in "Aid to Civil Power". Concerned authorities utilizing services from Armed Forces as well as aviation support will bear the cost of assets used which will be processed immediately after their employment. Armed Forces can be employed for following: -

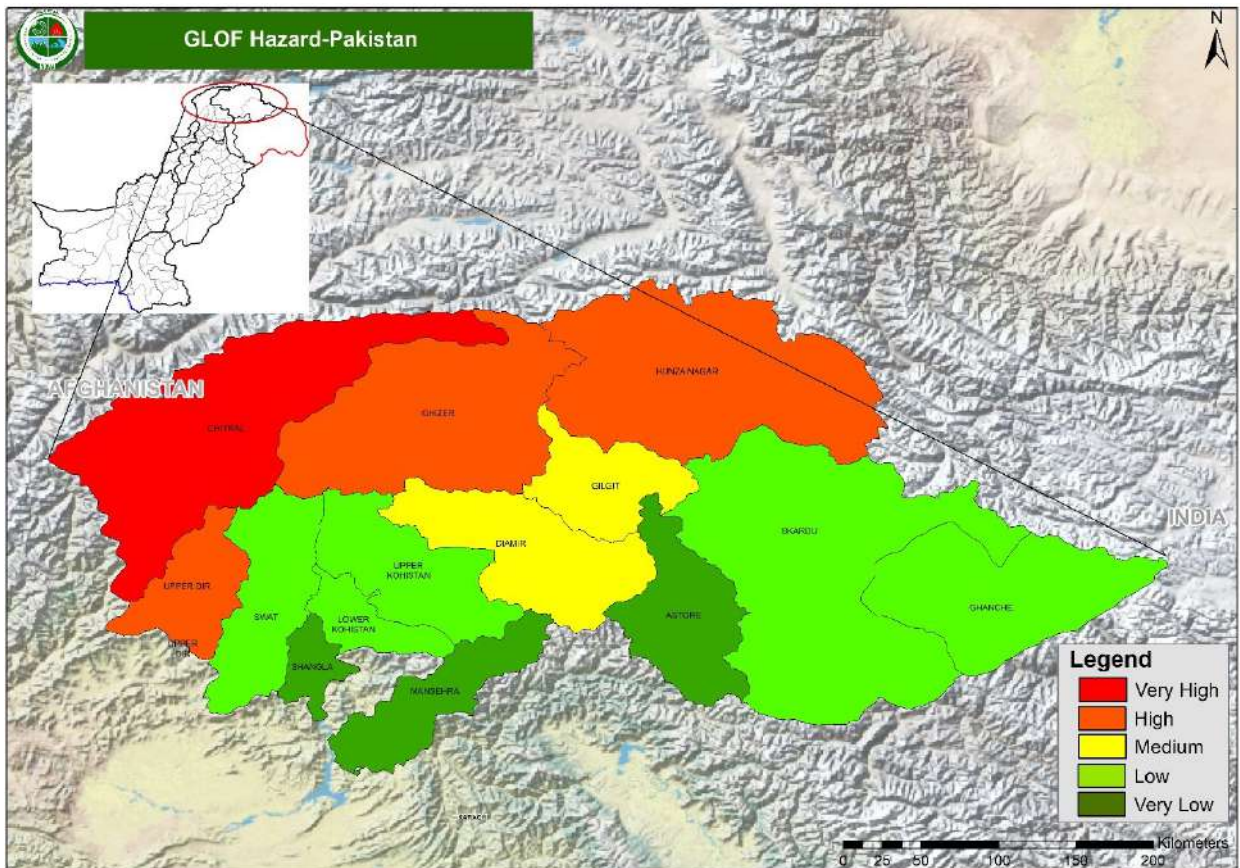
- (1) Rescue and relief operations by field units of Pakistan Army, Pakistan Navy and Pakistan Air Force.
- (2) Aviation support including provision of C-130 by PAF and Helicopters by Army Aviation.
- (3) Support of rescue and medical teams of Armed Forces.
- (4) Medical support teams of all three services.
- (5) Search and rescue in urban areas collapsed structures and landslides / GLOFs / avalanches by USAR team of Pakistan Army.

PART IV - HAZARD RISK / VULNERABILITY MAPS

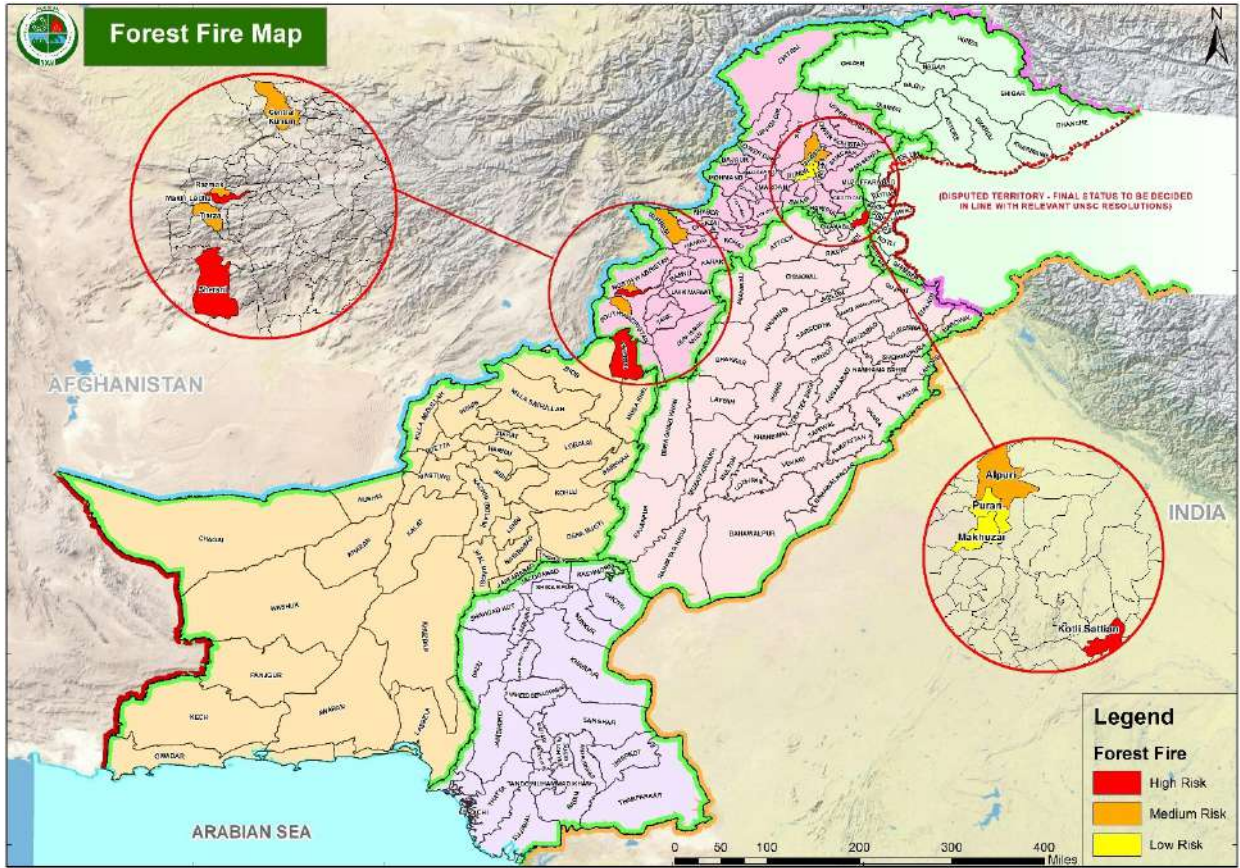
Heatwave Hazard Map



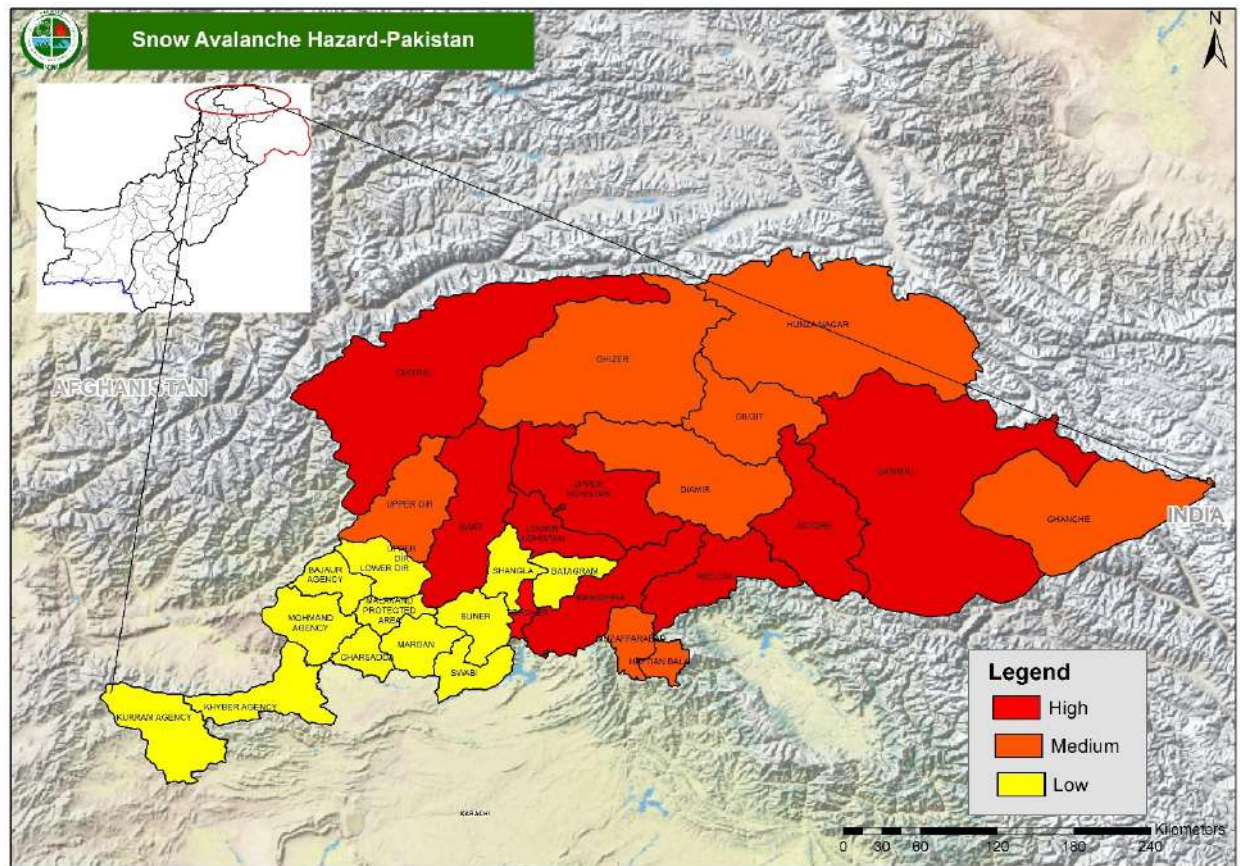
Glacial Lake Outburst Flood (GLOF) Hazard Map



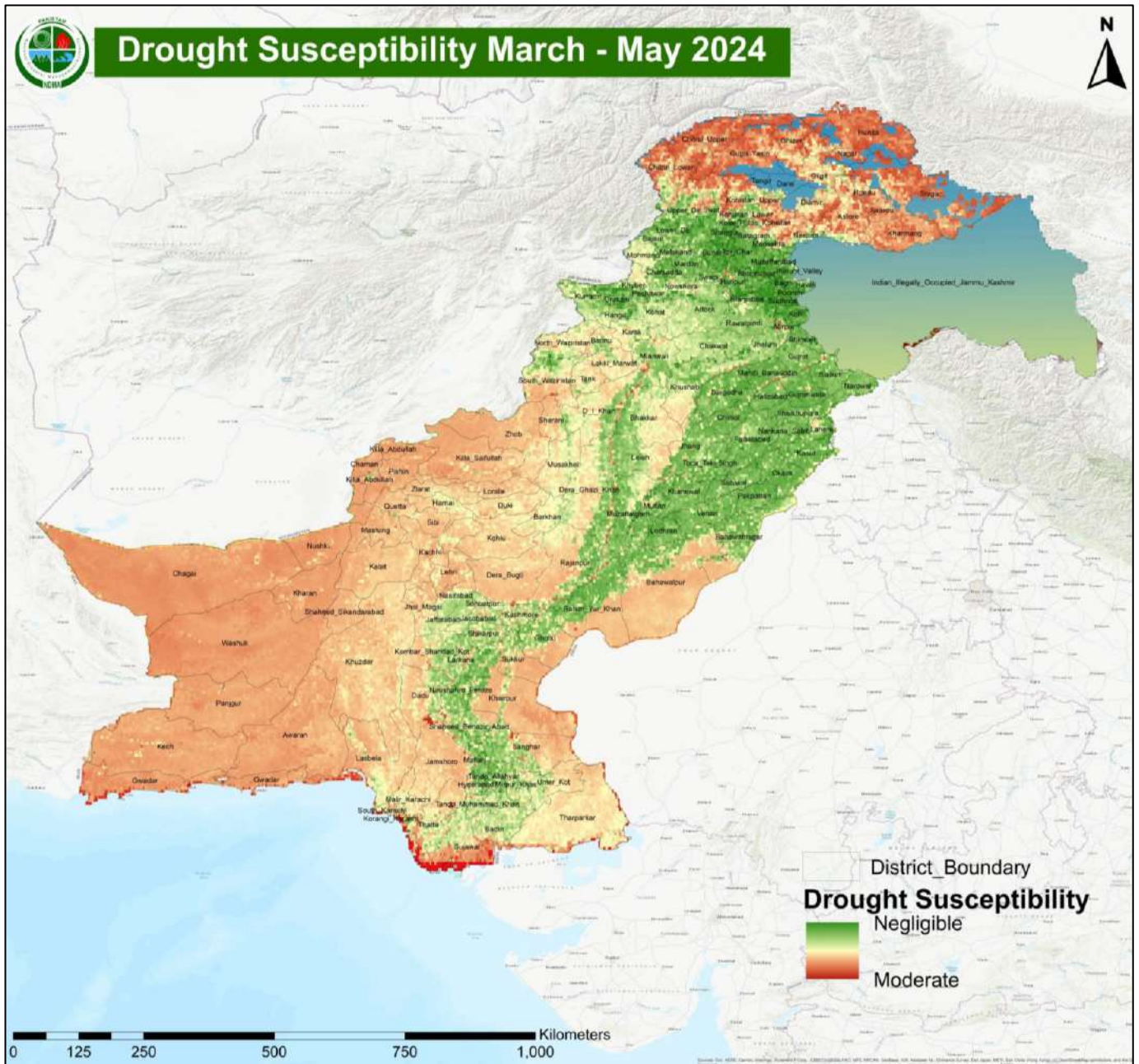
Forest Fire Hazard Map



Avalanche Hazard Map



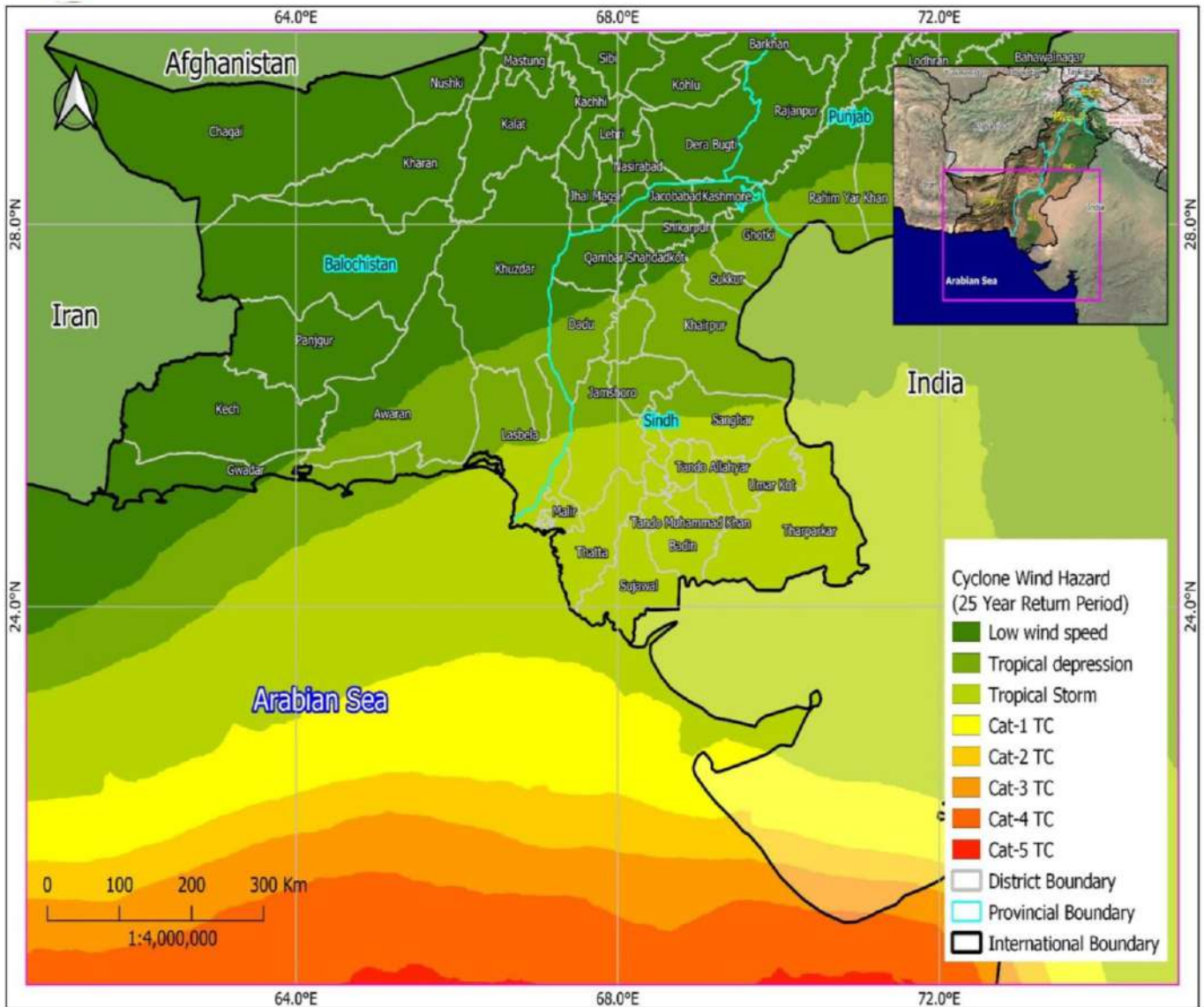
Drought Hazard Vulnerability Map



Tropical Cyclone Hazard Vulnerability Map




Cyclone Vulnerability Map



20. **Conclusion.** In wake of existing challenging environment, compounded by the adverse effects of global climate change and likely hazards of summer season there is a need to devise comprehensive proactive measures for mitigation, awareness, coordination, synergized response and capability to provide relief in case of any emergency. Disaster management is a shared responsibility hence all DM stakeholders / responders, departments / organizations and ministries must initiate respective planning, mitigation, and preparatory measures well in time to offset any likely challenges of summer season. A coherent and proactive approach towards respective responsibilities / measures will enable us to be well prepared and respond more efficiently and in timely manner against any likely emergency or disaster situation.

Government of Pakistan
Prime Minister's Office
National Disaster Management Authority
Islamabad
Dated: **24 March 2024**


Brigadier
For Chairman NDMA
(**Muhammad Umar Chattha**)
Tel: 051-9030843

Annexes

- | | | | |
|----|------------------------|---|----------------|
| 1. | NDM Act Clause - 9 | - | Annex-A |
| 2. | SITREP Format. | - | Annex-B |
| 3. | Heatwave Guidance | - | Annex-C |
| 4. | Forest Fire Guidelines | - | Annex-D |

Annex-A**NDM ACT 2010 CLAUSE-9****POWERS AND FUNCTIONS OF THE NATIONAL DISASTER MANAGEMENT AUTHORITY**

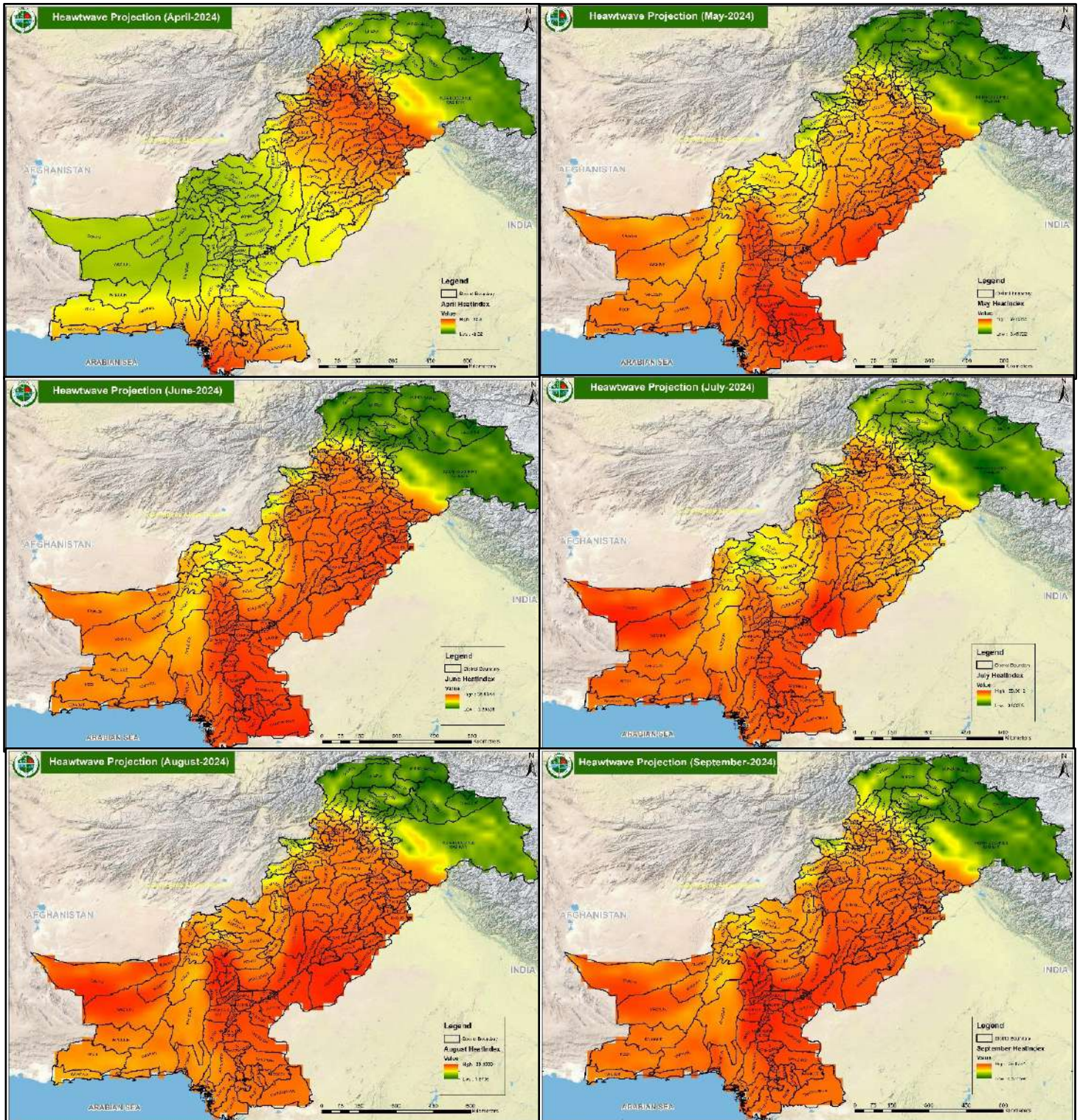
The National Authority shall: -

- (a) Act as the implementing, coordinating and monitoring body for disaster management;
- (b) Prepare the National Plan to be approved by the National Commission;
- (c) Implement, co-ordinate and monitor the implementation of the national policy;
- (d) Lay down guidelines for preparing disaster management plans by different Ministries or departments and the Provincial Authorities;
- (e) Provide necessary technical assistance to the Provincial Governments and the Provincial Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Commission;
- (f) Co-ordinate response in the event of any threatening disaster situation or disaster;
- (g) Lay down guidelines for or give directions to the concerned Ministries or Provincial Governments and the Provincial Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster;
- (h) For any specific purpose or for general assistance requisition the services of any person and such person shall be a co-opted member and exercise such power as conferred upon him by the Authority in writing;
- (i) Promote general education and awareness in relation to disaster management;
and
- (j) Perform such other functions as the National Commission may require to perform.

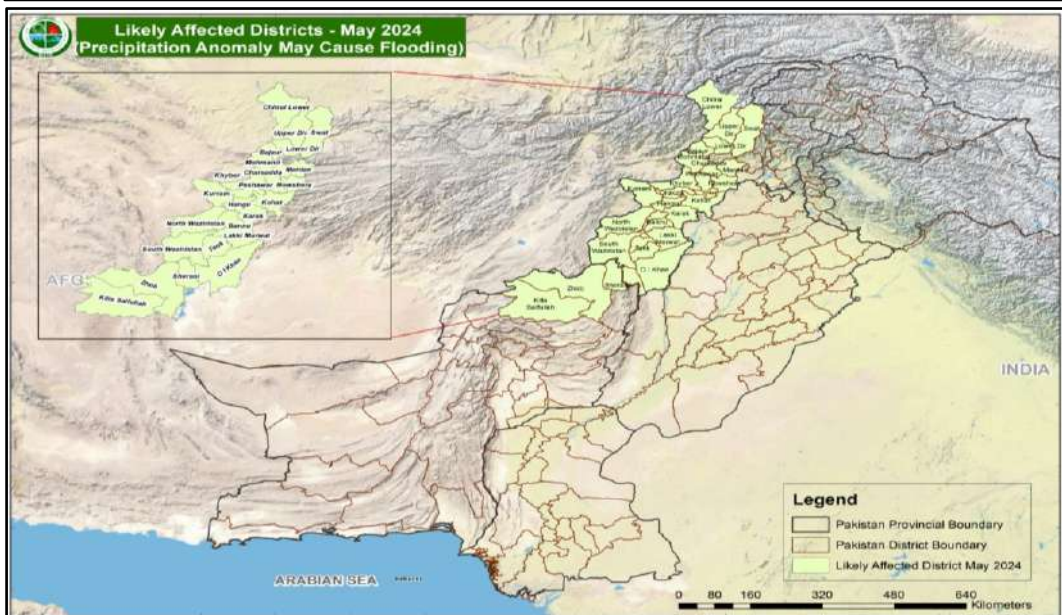
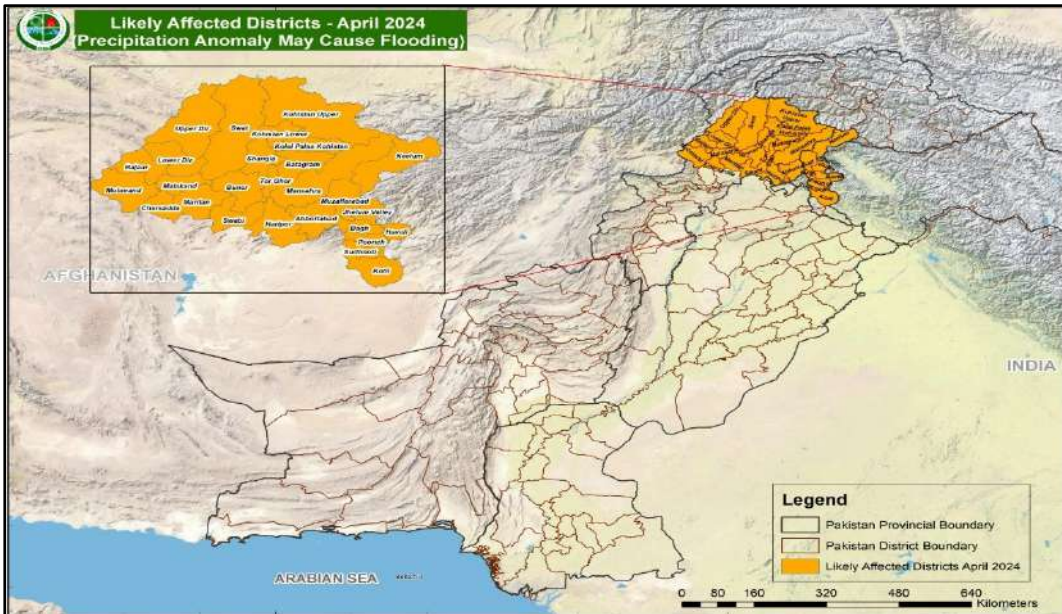
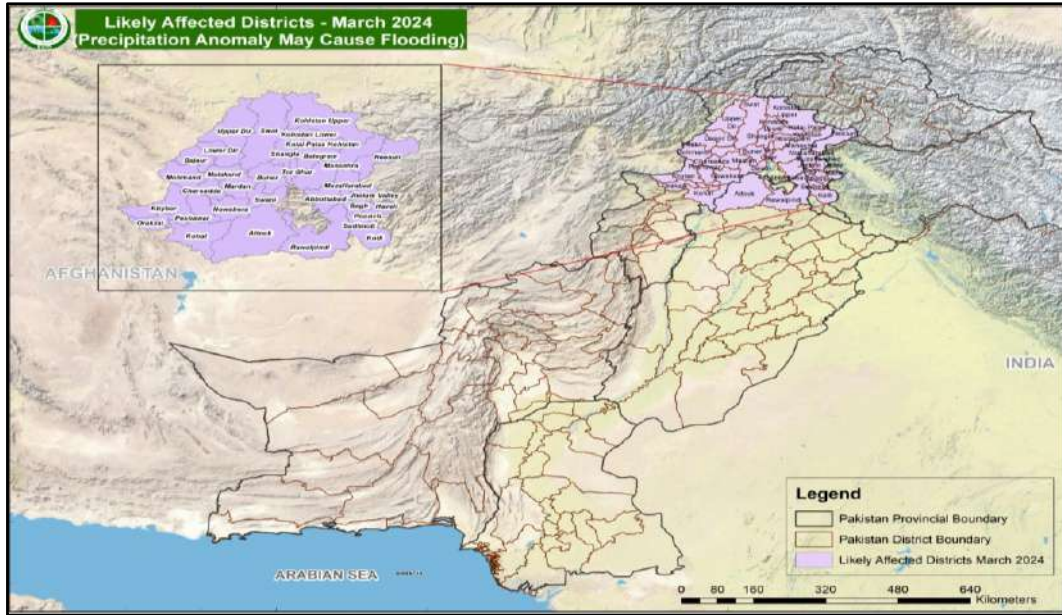
Annex-B

NDMA TECHNICAL PROJECTIONS FOR SUMMER HAZARDS

Heatwave Projections



Rain Induced Flooding Projections



Annex-C

**SITUATION REPORT FORMAT FOR
PDMAS / SDMA / GBDMA / ICT ADMINISTRATION AND OTHER DM STAKEHOLDERS
SUMMER 2024 SITUATION REPORT NO - 001**

(Period Covered: Last 24 hours - 1200 hrs to 1200 hrs)

1. **Area Affected in Last 24 Hours**

Ser	District / Tehsil / UC	Incident Details	Casualties (Segregated based in Hazard and Gender)	Losses (Fully or Partial)	Any Other Details	Remarks
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2. **Extent of Damages**a. **Damages (During Significant Events)**

Ser	Category	Nos	Damaged/ Washed Away / Affected
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b. **Summary of Overall Preliminary Damages of Infrastructure & Private Properties**

District / Tehsil	Roads	Bridges (Damage Extent / Bridge Type)	Houses		Livestock
			Partially Damage	Fully Damage	

c. **Deaths / Injured (Consolidated)**

Districts	Deaths				Injured			
	M	F	C	T	M	F	C	T

3. **Response & Relief Activities**

- Machinery Deployment.
- Manpower Deployed.
- Resources Pooled from Neighbouring Districts/ Provinces.
- Employment of LEAs / Armed Forces (with / without Requisitioning).
- Relief Camps Established.
- Rescue Measures.
- Utilization of Aerial Platforms (Helicopters / C130 / others).
- Requirement of USAR Team.
- Relief Activities.

Districts	Tents	Food Items (Tons)	Blankets	Plastic Mats	Mosquito Nets
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Annex-D**HEATWAVE PUBLIC GUIDANCE**

In Pakistan, extreme heat events have become increasingly common and severe due to the impacts of climate change. Temperatures regularly soar above normal levels, leading to prolonged periods of intense heat that pose significant health risks to the population. The scorching heatwaves not only affect physical health but also strain infrastructure, particularly in urban areas where access to cooling facilities may be limited. Vulnerable groups such as the elderly, children and those with pre-existing health conditions are at heightened risk during these heatwaves. Additionally, the socio-economic disparities exacerbate the impact with marginalized communities often lacking adequate resources to cope with extreme heat. However, proactive measures can be taken to mitigate these risks. This includes raising awareness about heat-related illnesses and promoting heat safety practices such as staying hydrated, seeking shade and avoiding strenuous activities during peak heat hours. Guidelines for Dealing with Heatwaves in Pakistan are as under:-

- a. **Stay Informed.** Keep yourself updated with weather forecasts and heatwave warnings issued by the Pakistan Meteorological Department (PMD) or relevant authorities. Stay connected with news channels, radio or weather apps for real-time information.
- b. **Stay Hydrated.** Drink plenty of water throughout the day, even if you do not feel thirsty. Avoid drinks with caffeine, alcohol or excessive sugar, as they can lead to dehydration. Coconut water, electrolyte drinks and herbal teas are good options to replenish electrolytes.
- c. **Dress Appropriately.** Wear lightweight, loose-fitting and light-colored clothing to reflect sunlight and allow air circulation. Use a wide-brimmed hat or an umbrella when outdoors to shield yourself from direct sunlight.
- d. **Avoid Sun Exposure.** Limit outdoor activities, especially during peak sunlight hours (usually from 10 a.m. to 4 p.m.). If you must go outside, seek shade whenever possible and use sunscreen with high SPF to protect your skin from harmful UV rays.
- e. **Stay Cool.** Use fans, air conditioners or coolers to maintain a comfortable indoor temperature. Take cool showers or baths to lower your body temperature. Use damp towels or ice packs on pulse points such as wrists, neck and forehead to cool down quickly.

- f. **Check on Vulnerable Individuals.** Keep an eye on children, the elderly, pregnant women and those with chronic illnesses as they are more susceptible to heat-related illnesses. Ensure they stay hydrated and cool, and never leave them unattended in parked vehicles.
- g. **Know the Signs of Heat-related Illnesses.** Be aware of symptoms such as heat exhaustion (excessive sweating, weakness, dizziness, nausea) and heatstroke (high body temperature, confusion, loss of consciousness). Seek medical attention immediately if you or someone else experiences these symptoms.
- h. **Stay Connected.** Keep in touch with friends, family and neighbors, especially those who live alone or are vulnerable. Encourage community support and check on each other regularly during heatwaves.
- i. **Plan Ahead.** Prepare an emergency kit with essential items such as water, non-perishable food, medications, first-aid supplies and a flashlight in case of power outages. Have a backup plan for staying cool if your usual cooling methods fail.
- j. **Follow Government Guidelines.** Adhere to any specific guidelines or directives issued by local authorities during heatwave emergencies. Stay informed about emergency shelters, cooling centers and other resources available in your area.



HEATWAVE



Be Prepared

A prolonged period of exceptionally hot weather, characterized by temperatures well above average, posing health risks and environmental challenges.

IF YOU ARE UNDER AN EXTREME HEAT WARNING



Watch for heat cramps, heat exhaustion, and heat stroke.



Find air conditioning, if possible.



Wear light clothing.



Never leave people or pets in a closed car.



Avoid strenuous activities.



Drink plenty of fluids.



Watch for heat illness.

Heat-Related Illnesses



Heat Stroke

Signs

- Extremely high body temperature (above 103 degrees F) taken orally
- Red, hot and dry skin with no sweat
- Rapid, strong pulse
- Dizziness, confusion or unconsciousness



Heat Cramps

Signs

- Muscle pain or spasms in the stomach, arms or legs



Heat Exhaustion

Signs














- Heavy sweating, paleness, muscle cramps, tiredness, weakness, fast or weak pulse, dizziness, headache, fainting, nausea, vomiting



HEATWAVE



Be Prepared

Prepare	During	Respond
<p> Keep Your Home Cool</p> <p> Cover windows with drapes or shades.</p> <p> Position fans near windows to draw in cooler air overnight and create cross-ventilation.</p> <p> Plant trees outside windows to provide shade and reduce sunlight indoors.</p> <p> Use window reflectors such as aluminum foil to reflect heat back outside.</p>	<p> Find places with air conditioning</p> <p> If you're outside, find shade.</p> <p> Stay Hydrated.</p> <p> Do not use electric fans when the temperature outside is more than 95 degrees.</p> <p> Avoid high-energy activities.</p>	<p> Heat Cramps</p> <p>Actions: Go to a cooler location. Remove excess clothing. Take sips of cool sports drinks with salt and sugar. Get medical help if cramps last more than an hour.</p> <p> Heat Exhaustion</p> <p>• Actions: Go to an air-conditioned place and lie down. Loosen or remove clothing. Take a cool bath. Take sips of cool sports drinks with salt and sugar. Get medical help if symptoms get worse or last more than an hour.</p> <p> Heat Stroke</p> <p>• Actions: Call for emergency medical assistance. Cool down with whatever methods available and constantly monitor temperature until help arrives.</p>



HEATWAVE



Mitigation & Prevention



Keep close monitoring of vulnerable GLOF sites.



Make **judicious use of water** for drinking and cooling-off.



Emergency Services / Fire Brigades to remain on alert against Forest fire



Alert medical services to maintain requisite facilities such as heatstroke centers.



Take preventative measures against fires where possible



Coordinate with NHA, NH&MP and FWO for necessary alerts to travelers



Avoid direct exposure to sunlight during peak hours (1000 - 1700 hours).



Inform farmers of **greater requirement of water** for crops, orchards and cattle.

Annex-E**NATIONAL FOREST FIRE GUIDELINES**

1. **General.** Forest fires are a growing hazard in Pakistan that cause colossal damage to valuable forests, deplete tree cover and damage the ecology. Alongside environmental damage, they also pose significant risks to human lives and livelihoods. Given the current trends of rising global temperatures and increased human negligence, forest fires are likely to increase in the future and require our immediate attention. Comprehensive and timely preparedness, response and rehabilitation measures are required to deal with the challenges posed. This is only possible through the implementation of all inclusive, integrated and well-coordinated mitigation and response plans backed up by appropriate capacity development, implementations and monitoring mechanisms at various tiers. Cooperation of all stakeholders, agencies, ministries and local community is required to alleviate the risk of and damages caused by forest fires in Pakistan.

2. **Preparedness Guidelines**

a. **Forest Departments**

- (1) Issue fire management plans, including pre-fire planning and post-fire recovery strategies. It is imperative to review and revise these plans routinely before issuance to relevant agencies, stakeholders and local communities.
- (2) Develop National Forest Conservation and Safety Policy that outlines the remodeling of existing forests for conservation / mitigation following international practices of afforestation.
- (3) Monitor weather and climatic conditions to forecast amplified risk and enact fire restrictions during dry and windy conditions.
- (4) Maintain up-to-date maps of fire-prone regions and their respective hazard vulnerabilities.
- (5) Utilize remote sensing technology, such as satellite and drone imagery, to improve fire detection and mapping.
- (6) Identify at-risk areas and categorize these into High, Medium, and Low Risk for forest fires, based on the frequency and intensity of past fire events, topographical features, meteorological factors, tree density, quality of ground cover, accessibility to the areas and availability of nearby water sources.
- (7) Assign responsibility to forest vigilance teams to remain alert during fire season, monitoring High Risk areas daily and Medium-Low Risk areas routinely.
- (8) Maintain up-to-date database of fire-fighting resources / capabilities to respond effectively to large fires.

- (9) Map water resources closest to each forest to be utilized during response and create water ponds in high-risk areas.
- (10) Create defensible space / fuel buffer around homes and communities by removing flammable fuels like leaf piles, unmown dry grass, lawn furniture, propane tanks, wood piles, leaves, needles and flammable trees.
- (11) Enforce regular manual removal of pine needles, underbrush, dead leaves and shrubs before fire season.
- (12) Plan controlled burning of undergrowth in safe seasons (such as during winter) to reduce the fuel load and decrease the risk of large, intense fires in the following spring / summer.
- (13) Establish fire lines or lanes by clearing a line / lane of vegetation through vulnerable forests to ensure the containment of future fires.
- (14) Devise strategies to divide vulnerable into compartments bordered by natural barriers (streams, roads, bridges) such that when a fire burns out all combustibles in an affected compartment, it fizzles out, saving the remaining.
- (15) Create shallow trenches and gaps in vegetation, also known as fire ditches, to contain / control the spread of fire.
- (16) Encourage planned grazing of forests to remove flammable material and avoid accidental fires by livestock farmers.
- (17) Promote plantation of fire-resistant plant species including *Cedrus deodara* (Deodar Cedar), *Pinus gerardiana* (Chilgoza Pine), *Juniperus macropoda* (Blue Juniper), *Ziziphus nummularia* (Ber), and *Acacia modesta* (Kikar) in at-risk areas to alleviate vulnerability.
- (18) Collaborate with local administration, communities, organizations and other agencies to exchange information and resources before, during and after the incident.

b. **Local Administration / DDMA's**

- (1) Issue forest fire management plans, which outline steps to reduce the risk of, respond to and recover from fires in coordination with local forest departments.
- (2) Collaborate with local forestry departments, fire departments and other agencies to coordinate fire-fighting efforts available in each district.
- (3) Establish control rooms with communication network and deployment of staff.
- (4) Devise fire-prevention policies and regulations, such as fire-free zones, restrictions on fire-inducing activities especially during fire season and prohibitions against dumping of waste matter near forest areas.

- (5) Identify the main hotspots for human-induced fires and enact strict restrictions in these regions on actions such as fines and penalties.
- (6) Collaborate with local community to create evacuation plans and conduct evacuation drills to ensure that residents are prepared to evacuate quickly and safely in the event of a fire.
- (7) Conduct regular audits and ensure availability of firefighting equipment before the start of fire season including communication and wireless systems, fire beaters, gears, extinguishers, skid pumps, water bowsers, buckets, etc. If supplies are insufficient, local administration to purchase firefighting equipment and machinery and stock fire retardant chemicals.
- (8) Ensure availability of all forest officers / Negehbans / watchers who must be appointed to frequent field visits during fire season.
- (9) Maintain fire-resistant landscapes, such as defensible space around homes and other structures, to reduce the risk of fire spreading from wildland to structures.
- (10) Work with private landowners and other stakeholders to promote fire-resistant landscapes and fire-safe practices, such as fire breaks and fuel buffers.
- (11) Ensure enforcement of building codes for promoting hazard resilience.
- (12) Review ongoing development projects such as power lines / transformers in forested areas for safety and mitigation.
- (13) Provide financial and technical assistance to local property owners to reduce the risk of fire and promote fire-resistant landscapes.
- (14) Implement Wildland Urban Interface codes and ordinances to define fire-resistant building codes for construction and outline resilient materials for development; the use of wooden roofs, siding or fencing in at-risk areas and new developments in high-intensity fire-prone areas should be restricted.
- (15) Enhance the notification system to inform residents about fires and evacuation orders through SMS / broadcast media / social media networks / loudspeakers by adding regional languages.
- (16) Plan for post-fire recovery, including emergency response and long-term recovery efforts, to ensure that the community is able to recover quickly and effectively after a fire.

c. **Fire & Rescue Services**

- (1) Remain up to date on training that covers knowledge about fire behaviours, firefighting techniques and safety procedures.

- (2) Be aware of the current / forecasted weather conditions that could affect fires and subsequent response strategies.
- (3) Collaborate with appointed forest officers / Negehbans / watchers to receive regular updates on forest conditions.
- (4) Maintain a clear understanding of their roles and responsibilities and how they fit into the overall response plan. All responders to be familiar with the chain of command, incident action plan and effective communication with all agencies involved.
- (5) Responders to ensure that necessary firefighting equipment is available and well-maintained, including resistant clothing, personal protective equipment, fire-fighting tools and communication devices.
- (6) Pre-position resources such as fire engines, water tenders, and hand crews in strategic locations near fire sources to ensure timely response.
- (7) Keep a close watch on the news / early warning systems to ensure immediate effort to contain fires.
- (8) Collaborate with local communities to educate them about the dangers of forest fires, thereby increasing community preparedness.

d. **Local Communities**

- (1) Develop a community forest fire protection plan including evacuation routes, designated safe zones and communication strategies between local authorities and residents. The plan should be shared with residents and updated regularly.
- (2) Ensure defensible spaces are created around residential areas by clearing flammable vegetation and debris from the immediate vicinity of the home, including roofs and gutters.
- (3) Develop fire-resistant buildings by using non-flammable materials such as metal roofing and cement / concrete walls and by keeping a safe distance between buildings and forests. In this regard, approved building codes must be followed during construction.
- (4) Store flammable materials such as gasoline and LPG tanks properly to prevent fires and reduce the risk of explosion in case of a fire.
- (5) Store fire-fighting equipment such as shovels, buckets and hoses in a convenient location for quick access in case of an emergency.
- (6) Establish a fire watch program in which community members take turns monitoring the forests for signs of fire.
- (7) Maintain clear access to major roads and driveways to ensure firefighting vehicles

reach fire-prone regions easily.

- (8) Conduct regular fire drills to ensure the community is prepared to evacuate safely and timely.
- (9) Create awareness using broadcast media / social media networks / newspapers / community centers / schools / madrasas about the dangers of forest fires and the significance of prevention and preparedness.
- (10) Strengthen collaboration with local authorities and fire-fighting organizations to ensure smooth coordination of response efforts in the event of a forest fire.

3. **Response Guidelines**

a. **Forest Department**

- (1) Begin an initial assessment of the incident, determining the location and size of the fire, the type of vegetation and fuels present, and the potential of the fire to spread. This information will determine immediate response plan and resources allocated.
- (2) Collaborate with the local administration to mobilize the necessary resources including fire engines, water tenders, hand crews, aircrafts and personnel such as incident commanders and support staff.
- (3) Consistently assess burnt regions using satellite imaging data to classify forest fire severity with multiple parameters (climatic, vegetation, topography and human activities). The information will serve in formulating future mitigation projects and developing efficient response plans.
- (4) Monitor the fires using satellite technology and watch towers to track its spread in real-time.
- (5) Once the fire is suppressed, continue monitoring to ensure that re-ignition does not occur.
- (6) Investigate to determine the cause of the fire and identify any factors that contributed to its spread. This information can be used to improve fire response procedures and prevent future fires.

b. **Local Administration / DDMA's**

- (1) Conduct fire assessments to determine the fire's size, location and potential for spread and determine the best strategy for containing the fire.
- (2) Activate fire management plans and mobilize fire-fighting resources, including personnel, equipment and fire-fighting aircraft.
- (3) Implement fire suppression tactics, including direct attack on the fire's perimeter, back burning and aerial firefighting.

- (4) Evacuate people and animals from threatened areas and working with local authorities to coordinate evacuation efforts.
- (5) For high-intensity fires, Rescue 1122, Fire Brigades, Civil Defence and Wildlife staff other concerned agencies may be called to assist the forest staff in high-risk areas. Furthermore, respective Provincial Disaster Management Authorities may contact National Disaster Management Authority to coordinate additional support from Pakistan Armed Forces (Army, Navy & Air Force) and Para-military Forces in case the fire hazard is beyond local and provincial capacity.
- (6) Enact a counter fire approach in response to a growing fire that is unapproachable to humans. This strategic counter fire rushes towards the wildfire, leaving a stretch of burnt ground behind it. As soon as the two fires meet, the blaze is extinguished. This practice must be exercised under supervision of forest / fire safety experts.
- (7) Enact a combination method, involving fire lines and counter fires.
- (8) If a technological approach is required, alert NDMA, PDMA, Aviation Division / Army, Air Force for provision of helicopter to drop water and other fire-retardant chemicals and material for controlling fire on need basis.
- (9) Monitor the fire's behaviour and make adjustments to the fire-fighting strategies as necessary.
- (10) Coordinate with local authorities and emergency services to provide fire- fighters and first responders with necessary resources, including food, water and medical support.
- (11) Maintain regular communication with the public and stakeholders to provide information about the fire's status, evacuation orders and any other important updates.
- (12) Engage media at district / provincial / federal level without delay to provide well-synthesized, highly accurate information.
- (13) Inform and sensitise various population groups who generate fires, such as farmers, forest workers, local inhabitants, tourists, industrial companies and small enterprises.

c. **Fire & Rescue Services**

- (1) Conduct a preliminary assessment of the fire's size, location, and potential spread.
- (2) Work with other first responders to assess the fire's size, location and potential spread.

- (3) Follow established safety protocols, incl wearing personal protective equipment and following communication and evacuation procedures.
- (4) Evacuate any nearby residents and visitors to a safe location.
- (5) Develop and implement a fire suppression plan, which may involve setting up fire lines (barriers of cleared vegetation), using fire retardants, making strategic burns to contain the fire, digging trenches, or cutting down trees. The primary goal of the firefighting effort is to contain the fire to prevent it from spreading further.
- (6) In the case of medium-intensity risk areas, Rescue 1122 will assist the Forest / Wildlife Departments and local communities in controlling the forest fires.
- (7) Monitor weather conditions and adjust firefighting strategies as needed.
- (8) Call for additional resources, such as additional firefighting personnel and equipment from line departments, neighbouring districts and through coordination with other provinces.
- (9) Once the fire is contained, the firefighting team should focus on extinguishing the fire, either through direct attack or by depriving the fire of fuel through back burning.
- (10) Continuously reassess the situation and make adjustments to the fire suppression plan as needed.
- (11) Protect homes, buildings, and other valuable structures in the area, if possible.
- (12) Follow established protocols and guidelines to ensure the safety of all personnel and to effectively respond to the fire.

d. **Local Communities**

- (1) If you see a new fire, report it immediately to local authorities. Providing accurate information about the location and size of the fire can help firefighters respond more quickly.
- (2) Follow emergency alerts and updates on the fire's progression and evacuation orders from local authorities and media outlets.
- (3) If evacuation is advised by local authorities, evacuate immediately using designated evacuation routes.
- (4) In the case of low-intensity fire risk, Forest Departments and local communities are advised to coordinate with fire control. Rescue 1122 may be called to assist if the situation worsens.
- (5) Avoid driving through heavy smoke or approaching the fire.
- (6) Refrain from using outdoor equipment or activities that can contribute to the fire, such as barbecues, campfires, or smoking.

- (7) Stay clear of firefighting operations to avoid hindering the firefighting efforts and to ensure the safety of firefighters.
- (8) Smoke from a forest fire can be hazardous to your health, so take care to protect yourself and your family. Stay indoors with windows and doors closed, use air conditioning and avoid strenuous outdoor activities.
- (9) Support evacuation and shelter efforts for displaced residents, including helping to secure shelter and supplies for those in need.

4. **Rehabilitation Guidelines**

a. **Forest Department**

- (1) Replant burned areas with fire-resistant species to promote the recovery of the forest ecosystem.
- (2) Remove dead trees, snags, and other hazards to reduce the risk of further damage to the ecosystem and human and animal populations.
- (3) Implement fire management strategies, such as prescribed burning and fuel reduction programs, to reduce the risk of future fires and promote a healthy, fire-resilient forest.
- (4) Conduct soil stabilisation treatment, such as mulching, to prevent erosion and promote regrowth of vegetation.
- (5) Implement erosion control measures, such as rock and straw mulch, to prevent soil erosion and promote regrowth of vegetation.
- (6) Monitor the recovery of the forest ecosystem, including the growth and survival of replanted vegetation and the return of wildlife.
- (7) Conduct research and monitoring to understand the effects of the fire on the forest ecosystem and improve future rehabilitation efforts.
- (8) Collaborate with other agencies, organizations and local communities to promote the recovery of the forest ecosystem and the restoration of damaged areas.

b. **Local Administration / DDMA's**

- (1) Conduct a post-fire report to determine the fire's impact on the environment, human and animal populations and infrastructure.
- (2) Implement post-fire recovery efforts including rehabilitation of damaged areas and conduct research to improve future fire-fighting efforts.
- (3) Assess the extent of the damage and subsequent resources required for recovery.
- (4) Collaborate with forestry departments, environmental agencies and other organizations to develop a comprehensive rehabilitation plan, including

suggestions for ex-gratia assistance.

- (5) Implement soil stabilizing treatments, such as mulching, to prevent erosion and promote regrowth of vegetation.
- (6) Cooperate with the forestry department to replant burned areas with fire-resistant species to promote the recovery of the forest ecosystem.
- (7) Monitor the recovery of the forest ecosystem, including the growth and survival of replanted vegetation and the return of wildlife.
- (8) Provide support to affected communities, including temporary housing, rebuilding damaged infrastructure and supporting the recovery of the local economy.
- (9) Conduct public education and outreach programs to promote the recovery of the forest ecosystem and the importance of fire-safe practices.
- (10) Provide financial and technical assistance to property owners to support the recovery of fire-damaged lands.
- (11) Collaborate with other agencies, organizations and local communities to promote the recovery of the forest ecosystem and the restoration of damaged areas.

c. **Fire & Rescue Services**

- (1) Examine the extent of the damage caused by the fire and determine the resources / support required for recovery.
- (2) Coordinate with local administrative and local community to assess the immediate and long-term impacts of the fire and devise a comprehensive recovery plan.
- (3) Prioritize providing emergency medical care to victims of the fire including treating burns, smoke inhalation and other injuries.
- (4) Support evacuation and shelter efforts for displaced residents, including helping to secure shelter and supplies for those whose homes / livelihoods have been affected.
- (5) Assess and mitigate environmental impacts including damage to soil, water and wildlife.
- (6) Continue to work on fire suppression efforts, even after the fire has been contained, to prevent rekindling and minimize further damage.
- (7) Provide emotional and psychological support to those affected by the fire, including those who have lost their homes, loved ones or livelihoods.
- (8) Assist with rebuilding efforts by clearing debris and helping to rebuild homes and infrastructure.

d. **Local Communities**

- (1) Volunteer time and resources such as food, water and shelter to support recovery efforts.
- (2) Donate to organizations that are actively supporting recovery efforts, such as local fire departments, disaster relief organizations and community foundations.
- (3) Participate in clean-up efforts, such as clearing debris, removing hazardous materials and rebuilding homes and infrastructure.
- (4) Collaborate with other agencies and organizations to promote the recovery of the forest ecosystem and the restoration of damaged areas, such as by participating in reforestation efforts.
- (5) Support small businesses and the local economy by shopping locally and attending community events, to help revive the community.
- (6) Provide emotional and psychological support to those affected by the fire, including those who have lost their homes, loved ones or livelihoods.
- (7) Learn from the response and preparedness fall backs of fire incidents to enhance community preparedness in future incidents.



FOREST FIRE



Be Prepared

An uncontrolled and often rapidly spreading blaze that occurs in forested areas, characterized by burning trees, vegetation, and sometimes wildlife habitat

Forest Fire Facts



Can damage your property. Set up defense zones to protect your home.



Often caused by **humans or lightning.**



Can happen anywhere, anytime. **Risk increases with little rain and high winds.**

Types of forest fire

Ground Fire

Ground fires burn low vegetation, less intense than crown fires but spread rapidly.



Surface Fire

Surface fires burn on the forest floor, consuming debris like leaves and branches. They vary in speed based on wind, moisture, and terrain.



Crown Fire

intense, spread through treetops fueled by dry vegetation and wind, leap between trees, devastating large forest areas.





FOREST FIRE



Be Prepared

Prepare



Make an Emergency Plan

Make sure everyone in your household knows and understands what to do if you need to quickly evacuate.

Strengthen Your Home



Use fire-resistant materials to build, renovate or make repairs.



Find an outdoor water source with a hose that can reach any area of your property.



Fire-resistant zone that is free of leaves, debris or flammable materials for at least 30 feet from your home.

During



Pay attention to emergency alerts and notifications for information and instructions.



Evacuate immediately if authorities tell you to do so!



If trapped, call RESCUE 1122 and give your location, but be aware that emergency response could be delayed or impossible. Turn on lights to help rescuers find you.



Cover your face and mouth to protect yourself from smoke inhalation or limit your exposure to smoke.



Evacuate the elderly, sick and children first.

After



Do not return home until authorities say it is safe to do so.



Avoid hot ash, charred trees, smoldering debris and live embers. The ground may contain heat pockets that can burn you or spark another fire.



When cleaning, wear protective clothing



Use a respirator to limit your exposure, and wet debris to minimize breathing dust particles



Send text messages or use social media to reach out to family and friends.



FOREST FIRE

Mitigation & Prevention



Controlled Burning

Utilizing controlled burns to reduce fuel, enhance ecosystem health, and prevent wildfires.



Firebreaks

Creating and maintaining firebreaks, clearings that halt fire spread by removing fuel.



Watch towers

Elevated structures offer a vantage point for fire monitoring, enabling quick response and containment.



Community Engagement

Engaging local communities in fire prevention through awareness campaigns, training, and community-based initiatives.



Clearing Accumulated Debris

Clearing dead wood, branches, and dry leaves from forests is crucial to prevent fires as they serve as fuel.



Fire Bans and Restrictions

Enforcing temporary bans on high-risk activities like open burning, campfires, smoking, and fireworks during periods of elevated fire danger.



Preplacement of Firefighting Machinery

Proactively stationing firefighting machinery strategically in fire-prone areas during peak fire months ensures swift and effective fire suppression.



Fire Drills

Conducting regular fire drills and training exercises to ensure that firefighting personnel are well-prepared to respond to fire incidents promptly and efficiently.



Tourist Awareness Programs

Tourist awareness programs educate visitors on fire safety, responsible behavior, and adherence to fire regulations in forests, using materials, signage, and displays to reduce human-caused wildfires.



Forest Management Practices

Implementing sustainable forest management practices like logging, thinning, and vegetation management reduces fuel, enhances resilience, and lowers wildfire risk.



**Government of Pakistan
Prime Minister's Office
National Disaster Management Authority (NDMA)
<http://www.ndma.gov.pk>**