



National Monsoon

Contingency Response Directive-2018



National Disaster Management Authority
Prime Minister's Office
Government of Pakistan

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(To be read in conjunction with National Disaster Response Plan 2010 & instructions issued by NDMA in this regard from time to time)

General

1. Pakistan experiences Monsoon annually from June to September with varying intensity of rainfall. Floods being the most recurrent phenomena are potent hazard to become a disaster posing myriad challenges to disaster management system of the Country. The risks of flood hazards, therefore, merit adoption of a comprehensive and pro-active strategy at all tiers of response for dealing effectively with all associated challenges.
2. NDMA being the lead agency at Federal level to deal with whole spectrum of disaster management activities is mandated under clause 9(a) and 9(d) of NDM Act 2010 *“To act as implementing, coordinating and monitoring body for disaster management”* and *“To laydown guidelines for preparing disaster management plans by different ministries, departments and Provincial authorities”*. Hence, National Monsoon Contingency Response Directive is prepared by NDMA every year based on the comprehensive consultative process keeping in view analysis of Monsoon Weather Forecast, capabilities and limitations of national response mechanism with a view to lay down explicit response guidelines for all tiers of disaster management authorities/ relevant stakeholders to mount an effective and synergic response to the crises resulting from monsoon.

Aim

3. To formulate National response guidelines for all stakeholders at Federal, Provincial and Regional level to mount a well-articulated flood disaster response as per envisaged contingencies of Monsoon 2018, based on the forecast of Pakistan Meteorological Department (PMD).

Scope

4. The Directive envisages to encompass following:-
 - a. **Part I - General Aspects**
 - (1) Responsibility Matrix for Flood Management.
 - (2) Impediments in existing response milieu.
 - (3) Shortfalls observed from past experiences.
 - b. **Part II - Flood Threat and Vulnerabilities**
 - (1) Outlook for Summer Monsoon 2018 by PMD.
 - (2) NDMA's Conclusions from Summer Monsoon Outlook 2018.
 - (3) NDMA's Visualised Contingencies of Summer Monsoon Outlook 2018.
 - (4) Provincial Flood Hazards and District wise Flood vulnerability Matrix.
 - c. **Part III - National Response Guidelines for Monsoon 2018**

Responsibility Matrix

5. To deal with the challenges of Flood Disaster Management, the responsibility matrix of National and Provincial departments is as under:-
 - a. **Weather and Flood Forecast**
 - (1) **Weather Forecast.** Pakistan Meteorological Department (PMD).
 - (2) **Flood Forecast.** Flood Forecasting Division (FFD) of PMD.
 - b. **Flood Management & Fighting.** Flood management means regulation of flood through dams, hydraulic structures, flood canals and flood protection works including flood fighting against accidental breaches. The responsibilities are:-
 - (1) **Riverine Flood / Flash Flood / GLOF**
 - (a) **National Coordination.** Federal Flood Commission (FFC).
 - (b) **Provincial Coordination.** Provincial Irrigation Departments.
 - (2) **Urban Flood.** Respective Municipal Corporations/ City Development Authorities / Local Governments.
 - (3) **Management of Tarbela and Mangla Dams.** Water and Power Development Authority (WAPDA).
 - c. **Flood Management (Rescue, Relief, Recovery, Reconstruction & Rehabilitation).** Covering pre, during & post flood activities as under:
 - (1) National level coordination by NDMA.
 - (2) Provincial / Regional level coordination by PDMA's / SDMA / GBDMA / FDMA / ICTDM Cell.
 - (3) District level coordination by DDMA's under respective District

- Governments/ DCOs / Political Agents (FATA) / CDA (ICT).
- (4) Emergency response in support of National / Provincial effort by Pakistan Armed Forces / Civil Defence / Rescue 1122 and other humanitarian response agencies.
- d. **Pakistan Commission for Indus Water (PCIW).** Coordination and timely provision of flood discharge data from India.
- e. **Pakistan Telecommunication Authority (PTA).** Maintenance/ restoration of telecom infrastructure and transmission of SMS alerts for communities.
- f. **National Highway Authority (NHA).** Maintenance / restoration of National road infrastructure.
- g. **C&W Departments of Provinces / AJ&K.** Maintenance / restoration of respective provincial road infrastructure.
- h. **Pakistan Railways.** Maintenance / restoration of railways communication infrastructure.
- i. **SUPARCO.** Pre-Flood Assessment, Post-Flood Damage Assessment using satellite technology.

Impediments in Existing Response Milieu

6. Owing to host of reasons there exist some critical limitations in the existing response mechanism against flood hazards. These limitations are to be kept in view while planning and preparing flood response plans by all stakeholders:-

- a. **Meteorological Predictions and Flood Forecasting System**
- (1) Prediction capability of medium to long range forecasting is only for 7 to 15 days.
 - (2) Seasonal Weather Prediction can be expected with 65-70% accuracy level.
 - (3) Dependence on accurate and timely passage of information by India for discharge data of water in eastern rivers.
 - (4) Non availability of telemetry / early warning system for flash floods in hill torrents of South Punjab, Khyber Pakhtunkhwa, Balochistan, AJ&K, GB and FATA which impacts on early warning time for communities.
 - (5) Deficiency as well as old vintage meteorological and hydrological sensors has a bearing on qualitative, quantitative and precision of weather forecast, especially against erratic weather pattern viz-a-viz climate change phenomenon.
- b. **Ad-hoc Functioning of District Disaster Management Authorities.** In most of the provinces, dedicated human resource has not been posted in DDMA. The gap at this critical tier of response causes an immediate pull on resources of other National organizations especially Pakistan Armed

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Forces. As a result, Armed Forces are requisitioned as a knee jerk process. This significant limitation leads to weakening of DDMA as a crucial tier of disaster response in the process.

- c. **Inadequate Capacity to Deal with Urban Flooding**. Intense rain coupled with encroachment in sewerage channels lead to Urban Flooding in major cities. Inadequate town planning, unplanned expansions, non-availability of hazard atlas, inadequate capacity like shortage of high powered de-watering pumps and inefficient sewerage water disposal system add to the challenges of Urban Flooding.
- d. **Revitalization of Emergency Services**. Establishment of Rescue-1122 has proved its utility in provision of emergency services and disaster management. Rescue-1122 service has not been established in all provinces / regions of the Country. Alongside, specialist disaster response is also impaired in absence of a dedicated USAR Team while in some cases existing USAR teams are facing enduring administrative challenges. Revitalization of both emergency services can substantially add to disaster management capacity of the Country.
- e. **Non-Availability of Dedicated Aviation Assets for Disaster Management**. Aviation assets of Armed Forces and Ministry of Interior are employed for rescue and relief efforts. Moreover, the helicopters of Pakistan Navy/ Air Force are normally not employed in Northern Areas and assets of Pakistan Army are inextricably engaged in security/ defence regime operations. The limitation has pronounced bearing on initiation of timely disaster rescue and relief activities.
- f. **Non-Availability of Heavy Earth Moving Machinery**. NDMA handed over heavy earth moving machinery to Govt. of Gilgit Baltistan in 2017 to ensure road communication within the region and also along main artery of KKH linking the regions with Pakistan. However, non-availability of sufficient number of heavy earth moving machinery remains a hinderance in hilly / mountainous regions of the KP, Balochistan & AJ&K. The challenge is more compounded during bad weather conditions which sewer possibility of air links also.
- g. **Encroachments in River Plains / Sewerage Channels of Major Cities**. Permanent settlements and encroachments in the river flood plains and sewerage channels of major cities is a constant challenge for rescue and relief efforts.
- h. **Resistance to Evacuation and Move to Relief Camps**. Local residents generally resist evacuations till last moment and demand relief at site instead of planned relief camps which increases quantum of rescue and relief effort.

Shortfalls Observed from Past Monsoons & Disasters

7. Following enduring shortfalls have been observed during management of floods and other disasters in the past. These missing links must be kept in focus to evolve a corresponding response during management of Monsoon 2018:-

- a. Non-Adoption of standardized Situation Report (SITREP) format results in delay to formulate disaster mosaic/ picture, initiate timely rescue / relief effort and compile reports for early decision making process.
- b. Limited / non-availability of storage facilities of relief goods (shelters etc) at district level, delayed procurements and tendency of emergency procurement resulting into delayed response as well as compromise on transparency in procurement. Alongside that a premature pull is exerted on NDMA stocks.
- c. Non availability of electricity backup system / generators for clean water supply as well as sewerage disposal system in urban areas accentuate urban flooding and denies clean drinking water supply.
- d. Gaps in inter Provincial coordination mechanism lead to underutilization of response capability of one Province / Region for the critical areas of the other.
- e. Non rehabilitation of flood protection structure at inter provincial boundary. Non Rehabilitation / strengthening of *Shori Nullah* Protection Bund is a case in point.
- f. Incomplete flood mitigation measures downstream *Mangla Dam* and delay in resolution of *Barakas Nullah* issue.
- g. Inadequate discharge capacity of some Barrage structures on major rivers like *Trimmu & Sukkur* Barrage.
- h. Inadequate budget for O&M of flood forecasting and warning system (Flood Telemetry and Weather Radar Network and other ground stations maintained by WAPDA & PMD).
- i. Inadequate O&M budget for flood protection structures and inadequate budget allocation under PSDP for execution of new flood protection projects.
- j. Inadequate discharge capacity and weak Marginal Bunds of *Shahdara* and *Sher Shah* Railway Bridges, Head *Muhammad Wala* and newly constructed *Shaheed Benazir Bhuto* Bridge of NHA.
- k. Chronic and increasing threat of encroachments in river plains.
- l. Dumping of solid waste and building material on banks/ waterway of *Lai Nullah* presents a continuous threat of Urban Flooding in Rawalpindi /

Islamabad.

- m. Loss of precious lives due to neglect to awareness drive and venturing in flooded / swollen water channels.
- n. Inefficient management of database regarding recipient of relief assistance.
- o. Unregulated / uncoordinated relief effort by civil society leads to saturated relief effort in some areas while dilution of the same in some critical areas.
- p. Need based rescue and relief efforts are occasionally undermined in the face of disregard to the needs and concerns of vulnerable groups (aged, disabled, women and children).
- q. Integration of Civil Defence, Boy Scouts, Girl Guides and NGOs in relief operations remains a persistent weak link.
- r. Some flood protection works remain incomplete due to late release of funds.
- s. Damage assessment process, damage reporting and compensation mechanism is found inflated leading to slow progress.
- t. Following predominant gaps are observed in flood fighting equipment assessment:-
 - (1) No uniform parameters are followed for assessment of quantity of boats by stakeholders.
 - (2) Boat size of 19 feet length (Fiberglass) is most suitable size, however, boats of greater length are also held against the spirit of standardization and they also pose challenge in transportation.
 - (3) Same type of boats are used for riverine and urban flooding. Concept of employment of boat required clarity with respect to riverine flood viz-a-viz current of water, peak flood conditions, use in flash flood from hill torrents and urban areas.
 - (4) Concept of employment of pneumatic boats exists in Sindh and Pak Navy is proponent of the same while Pak Army / Civil Rescue Departments have not used it in rescue operations.
 - (5) 40 HP engine is the most suitable engine in the fast currents and also corresponds to the boat stability during operation. Yet demand of higher HP engine 48 and 55 exists. The high power engines because of their weight and power can affect stability of the boat.
 - (6) Priority had not been laid down viz-a-viz flood threat / historical experience. Some boats were even earmarked for *barani* areas.
 - (7) Requirement / placement of boats for urban flooding was more than requirement.
 - (8) Passenger carrying capacity in a rescue boat of fiberglass was found variable from a figure of 10 persons (including crew of 2 x persons) to that of 12 to 15.

- (9) Some high powered engines were placed in districts where they were underutilized.
- u. Slow pace in meeting flood fighting equipment demand of Pakistan Army.

Outlook for Summer Monsoon 2018 by Pakistan Meteorological Department

8. All global models indicate that El-Nino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) are likely to be in neutral phase during summer 2018. Therefore Summer Monsoon rainfall is expected to be normal embedded with few extreme rainfall events in most parts of South Asia. Based on statistical and dynamical downscaling of global circulation models, the outlook for the season (July to September) 2018 is as under:-

- a. In northern part of Pakistan, Rainfall is expected to remain **“NORMAL to SLIGHTLY ABOVE NORMAL of long term average” during first half of the season, and BELOW NORMAL during second half.**
- b. In southern part of Pakistan, Rainfall is expected to remain **“NEAR NORMAL of long term average” during first half of the season, and largely BELOW NORMAL during the second half.**
- c. The prevailing temperatures trend in Pakistan indicates **high probability of few “Extreme Rainfall events” in Punjab, and “GLOF events” in Gilgit-Baltistan/ Chitral regions during monsoon season.**

9. In the view the “Outlook of Summer Monsoon 2018” and already prevailing water shortage in the country, the water managers should take measures for water storages accordingly.

Important Conclusions from PMD's Outlook for Summer Monsoon 2018

10. Considering PMD's Outlook for Summer Monsoon 2018, impediments of existing response mechanism, past experience and predominant factor of Global Climate Change, following is concluded:-

- a. The Forecast predicts possibility of Flash, Riverine and Urban Floods, GLOFs, Cloudburst and Drought like situation in different states/ regions of the Country with varying time and intensity which calls for a “Comprehensive Response” against all eventualities.
- b. “Normal/ slightly above normal (in Northern part of Country) and near Normal (in southern part of Country)” Rainfall during first half (June & July) means onset of Monsoon with variable intensity in various parts of the Country. High probability of heavy localized rains may generate Flash Flooding in mountainous areas leading to Landslides, while Urban Flooding

- in metropolitan areas. It merits maintenance of adequate response capacity from the outset for entire duration of the Monsoon season.
- c. Extreme Rainfall events (Torrential Rains, Cloudbursts, Landslides, GLOF may render vulnerable areas isolated resulting into shortage of basic commodities i.e. food stuff, medicines etc. This entails strategic placing of earth moving machinery along with food stocks, medicines and POL in such areas.
 - d. Synchronous effect of Riverine, Flash and Urban Flood in areas vulnerable to all three Flood hazards cannot be ruled out. Hence, the need to configure correct response in such regions/ areas becomes imperative.
 - e. Possibility of extreme weather events in catchment areas of Eastern and Western Rivers viz-a-viz identified limitations of own hydro-meteorological forecasting capability may limit early warning time, hence, need to have sound safeguards for flood fighting and careful management of storage dams.
 - f. Contrarily, lack of Rainfall in Southern part of Pakistan (arid areas of Balochistan, Sindh & Punjab) may lead to drought like conditions, warranting continuous monitoring of drought contributing factors, careful regulation of major water reservoirs and taking adequate safeguards i.e. stockpiling of wheat, livestock fodder, alternative arrangements for emergency water supply and lifesaving medicines.

Visualised Monsoon Contingencies

11. **Common Possibility.** Collective effect of Monsoon Rains, hydrological discharge of glacier melting, lopsided management of major water reservoirs, indifferent regulation of eastern rivers water and choking of sewerage channels in major cities can result into low level Riverine Flood, Flash Flood in hill torrents or historical flash flood sites, landslides, avalanches, GLOF in areas vulnerable to such hazards while Urban flooding in metropolitans.

12. **Visualised Contingency Scenarios.** Monsoon visualised contingency scenarios derived from PMD's Outlook for Summer Monsoon 2018 are as under:-

- a. **Scenario - 1 (Most Likely) Normal to Below Normal Monsoon.** Normal Monsoon is generally considered to be average quantity of precipitation over all the geographical locations under its influence (mean spatial distribution) and over the entire expected time period. It may unfold as under:-
 - (1) Normal Monsoon will prevail all over Pakistan including all States & Regions.
 - (2) Variable intensity from Normal (Northern Punjab, KP & AJ&K) to slightly above Normal (GB & Western part of KP) while deficient

rainfall is expected in arid zone of Punjab, Sindh and Balochistan.

- (3) The Monsoon pattern is likely to remain normal from July - September 2018. Monsoon may be evenly spread or intense in one period while less intense in remaining period.
- (4) Common possibility (Urban flooding, landslides, avalanches, flash floods, GLOF) emerges in a respective manner.

b. **Scenario 2 (Probable) Erratic Monsoon**

- (1) Monsoon main concentration drifts to catchment areas of the Eastern/ Western Rivers, North Punjab, KP, AJ&K and GB giving rise to increased Riverine Floods.
- (2) Secondary concentration remains in flash flood prone areas of KP, South Punjab and North East Balochistan with variable rains in adjacent areas.
- (3) Duration may spill over beyond September.
- (4) Peak flood conditions may exist particularly in western rivers affecting areas of Punjab and Sindh.
- (5) Drought zone remains dry.
- (6) Common possibility (Urban flooding, landslides, avalanches, flash floods, GLOF) with lesser intensity.

c. **Scenario 3 (Less Probable) Intense Monsoon**

- (1) Intense Monsoon will prevail all over Pakistan (including all States and Regions).
- (2) Extreme events may happen in a sequential manner.
- (3) Peak high floods may happen in most of the rivers.
- (4) Increased cyclonic activity in Arabian Sea may compliment Monsoon.
- (5) Extreme events of “high intensity rains for a long period” or “high intensity rains of short period” may occur in Monsoon prone regions causing variable effects.
- (6) Arid zone of the Country may also receive precipitation.
- (7) Common possibility (Urban flooding, landslides, avalanches, flash floods, GLOF) occurs frequently to high degree in cities / regions prone to such hazards.

d. **Scenario 4 (Least Likely but Most Dangerous) Abnormal Monsoon**

- (1) Combination of Scenario 1, 2 & 3, more similar to Super Floods of 2010.
- (2) Extra ordinary flood conditions triggered by some extreme events.
- (3) High water level in major water reservoirs.
- (4) Common possibility (Landslides/ avalanches, Flash Floods, GLOF,

Urban flooding) emerge as a more frequent and recurrent phenomena to a high degree in regions/ cities prone to such hazards.

13. **Provincial Flood Hazards Maps.** Annex A - L.
14. **District Wise Monsoon Hazards Vulnerability Matrix.** Annex M - S.

National Response Guidelines for Monsoon 2018

15. **Preamble.** Response at National and Provincial level will be configured against "Monsoon Contingency Scenario 1 Below Normal to Normal Monsoon". Adequate safeguards/ response measures will be contemplated for Monsoon Contingency Scenarios 2, 3 and 4.

16. **Tiers of Response.** The National Response Guidelines have been evolved keeping in mind impediments in response mechanism and experiences of past floods. National sphere of Monsoon Response will comprise of following tiers:-

- a. **1st Tier.** Local emergency response by DDMA's with the support of District/ Provincial / Army resources.
- b. **2nd Tier.** Provincial effort in support of District Authorities.
- c. **3rd Tier.** NDMA response (National effort / National resources) in support of Province(s) and AJ&K with / without external assistance.

Preparedness Phase

17. **Enhanced Response Mechanism.** Following measures are likely to infuse added refinement in response mechanism:-

- a. Resource mapping of respective regions and its timely intimation to NDMA.
- b. Placement of earth moving machinery in vulnerable mountainous districts of AJK, GB & KP for timely clearance of roads / landslides.
- c. Special conferences by relevant stakeholders on occurrence of any extreme events will assist timely decision making process.
- d. Provision of timely information regarding incidents and response. PDMA's to make use of NDMA's Standardized Situation Report (SITREP) Format. Moreover, system of incident reporting has to be made more efficient.
- e. Innovative use of modern technology.
- f. Management / updation of volunteers and disaster response worker's database at District level.

18. **Protective Measures against Flash Flood.** In the past, majority of losses occurred due to flash flooding during Monsoon Season 2016 & 2017. Following protective

measures based on past experiences will help mitigate losses from Flash Floods:-

- a. Awareness drive of recorded Flash Floods history in regions prone to such hazards.
- b. Signposting of waterways in local language with known Flash Floods history. It should clearly demarcate threat level of waterways preventing any misadventure to cross.
- c. Long term planning for rehabilitation of population under threat of Flash Floods.
- d. Exercise community based vigilance mechanism for settlements near or inside waterways as under:-
 - (1) Placing of round the clock lookouts especially at night or during the period of intense rain.
 - (2) Use of sirens or announcements on loud speakers of mosques.
 - (3) Lightening of fire and drum beating by the people living at higher places in such area.
 - (4) Practicing of evacuation drills.
- e. Giving priority to commissioning of emergency services like Rescue-1122 in mountainous inaccessible Districts. As an interim measure, forward displacement of emergency services and relief stores may be planned.

19. **Protective Measures against GLOF**

- a. **Prevention of Glacial Lake Burst.** To prevent the Glacial lake burst, following civil engineering interventions may be kept insight:-
 - (1) Prevent over topping of the lake water and strengthen moraine-dam by concrete cementing, gabion wall etc.
 - (2) Keep volume of stored water in the lake to a safe level; initially by dropping the level and then by excavating a tunnel or deepening the breach of the moraine-dam to retain the lower level through any one of the following:-
 - (a) Siphon system.
 - (b) Electrical pumping.
 - (c) Controlled blasting of the moraine-dam by explosives.
- b. **Mitigation of GLOF Impact.** GLOF carries huge potential energy after its occurrence and its impact is always challenging to manage. Some of the mitigation measures against GLOF downstream of a glacier lake without direct engineering intervention to the lake itself are enumerated below. The mode is not aimed to prevent the lake burst but to mitigate the GLOF hazards:-
 - (1) Preparation of a hazard map by concerned authorities.
 - (2) In order to predict and understand GLOF on its occurrence,

evaluation of possible hydro graph along water channel downstream.

- (3) Placing of a round the clock monitoring and early warning system at identified GLOF site.
- (4) Construction of adequate trapping dams with capacity to dissipate the GLOF impact.
- (5) Strengthening infrastructures to be robust enough to resist GLOF destruction.
- (6) Measures to timely disseminate information to the vulnerable populace.
- (7) Rehearsal/ Contingency planning to shift vulnerable communities to safer places.
- (8) A specialized state of the art Centre for Glaciology (Glacier Hazard Forum) and Climate Change Studies shall be established.

20. **Protective Measures against Urban Flooding.** Following protective measures based on past experiences will help mitigate such losses:

- a. Identification of low lying areas prone to ponding / inundation in congested areas of mega cities.
- b. Preparation of hazard maps of major cities against Urban Flooding based on recorded history or envisaged circumstances for sensitization, awareness, early warning and evacuation of vulnerable communities.
- c. Capacity building of Municipal Corporations with priority to Municipal Corporations of mega cities. Attention must be given to availability of requisite number of heavy duty de-watering pumps and generators at most vulnerable areas of city centres.
- d. Widening, dredging and de-silting of water / sewerage drains.
- e. Removal of encroachments from sewerage drains thus reclaiming original extents of such drains.
- f. Serviceability of pumping stations.
- g. Provision of backup electricity arrangements in the form of generators for sewage disposal stations.

21. **Protective Measures against Landslides / Avalanches.** Threat of landslides/ avalanches in vulnerable areas underscores outlook of impending Monsoon Season 2018. It merits for reappraisal of basic precautionary measures such as:-

- a. Refresh recorded history of landslides/ avalanches prone areas. Besides vulnerability risk assessment, personal experience of notables in such areas can also prove useful.
- b. Local communities of vulnerable areas be sensitised to pay special attention to weather forecasts / alerts as fresh heavy rain can trigger landslides /

avalanches. Sudden temperature variability has the potency to trigger avalanches in vulnerable areas.

- c. Community based early warning system as part of response mechanism be instituted in landslides/ avalanches prone areas by nominating local notables to ensure that alerts are disseminated timely. Special vigilance to be exercised during dark hours and periods of intense rains. Measures may include use of watchmen, loudspeakers/ megaphones, whistles, SMS alerts, telephone and any other arrangements of similar nature.
- d. Based on landslides/ avalanches alerts issued by PMD, Local Administration may consider precautionary closure of roads/ tracks to avalanche / landslide prone areas and evacuation to safer places as a contingency planning.

22. **Protective Measures against Cyclones.** Although the Cyclone Season is over; however owing to changes in temperature, the possibility of such events cannot be completely ruled out. Therefore, following guidelines can help/ protect people in vulnerable areas:-

a. **Before/ After Cyclone Advisory**

- (1) Surroundings of houses should be clear of any long hanging tree branches, large bushes and loose debris/ detritus, i.e. garbage, lawn chairs / tables, potted plants, etc. which can become airborne and cause injury / damage.
- (2) List of emergency contact numbers be maintained at all for your local emergency services.
- (3) An emergency kit may be prepared by vulnerable people. Moreover, adequate food stuffs and drinking water must be stored.
- (4) Tune into your local television station or radio station to keep up to date on the developing situation.

b. **After Cyclone Warning**

- (1) Vehicles be parked under a solid shelter.
- (2) Close windows and fit shutters or plastic sheeting on all windows around houses.
- (3) Remain indoors and tuned into your local television or radio stations for up to date information.
- (4) Turn off main electrical power, gas & water supplies before evacuation.
- (5) Evacuate to nearest safe zone on high ground.

c. **When Cyclone Strikes and After Cyclone**

- (1) Stay indoors and away from windows.
- (2) If your home starts to break apart protect yourselves under

- mattresses, carpets / rugs, blankets or under a strong table.
- (3) Beware that if the wind drops, don't assume that cyclone is over, you may be in the "Eye of the Cyclone", violent winds will soon resume. Wait for the official all clear from Emergency Services / District Administration.
 - (4) Check your home for any gas / water leaks.
 - (5) Do not use electrical appliances if your home is flooded or if you are wet.
 - (6) Beware of damaged power lines, bridges, buildings, trees and don't enter flood waters.

Coordination Aspects

23. **Inter Provincial/ Regional Coordination.** During management of disasters, inter Provincial/ Regional coordination mechanism can render required assistance especially in far flung areas in shortest possible time thus reducing sufferings of distressed population. Information about resources of neighbouring Provincial/ Regional Government resources can be more conveniently incorporated in response phase.

24. **Resolution of Major Issues.** Following issues are required to be resolved at priority by relevant stakeholders as mentioned against each:-

- a. Removal of encroachments from flood river plains by district administrations / PDMA's.
- b. Dumping of solid waste and building material on banks/ waterway of Lai Nullah by WASA Rawalpindi / District Administration Rawalpindi/ PDMA Punjab.
- c. Barakas Nullah, Mangla Dam by Mangla Dam management and Pakistan Army.
- d. Rehabilitation/ strengthening of Shori Nullah Protection Bund by PDMA Punjab/PID Punjab.
- e. Inadequate discharge capacity of Trimmu and Sukkur Barrage by PID Punjab/ PDMA Punjab and PID Sindh / PDMA Sindh respectively.
- f. Inadequate discharge capacity and weak Marginal Bunds of Shahdara and Shershah Railway Bridges, Head Muhammad Wala and Shaheed Benazir Bhuto Bridge of NHA by PID Punjab, PID Sindh, Pakistan Railways and NHA respectively.

25. **Requisitioning of Armed Forces.** Armed Forces will be requisitioned subject to provisions of rules / regulations by PDMA's / DDMA's only in case of emergency through NDMA. Aviation support will be coordinated centrally by NDMA based on request of Provinces and Regions when called to assist in aid of Civil Power. Authorities utilizing services from Armed Forces will bear the cost of assets used which will be processed immediately after their employment. Armed Forces will be employed for following:-

- a. Rescue and relief operations by Field Units of Pakistan Army & Navy (Sindh only).
- b. Aviation support including provision of C-130 by PAF (helicopters of only Pakistan Army and Ministry of Interior will be employed in Northern Areas and AJ&K).
- c. Support of divers of Pakistan Army and Navy.
- d. Special search and rescue operations for riverine floods.
- e. Medical support teams of all three services.
- f. Search and rescue in urban areas collapsed structures and landslides / avalanches by Pakistan Army teams.

26. **Assessment Parameters for Flood Rescue Equipment.** Need based rationalization of the quantity of rescue boats and type of OBMs is to be done based on factors mentioned below to configure optimal response against envisaged flood threat with availability of sufficient reserves at required tier of response:-

- a. Respective Provinces are responsible for establishing the requirement of boats viz-a-viz threat of flood/ vulnerability / exposure / risk assessment. All supporting agencies have to maintain the capability based on the 'Need' of provinces.
- b. Districts must be prioritized as High Threat (Priority-I), Medium Threat (Priority-II) and Low Threat (Priority-III) based on following aspects: -
 - (1) Historical flood data record especially last 20 years Flood events.
 - (2) Population density.
 - (3) Urban / rural divide.
 - (4) Type of flood threat i.e. riverine, flash, urban, rain induced etc.
 - (5) Degree of vulnerability and exposure e.g. population centres in water ways / proximity to rivers.
 - (6) Reaction time.
- c. Standard size of rescue boat will be 19 feet for fibre glass boats.
- d. Maximum number of passengers carried by a fibre glass rescue boat should be 12 persons (5 on either side) and two crew members at the back. While for a M2 Pontoon (2 x boats joined) of Army, it will be 20 persons including two crew members. For a 9 feet pneumatic boat, it will be 8 - 10 persons including crew members.
- e. **Sequence of Response Actions**
 - (1) **1st Tier - Immediate Response (Maximum One Hour).** By District Administration through Rescue 1122 (if held), Police or trained Volunteers (if held), Civil Defence.
 - (2) **2nd Tier Build Up Response (4 6 Hours).** By Civil Armed Forces/ Armed Forces, when requisitioned. Alongside, PDMAs may shift the resources of respective province from other less threatened districts.

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- f. **Positioning of Rescue Boats.** The location of rescue boats will be decided based on following aspects:-
- (1) Availability of reaction time viz-a-viz Flood warning, transportation time to water line and mobilization time of crew.
 - (2) Road communication infrastructure viz-a-viz threat of isolation in case some roads are cut or traffic jams deny transportation in time.
 - (3) Time required for build-up in shifting of resources.
- g. **Priority of Districts.** The priority will be established by respective Provinces after due deliberation/ consultation and shared with all stakeholders for standardized planning:-
- (1) **Priority I Districts (High Threat).** These districts should be historically affected by Floods (riverine / flash) and situated alongside rivers, *Nullahs* and hill torrents with relatively higher number of population.
 - (2) **Priority II Districts (Medium Threat).** These are medium priority districts, historically less affected by any type of Floods with relatively low number of population.
 - (3) **Priority III Districts (Low Threat).** These are low priority districts, historically least affected by any type of flood and with relatively lesser number of population.
- h. **Criteria to Maintain a Rescue Capability.** The minimum criteria for maintaining a rescue capability will be governed by following: -

Serial	Type of Districts	Minimum Number of Boats	
		Immediate Response Capacity	Built-up Response Capacity
(1)	Priority - I Districts (High Threat).	25 (250 Person) Rescue at one time	25 (250 Person) Rescue at one time
(2)	Priority II Districts (Medium Threat).	10 (100 Person) Rescue at one time	10 (100 Person) Rescue at one time
(3)	Priority III Districts (Low Threat).	5 (50 Person) Rescue at one time	5 (50 Person) Rescue at one time

- i. **Concept of Employment of Rescue Boats**
- (1) Fibre Glass/ M2 boats will not be operated at “Peak Flood” currents in the mid-stream of a riverine Flood as it may endanger the life of all crew and persons being evacuated. In such cases boat operations will be in the peripheral areas where water current may permit boat operations.
 - (2) Boats will not be used in hill torrents with fast currents or shallow water and boulders underneath.

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- (3) Pneumatic boats will be used in relatively shallow water channels with low water currents and aquatic undergrowth.
- (4) Low power OBM operated boats will be used in urban centres against urban flooding along with oars.
- (5) Mix of low, medium and high powered OBMs will be maintained based on type of area, river and operational dictates.
- (6) Engine Horse Power. Keeping in view the historical data and magnitude of floods, following percentage of engine horse powers will be planned in different zones:-

Serial	Districts Affected by	Engine Horse Power		
		15-30	30-40	Above 40
(a)	River Indus	-	75%	25% (Mianwali, Rajanpur, DG Khan, Muzafargarh, RY Khan, Ghotki, Kashmore, & Sukkur)
(b)	River Jhelum	25%	25%	50% (Jhelum)
(c)	River Chenab	25%	50%	25% (Sialkot, Hafizabad & Jhang)

- (7) During planning for Flood rescue operations, the areas for employment of Armed Forces will be earmarked for better coordination and clear demarcation of responsibilities/ operational orientation. Within Armed Forces, in Sindh Province, the districts must be deputed to Army and Navy.
- (8) The calculation of life jackets will be based on the number of boats @ 12 life jackets per boat. Minimum 20% reserves will be calculated for the life jackets.
- (9) National Reserves of rescue boats will be maintained by NDMA as:-

Serial	Station	Maintained by	Employment
(a)	Rawalpindi	Army	KP & North Punjab
(b)	Multan		Centre & South Punjab

- (10) PDMA's may maintain their central reserve stock on regional basis as per requirement / threat perception to release the same to district administration or Armed Forces.

27. **Relief Goods Non Food Items (NFIs)**

- a. Logistics caseloads will be worked out on average relief rendered during flood related hazards for one decade (2006 - 2016) in respective district / regions / provinces by all PDMA's and ICT Disaster Management Cell.

- b. Stockpiling of relief goods (NFIs) on envisaged caseload will be ensured at district level by P/S/G/F DMAs, forthwith in accordance with “NDMA Guidelines on Stocking, Maintenance and Supply of Relief and Rescue Items”.
 - 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. Provinces including AJ&K and GB must ensure stocking of sufficient quantity of wheat and food items before 30 June 2018 in areas vulnerable to floods and isolation, owing to possible severance of road links.
 - e. Pakistan Utility Stores Corporation (USC) will forward resource mapping along with inventory of items, contingency plan including capability of mobile utility stores to NDMA, PDMA and all concerned DDMA by 30 June 2018. USC will further ensure maintenance of sufficient stock levels and supply chain to support community in all flood prone areas especially far flung areas of KP, GB, AJ&K and Balochistan.
28. **Awareness Campaign**
- a. Public Service Messages (PSMs) through print/ electronic media must be started forthwith by PDMA/ SDMA/ GBDMA/ FDMA/ DDMA.
 - b. All concerned departments and local communities must be apprised about the forecast and its likely unfolding at the onset of Monsoon.
 - c. Community must be informed about safer places, relief camps and evacuation plans by concerned departments.

Early Warning

29. **Flood Early Warning.** PMD will be the Focal Organisation for providing flood early warning:-
- a. Flood Forecasting Division (Subordinate department of PMD), will disseminate Daily Flood Bulletin (Forecasts) during the Monsoon Season.
 - b. Weather and Flood forecast/ advisory will be issued as per following schedule:-
 - (1) **Normal Conditions**
 - (a) **Monthly** - First week of the month.
 - (b) **Weekly** - Every Monday.
 - (2) **At Onset of Floods**
 - (a) Normal - Every 24 hours.
 - (b) High / Very High - 6 hours.
 - (c) Significant Event - Every hour.
 - (d) Extreme Event - Minimum permissible time before occurrence.

- c. No other agency is allowed to issue any forecast on weather / Flood. Only PMD's alert will be relayed by stakeholders.
 - d. Specific weather advisory / warning / flood alert and time period will be issued by respective PDMAs to disseminate warning to District Authorities / Relevant Stakeholders via fax / email / telephone / SMS etc.
 - e. PMD shall directly issue the weather warnings to NDMA, PDMAs, other related agencies and media through SMS, email, fax and immediately upload on its website. PMD's members of NDMA Focal Group shall personally intimate the same to Member (Operations), NDMA & Director (Response), NDMA.
 - f. PMD will nominate a focal person authorized to deal with weather and flood forecast which will be notified to all concerned and will be readily available to all stakeholders, when required.
 - g. PMD will also critically analyse contributing factors for drought in arid zone of the Country and timely intimate the same to NDMA and other relevant stakeholders.
30. **Community Early Warning**
- a. NDMA will be the focal agency to collaborate with PTA for issuing SMS alerts.
 - b. SMS will be drafted (160 Roman Urdu letters) by respective PDMAs and forwarded to NDMA, 24 hours in advance.
 - c. Same SMS will be displayed on website of NDMA / PDMAs and shared with media.
 - d. To ward off panic and improper response, SMS will be Tehsil / city specific.
 - e. Community based indigenous early warning system must be institutionalized as part of response mechanism in areas vulnerable to flash floods, landslides, GLOF, avalanches. Special vigilance to be exercised during dark hours and periods of intense rains.
31. To ward off "**False Warning**", all Disaster Management Authorities will ensure implementation of *Clause 35 of NDMA Act 2010*.

Response, Rescue & Relief Phase

32. **Flood Rescue Measures**
- a. Availability as well as serviceability of flood rescue equipment (Boats, OBMs etc) will be ensured by all concerned. The equipment will be strategically placed so as to respond to flood contingencies in different regions.
 - b. Availability of trained OBM Operators must be coordinated and ensured during entire Monsoon Season.
 - c. 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).
- d. USAR Teams will be put on alert for slide prone areas by respective Provinces. USAR Team for Balochistan will be provided through NDMA. Employment of Pakistan Army USAR Team will also be coordinated through NDMA.
 - e. Demand of Pakistan Army has already been rationalized. PDMA's to complete provision of rationalized flood equipment demand of Pakistan Army before onset of Monsoon 2018.
 - f. Pakistan Army has identified some surplus items after rationalization of flood fighting equipment demand. A mechanism be mutually devised by all PDMA's and Pakistan Army for its collection/ utilization, as per requirement.
 - g. In order to start procurement of flood fighting equipment, coordination measures required to be undertaken between PDMA Sindh and Pakistan Army be expedited.
 - h. Deficiency in explosives/ accessories of *Sher Shah* Breaching Section (Right & Left) of Pakistan Army be met at priority in coordination with PID Punjab / FFC, District Administration Multan, PDMA Punjab and Pakistan Railway.
33. **Dams Operations.** There must be an intimate coordination as per revised instructions/ SOPs of Dam Management with all stakeholders so that response is generated well in time. Coordination conferences must be held before 30 June 2018. Effective coordination must be done amongst members of Flood Management Committee (FMC) of *Mangla Dam* after reservoir level of 1232 feet.
34. **Flood Protection Works**
- a. Inspection of all flood protection works, embankments and bunds including all vulnerable points and structures be carried out with requisite marking at all bridges/ structures embankments.
 - b. Damaged bunds be repaired and shortage of pitching store reserves be recouped, pre-positioned at a safer place. Repair and maintenance of left over flood protection works should be completed by 30 June 2018.
 - c. Round the clock vigilance of vulnerable sections of flood protection structures/ bunds, identified by respective Irrigation Departments will be ensured through Irrigation Staff, Police, Civil Defence and local community volunteers. Incomplete flood protection works, if any, will be particularly kept under special watch by respective provincial departments and PDMA's/DDMA's.
 - d. SOP on breaching of bunds must be rehearsed/ practiced in presence of all stakeholders. Breaching sections be kept well demarcated, necessary explosives be kept ready for which close liaison be made amongst all stakeholders.

- e. During the flood season, critical bridges be kept under special focus and may be patrolled. Detailed inspection of all the bridges, especially the flood openings should be carried out in order to ensure that choked waterways have been cleared.
- f. Addresses and telephone numbers of the controlling authorities/ departments having earth moving machinery should be kept readily available. Besides, a liaison with all the departments/ agencies possessing such machinery should be made well in advance so that their machinery could be obtained on a short notice during emergency.
- g. Adequate number of shallow type spans and pitching stores should be kept readily available by Pakistan Railway at an appropriate place for use in case of emergency.

35. **Disaster Management Planning**

- a. PDMAs to ensure resource mapping of volunteers (Civil Defence, Boy Scouts, Girl Guides), UN Agencies, NGOs / INGOs and ambulances at district level.
- b. Coordination must be carried out with Civil Defence, 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.
- c. Location of relief camps must be earmarked and necessary administrative arrangements be made accordingly. It must be incorporated on past experiences and should be need based. Relief camps should be accessible/ closer to main arteries so that relief goods are easily delivered to the affected people.
- d. Fool proof measures be planned against rains/ flash floods in relief camps established for Internally Displaced Persons (IDPs).
- e. Resource Mapping and repositioning of dedicated earth moving machinery at landslide / flood water erosion prone highways / link roads and isolated mountainous areas of KP, AJ&K and GB by respective Governments. NHA, respective C&W Departments and other relevant organizations to ensure such arrangements alongside Baily Bridges and enhanced number of maintenance teams at all critical sections especially following:-
 - (1) Fatehpur to Kalam (N-95) Road.
 - (2) Karakoram Highway (KKH).
 - (3) Thakot to Raikot (N-35) Road.
 - (4) Balakot to Jalkhad to Chilas (N-15) Road.
 - (5) N-5 Road.
 - (6) Kohala to Muzaffarabad (S-2) Road.

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- (7) Abbottabad to Murree Road in Galiyat.
 - (8) Islamabad to Murree to Kohala (N-75) Road.
 - (9) Gilgit to Skardu (S-1) Road.
 - (10) Musaffarabad to Chakothei (S-3) Road.
 - (11) Sukkur to Jacobabad to Dera Allah Yar (N-65) Road.
 - (12) D.I. Khan to Mughalkot (N-50) Road.
 - (13) Muzaffargarh to D.G. Khan to Sakhi Sarwar (N-17) Road.
 - (14) Sukkur to Jacobabad to Dera Allah Yar (N-65) Road.
 - (15) Nowshera to Chitral (N-45) Road.
 - (16) Khawazakhela to Besham (N-90) Road.
- f. Flood Contingency Plans be updated by all concerned based on NDMA's National Monsoon Contingency Response Directive 2018 as well as respective SOP of planning process. The same be shared with NDMA and relevant stakeholders, forthwith.
- g. To identify most vulnerable communities for sensitization, awareness, early warning and evacuation in emergency, district hazard maps must be updated up to Union Council level. Focus should be on following:-
- (1) **Riverine Floods**. Settlements (encroachments) inside river plains (Kacha Area), communities living close to river banks/ vulnerable sections identified by respective Irrigation Departments.
 - (2) **Flash Floods**. Settlements closer to/ inside water course(s).
 - (3) **Landslides/ Avalanches / GLOF**. Communities residing near dangerous slopes/ potential landslide areas in mountainous regions.
 - (4) **Urban Flooding**. Low lying areas prone to inundation in congested city centres.
- h. Planning for the needs and concerns of vulnerable groups be made on the basis of available authenticated gender, aged and disabled disaggregated data at district level.
36. **Salient Preventive Measures during Monsoon**
- a. Landslides prone areas, hill torrents, seasonal *Nullahs* and river plains must be identified by local communities with the ability to shift immediately to safer places, in case of emergency.
 - b. A bag containing important utility items like first aid medicines, dry ration, water, charged torch, radio set, mobile phone, cells, match box, candles, charged batteries, mosquito repellent / net, important documents including CNIC and some cash money should always be readily available.
 - c. Preventive measures against infectious / skin diseases and Cholera etc must be taken and vaccination done at first instance.
 - d. Animal vaccination along with arrangements of fodder be kept in sight.

37. **Rescue Operations**

- a. Availability of staff of all relevant departments especially hospitals and other emergency services on holidays must be ensured during Monsoon.
- b. Rescue 1122, Emergency Services, Civil Defence, Volunteers and Police / Law Enforcement Agencies will be incorporated during rescue operations.
- c. Aviation assets should be requisitioned through NDMA by respective Provincial Governments and AJ&K with a reaction time of 24 hours. Expenditures will be borne by respective Province/ Region.
- d. Forced evacuation must be planned in case of limited warning time, by utilising all available resources at provincial / district levels.
- e. DDMA's as first responders should mobilize communities for disaster response. This will encourage community involvement, strengthen their own efforts and also address the issue of lack of human resource.
- f. Priority in rescue / evacuation will be given to Vulnerable Groups (aged, disabled, women and children) and their special needs must be met.
- g. Evacuation must be planned in an orderly manner and traffic congestions must be avoided.
- h. NHA and Pakistan Railways will restore the communication infrastructure / alternate routes, as early as possible.
- i. SUPARCO will provide satellite imageries and assessment for projected development of floods in affected areas to NDMA.
- j. Elaborate traffic arrangements be made for regulating traffic on National and Provincial arteries in case of damage to infrastructure by floods.
- k. Disaster tourism must be curbed.

38. **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. Energy biscuits and other such food items which are not part of the daily diet of local community, be avoided. Instead items like rice, wheat bags, ghee and milk for babies etc, should be included.
- b. Water purification tablets and filtration systems for the provision of clean drinking water to affected people must be stocked in advance.
- c. 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.

- d. Based on the past experiences, need must be formalized and the list of relief goods should be available with all DMAs and displayed on websites to facilitate donors to provide need based relief goods in emergency.
- e. 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. Stockpiling and contingency planning should incorporate special needs of older persons and persons with disabilities particularly with regards to special equipment such as wheel chairs etc and must be able to cater for the needs of family, as a whole.
- f. 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 of the affected community. Relief teams should also engage active women from within the community in distribution of food in the relief camps.
- g. **Minimum Initial Service Package (MISP)**. 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.
- h. **Education during Emergencies**. 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.
- i. Dignity of all the affected persons should be ensured during relief phase.
- j. **Health**
 - (1) Disease Early Warning System to be put in place by Provincial Health Departments, once a situation arises.
 - (2) National Health Emergency Preparedness and Response Network should establish liaison and necessary coordination with Provincial health authorities. District and City Administration should prepare for Monsoon Season ahead of time by ensuring that Anti Dengue and Malaria drives commence promptly and spraying and removal of stagnant water is done at priority basis. Health Authorities must

ensure that medicines and vaccines are stockpiled at all locations so as to ensure availability in case of any eventuality. Health authorities must also ensure that appropriate mosquito nets are available in all health facilities and are also placed at lowest possible tier for distribution.

k. **Supply Chain of Relief Goods**

- (1) The supply chain 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 is of NDMA supported by National resources to extend relief support required by the provinces / regions.
- (2) NDMA maintains its stocks at strategic locations (**Annex T**). PDMA's are responsible to collect the stocks once released by NDMA from a particular location.
- (3) NDMA stocks will be requisitioned only in case of extreme emergency and with sufficient reaction time.
- (4) Distribution of tents at site must be avoided. People must be motivated to come to relief camps.

Post Flood Rehabilitation Phase

39. **Damage Assessment**

- a. Multi Sector Initial Rapid 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 has developed MIRA with the aim of sharing common procedures and assessment methodology for needs data collection as under:-
 - (1) In case of need, MIRA module will be deployed for which PDMA's/DDMA's will be required to provide requisite human resource, trained for the module.
 - (2) Rapid assessment will be carried out by NDMA/ PDMA/ UN/ NGOs to identify needs and priorities of affected and vulnerable communities.
 - (3) Initial report will be shared with Disaster Management Authorities within one week and final report within two weeks.
- b. **Recovery Needs Assessment (RNA)**. To provide strategic basis for disaster response by identifying and estimating detailed cost of recovery in

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multiple sectors so as to enable Government and its partners to initiate recovery work in affected communities, RNA was developed by NDMA and UN Partners:-

- (1) To assess recovery needs of communities in agriculture, education, health, communications etc, NDMA in collaboration with UNDP & PDMA's will initiate RNA process. It will be completed within 4 - 6 weeks through multi sector teams.
 - (2) RNA will address the needs of the local communities towards restoration and development of infrastructure.
 - (3) Report will be submitted to Disaster Management Authorities by the end of 5th week.
- c. NDMA's "Guidelines for Minimum Compensation to Persons Affected by Natural and Manmade Disasters" may be followed by PDMA's. These Guidelines can be used as reference to suit respective environment.
 - d. SUPARCO will provide imageries for damage assessment to NDMA.
 - e. Due assistance will be sorted from humanitarian response organizations, if required.
 - f. Punishment for false claims will be dealt with as per Clause 34 of NDM Act 2010.
40. **Information Management**
- a. NDMA, P/S/G/F DMA's will update respective websites on 12 hourly basis during entire Monsoon Season. In case of a significant activity / event/ flood situation, it will be updated on 3-6 hours basis.
 - b. Print and electronic media/ internet be utilized for dissemination of timely and accurate information.
 - c. Regular press releases, media tickers and press briefings will be ensured to present real time picture of ongoing activities, developing situations and losses/ damages, if any.
 - d. To ensure post transmission record as well as redundancy, information will be disseminated through SMS, emails, fax, letter and telephones.
 - e. SMS/ WhatsApp Groups of relevant stakeholders will be made to ensure real me information sharing.
 - f. NDMA and PMD will notify an authorized spokesperson each, for interaction with media and issuance of official press releases. Joint press briefings will be organized by NDMA and PMD, when required. Brigadier Mukhtar Ahmed (Member Operations) is authorized Spokesperson of NDMA. His contact details are 0334-7437633 and 051-9087820. Mr Khalid Malik (Director NWFS, PMD) is focal person / spokesperson of PMD. His contact details are 0308-5553300 and 051-9250595.

41. **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 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 agency should ensure that the registration, profiling and mapping systems record disaggregated data on age, gender and vulnerabilities so as to identify people with specific needs (PWSN) at the earlier stages of entering in the site and throughout the duration of stay in camp.

National Response Guidelines against Drought

42. It is pertinent to highlight that Below Normal to near Normal Monsoon in second half may result into drought like conditions in arid zones of South Punjab, Sindh and Balochistan. All relevant stakeholders will continuously monitor the situation as per Drought Mitigation Plan Matrix given at **Annex U**. Following additional measures will be also be considered:-

- a. In line with envisaged caseloads, food reserves will be maintained.
- b. Caseload for vulnerable groups be planned as per assessment and their needs must be addressed.
- c. Vulnerability of livestock along with the requirement of fodder and medicines must factor in all planning and executed in case of need.
- d. Supply of clean drinking water to the vulnerable communities should be given top priority through available resources, while, provision of bottled water may also be considered as a last resort.
- e. Relief camps should be established to facilitate the migration of humans/ livestock.
- f. To prevent the outbreak of epidemics, comprehensive Emergency Health Response be planned by relevant stakeholders. Sizeable stock of life-saving drugs & vaccines be ensured.
- g. Need based health mobile teams in Districts & *Talukas* may be considered by concerned Health Departments.

43. **Coordination Spectrum**

- a. All stakeholders will monitor flood situation by activation of emergency operation centres. Emergency Operation Centres will be activated by NDMA, P/S/G/F DMAs, CDA, Pakistan Armed Forces and all relevant stakeholders as per respective Standing Operating Procedures (SOPs) **from 20 June to 15 September 2018**, unless Monsoon is prolonged.
- b. All stakeholders including Pakistan Armed Forces, FFC, FFD, PMD, NHA & SUPARCO involved in flood management will nominate respective Liaison Officers for National Emergency Operation Centre (NEOC) by **30 June 2018**.
- c. Daily Coordination Conference will be organized by NDMA during a flood situation in NEOC at 1000 hours. All Liaison Officers will attend the Conference.
- d. Information about any significant event will be shared and interpreted by PMD with NDMA.
- e. All significant information will be immediately passed to NEOC by respective PDMA's.
- f. Facility of a dedicated Video Conference System (VCS) is available at NDMA. Necessary hardware (Cameras) and Software (Polycom Real Presence) are held with PDMA's to connect to the NDMA VCS. Same may be utilized for effective communication during Monsoon 2017. Necessary details of the system are as under:-
 - (1) **NDMA Live IP Address:** 203.124.39.71
 - (2) **Point of Contact (POC):** ICT Directorate NDMA.
 - (3) **Alternate Skype ID:** *ndmapk*.
 - (4) Prior coordination for setting up of video conference besides its testing is required as per SOP.
- g. **Coordination with UN Agencies and INGOs / NGOs**
 - (1) The 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) The capabilities of each organisation must be ascertained to ensure its optimal utilisation / employment.
 - (3) Need based employment of UN Agencies will be regulated by NDMA and PDMA's. Efforts will be made to avoid saturation of such agencies in a particular region.
 - (4) NGOs / INGOs duly cleared / approved by concerned ministries will be allowed to assist relief operations.

44. **Reports and Returns**

- a. Submission of **Daily Situation Reports** to NEOC by PDMA's / DDMA's,

PMD, FFC, FFD and NHA will be ensured as per already issued NDMA SITREP SOP with effect from **20 June 2018 onwards**.

- b. NDMA and PDMA's will update the situation on respective websites after every 6 - 12 hours.
- c. SUPARCO will provide the imageries of developing situations on daily basis.
- d. To ensure a coordinated response, NHN/ PHF/ UN Agencies and PRCS will share location of their stocks and human resource mapping with NDMA/ PDMA's by 30 June 2018.
- e. Important telephone numbers from NDMA perspective are shared at **Annex V**. All PDMA's/ relevant stakeholders will share telephone directory of respective Provinces/ Regions with NDMA and host it at respective website by 30 June 2018.

45. **Assistance from Ministries/ Departments.** Following ministries/ departments are requested for assistance as mentioned against each:-

- a. **Ministry of Defence.** Conduct of relief/ rescue operations by Pakistan Armed Forces (Helicopters, Troops, Rescue Equipment), when requested.
- b. **Ministry of Interior & Anti-Narcotics Force.** Availability of Aviation assets for emergency response, at a short notice.
- c. **Pakistan Electronic Media Regulatory Authority (PEMRA).** Airing of Public Service Messages for community awareness on all media channels during prime hours.
- d. **Pakistan Telecommunication Authority (PTA).** To facilitate generation of SMS Alerts for early warning, emergency relief and evacuation to required populace.
- e. **Pakistan Tourism Development Corporation.** Provision of timely weather / flood related information to tourists including protection from dangers of flash floods, landslides, GLOF etc and help evacuation of stranded tourists through local Government / Pakistan Armed Forces.
- f. **Ministry of Communication.** To conduct assessment for early restoration of communication infrastructure and remain prepared to shift earth moving machinery to affected area.
- e. **Ministry of Railways.** To monitor railway tracks on regular basis and assist transportation of relief goods to affected area.

Conclusion

46. Monsoon in Pakistan is a regular feature and dictates configuration of well integrated response through accurate analysis of Weather Forecast & it's likely affects, addressing grey areas observed in past experiences, efficient coordination and proactive approach by all stakeholders. Flood risks can be considerably reduced through awareness, vigilance, timely & well-coordinated response against developing situations.

**Government of Pakistan
Prime Minister's Office
National Disaster Management Authority
Islamabad
Dated: 27 June, 2018**

**Brigadier
For Chairman NDMA
(Mukhtar Ahmed)
Tel: 051-9214295
Fax: 051-9205086**

Distribution List. Attached.

Annexes

- A - Flood Hazards Map – Punjab
- B - Flood Hazards Map – Sindh
- C - Flood Hazards Map – Balochistan
- D - Flood Hazards Map – Khyber Pakhtunkhwa
- E - Flood Hazards Map – Azad Jammu & Kashmir
- F - Flood Hazards Map – Gilgit Baltistan
- G - Flood Hazards Map – FATA
- H - Flood Hazards Map – Pakistan
- I - GLOF Hazard Map – Pakistan
- J - Avalanche Hazard Map – Pakistan
- K - Landslide Hazard Map – Pakistan
- L - Drought Hazard Map – Pakistan
- M - District Wise Monsoon Hazards Vulnerability Matrix – Punjab
- N - District Wise Monsoon Hazards Vulnerability Matrix – Sindh
- O - District Wise Monsoon Hazards Vulnerability Matrix – Balochistan
- P - District Wise Monsoon Hazards Vulnerability Matrix – Khyber Pakhtunkhwa
- Q - District Wise Monsoon Hazards Vulnerability Matrix – Azad Jammu & Kashmir
- R - District Wise Monsoon Hazards Vulnerability Matrix – Gilgit Baltistan
- S - District Wise Monsoon Hazards Vulnerability Matrix – FATA
- T - Country Wide Location of NDMA Warehouses
- U - Drought Mitigation Plan Matrix
- V - Important Contact Numbers

Distribution List

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Federal Departments		
1	PSO to President of Pakistan, President House, Islamabad	1
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5	Chairperson, Benazir Income Support Program (BISP), Islamabad	1
6	Secretary to Prime Minister, Prime Minister's Office, Islamabad	1
7	Secretary, Cabinet Division, Cabinet Secretariat, Islamabad	1
8	Secretary, Ministry of States & Frontier Regions (SAFRON), Islamabad	1
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10	Secretary, Ministry of Foreign Affairs, Islamabad	2
11	Secretary, Ministry of Interior & Narcotics Control, Islamabad	1
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13	Secretary, Ministry of Water & Power, Islamabad	5
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19	Secretary, Ministry of Railways, Islamabad	1
20	Secretary, Ministry of Industries and Production, Islamabad	1
21	Secretary, Ministry of Petroleum and Natural Resources, Islamabad	1
22	Secretary, Ministry of Climate Change, Islamabad	1
23	Secretary, Ministry of National Health Services Regulations & Coordination, Islamabad	1
24	Secretary, Ministry of Capital Administration & Development Division (CADD), Islamabad	1
25	Secretary, Ministry of Information Broadcasting and National Heritage, Islamabad	1
26	Secretary, Ministry of Kashmir Affairs and Gilgit Baltistan	1
27	Director General Air Wing, Ministry of Interior, Islamabad	1
28	Joint Secretary, Prime Minister's Office, Islamabad	1
29	National Counter Terrorism Authority (NACTA), Ministry of Interior, Islamabad	1
30	Aviation Division, Cabinet Secretariat, Islamabad	1
31	Additional Secretary to Prime Minister, Prime Minister's Office, Islamabad	1
32	Chairman, PEMRA Islamabad	1
33	Chairman Senate Standing Committee on Climate Change, Senate Secretariat, Islamabad	1

National Monsoon Contingency Response Directive-2018

Serial	Department / Agencies	No of Copies
34	Chairman, National Assembly Standing Committee on Climate Change, Islamabad	2
35	Chairman, National Assembly Standing Committee on Water and Power, Islamabad	1
36	Chairman, National Highway Authority (NHA), Islamabad	2
37	Chairman, WAPDA, WAPDA House, Lahore	5
38	Chairman, NADRA, NADRA Headquarters, Islamabad	2
39	Chairman, Pakistan Telecommunication Authority, Islamabad	2
40	Chairman, Federal Flood Commission (FFC), Islamabad	3
41	General Manager, Pakistan Railways, Islamabad	2
42	Indus River System Authority (IRSA), Islamabad	2
43	Director General, NHEPRN, Islamabad	1
44	Director General, Civil Defence, Islamabad	5
45	Director General, Pakistan Meteorological Department (PMD), Islamabad	2
46	Director General, Civil Aviation Authority (CAA), Karachi	2
47	Director General, Frontier Works Organization (FWO), Rawalpindi	2
48	Director General, Geological Survey of Pakistan (GSP), Islamabad	2
49	Pakistan Commission of Indus Water (PCIW), Lahore	2
50	Deputy Chairman, ERRA, Islamabad	1
51	National Weather Forecasting Centre, Pakistan Meteorological Department, Islamabad	2
52	Managing Director, Pakistan Tourism Development Corporation	1
53	Director SACRED, SUPARCO, Islamabad	2
54	Managing Director, Utility Stores Corporation, Islamabad	3
55	Secretary, Pakistan Boy Scouts association, Islamabad	2
56	Secretary, Pakistan Girls Guide Association, Islamabad	2
57	Director General, Federal Directorate of Education, Islamabad	1
58	Director, Flood Forecasting Division (FFD), Lahore	2
Provincial Departments		
1	Chief Secretary, Government of Punjab, Civil Secretariat, Lahore	1
2	Chief Secretary, Government of Sindh, Karachi	1
3	Chief Secretary, Government of Balochistan, Quetta	1
4	Chief Secretary, Government of Khyber Pakhtunkhawa, Peshawar	1
5	Chief Secretary, Government of AJ&K, Muzaffarabad	1
6	Chief Secretary, Government of Gilgit Baltistan, Gilgit	1
7	Chief Secretary, FATA Secretariat, Peshawar	1
8	Secretary Irrigation Department, Government of Punjab	1
9	Secretary Irrigation Department, Government of Sindh	1
10	Secretary Irrigation Department, Government of Balochistan	1
11	Secretary Irrigation Department, Government of Khyber Pakhtunkhwa	1
12	Secretary Irrigation Department, Government of AJ&K	1



National Monsoon Contingency Response Directive-2018

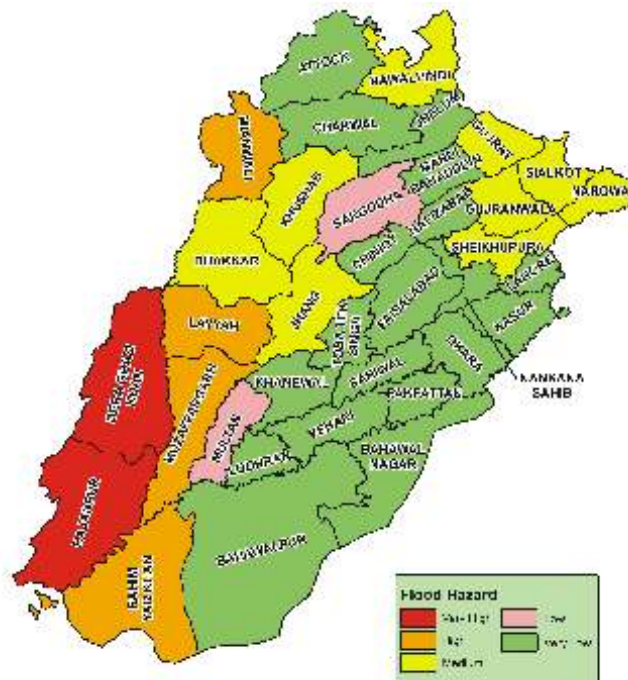
S. No.	Department / Agencies	No of Copies
13	C&W Department, Government of Gilgit Baltistan	1
14	DG PDMA, Punjab, Lahore	3
15	DG, PDMA Sindh, Karachi	3
16	DG PDMA, Balochistan, Quetta	3
17	DG PDMA, Khyber Pakhtunkhwa, Peshawar	3
18	DG SDMAAJ&K, Muzaffarabad	3
19	DG GBDMA, Gilgit	3
20	DG FDMA, Peshawar	3
21	DC, Islamabad	2
22	Director Emergency & Disaster Management, CDA Islamabad	2
23	DG Rescue 1122 Punjab, Lahore	1
24	DG Rescue 1122 Khyber Pakhtunkhwa, Peshawar	1
25	DG Rescue 1122 Balochistan, Quetta	1
26	DG Rescue 1122 AJ&K, Muzaffarabad	1
27	DG Rescue 1122 Gilgit Baltistan, Gilgit	1
Developmental & Implementation Partners		
1	Country Head, UNRC, Islamabad	1
2	Country Head, WHO, Islamabad	1
3	Country Head, UNWOMEN, Islamabad	1
4	Country Director, UNHABITAT, Islamabad	1
5	Country Head, PHF (Pakistan Humanitarian Forum), Islamabad	1
6	Country Head, IOM, Islamabad	1
7	ICRC (International Committee of the Red Cross), Islamabad	1
8	Country Director, UNOCHA, Islamabad	2
9	Country Director, WFP, Islamabad	1
10	Country Director, UNHCR, Islamabad	2
11	Country Director, UNDP, Islamabad	2
12	Country Director, UNICEF, Islamabad	2
13	National Humanitarian Network (NHN), Islamabad	2
14	Chairman, Pakistan Red Crescent Society (PRCS) National Headquarters, Islamabad	2
Pakistan Armed Forces		
1	Crisis Management Cell, JSHQ, Chaklala, Rawalpindi	4
2	Military Operations Directorate, General Headquarters Rawalpindi (For Distribution to Field Formations / Commands / Headquarters)	30
3	Director (Operations), Naval Headquarters, Islamabad	5
4	Maritime Security Agency	2
5	Director (Operations), Air Headquarters, Islamabad	5
6	Director General, Strategic Plans Division (SPD), Rawalpindi	3

National Monsoon Contingency Response Directive-2018

S. No.	Department / Agencies	No of Copies
7	Arms Branch, Engineers Directorate, General Headquarters, Rawalpindi	5
8	Director General, National Logistic Cell, Rawalpindi	1
9	Headquarters Punjab Rangers (Operations Branch), Lahore	1
10	Headquarters Sindh Rangers (Operations Branch), Karachi	1
11	Headquarters Frontier Corps (Operations Branch), Khyber Pakhtunkhawa (North), Peshawar	1
12	Headquarters Frontier Corps (Operations Branch), Khyber Pakhtunkhawa (South), D.I. Khan	1
13	Headquarters Frontier Corps (Operations Branch), Balochistan (North), Quetta	1
14	Headquarters Frontier Corps (Operations Branch), Balochistan (South), Turbat	1
15	Frontier Constabulary, Peshawar	1
16	Commanding Officer, 6 Army Aviation Squadron, Islamabad	1
17	Headquarters Anti Narcotic Force (Operation Branch), Rawalpindi	1
Internal		
1	PS to Chairman, NDMA	1
2	Member (Operations), NDMA	1
3	Member (A&F), NDMA	1
4	Member (DRR), NDMA	1
5	National Institute of Disaster Management Authority (NIDM), Islamabad	5
6	Director (Response), NDMA	5
7	Director (Logistics), NDMA	3
8	Director (R&R), NDMA	1
9	Director (Administration), NDMA	2
10	Director (Finance), NDMA	1
11	Project Director (PMU), NDMA	3
12	Project Manager (GCC), NDMA	2
13	Deputy Director (Coordination), NDMA	2
14	Deputy Director (Media), NDMA	3
15	Deputy Director (Procurement), NDMA	1
16	Assistant Director (ICT), NDMA	3

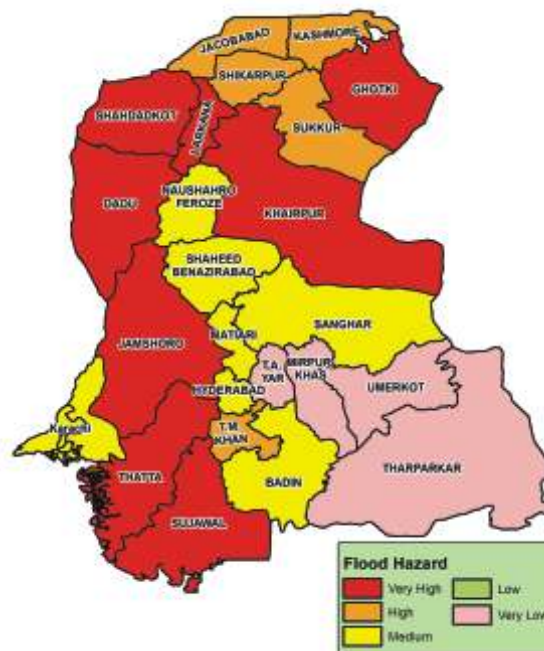
Annex A

Flood Hazard Map – Punjab



Annex B

Flood Hazard Map – Sindh



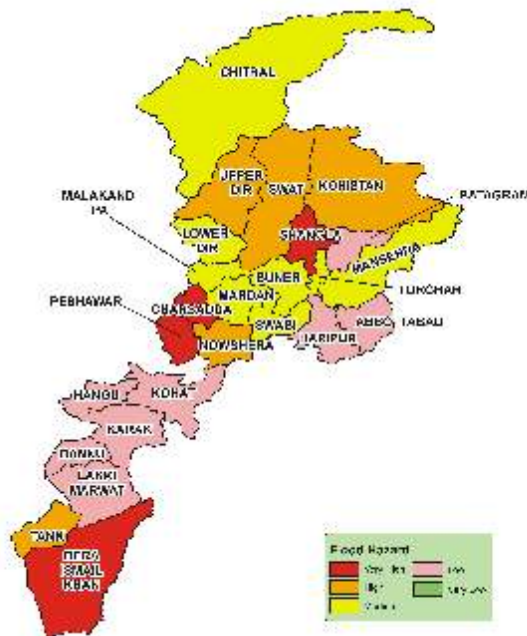
Annex C

Flood Hazard Map – Balochistan



Annex D

Flood Hazard Map – Khyber Pakhtunkhwa



Annex E Flood Hazard Map – Azad Jammu & Kashmir (AJ&K)

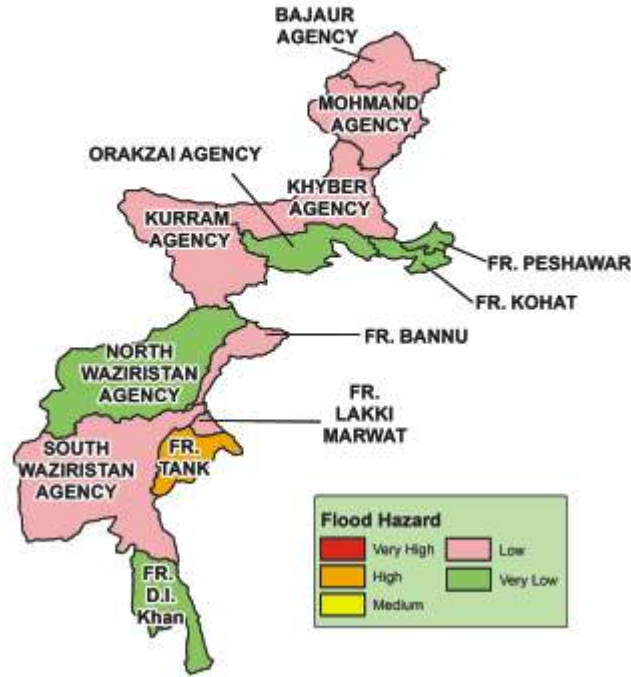


Annex F Flood Hazard Map – Gilgit Baltistan (GB)



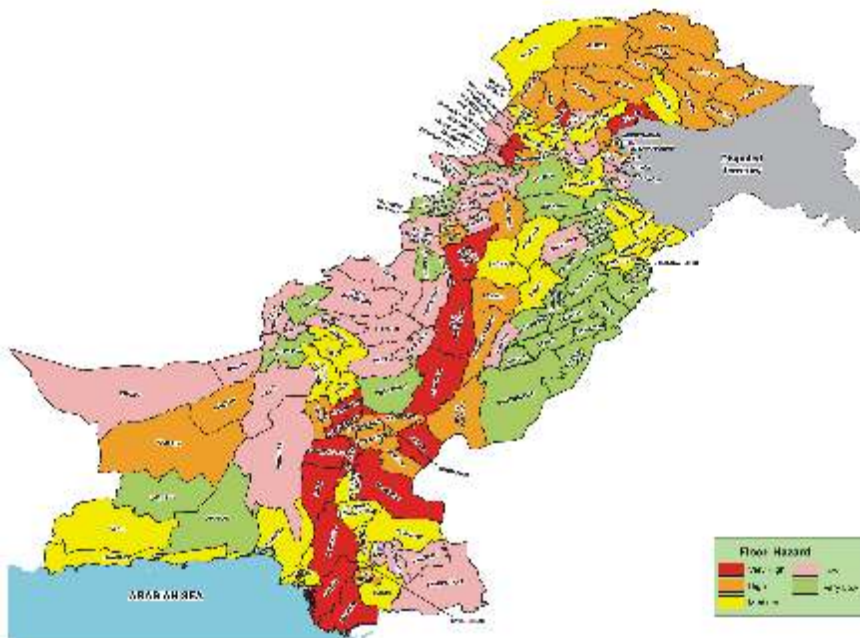
Annex G

Flood Hazard Map – FATA



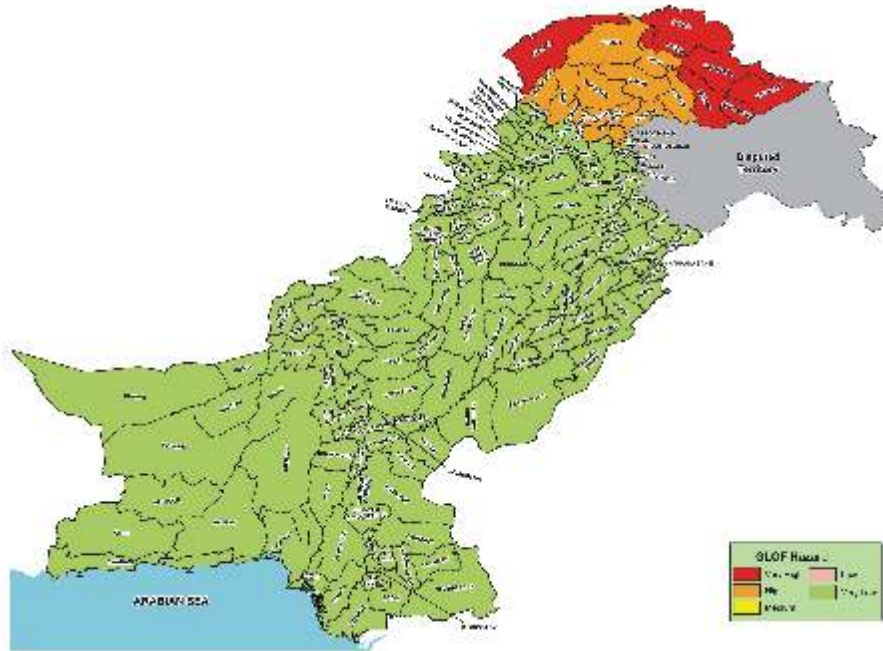
Annex H

Flood Hazard Map – Pakistan



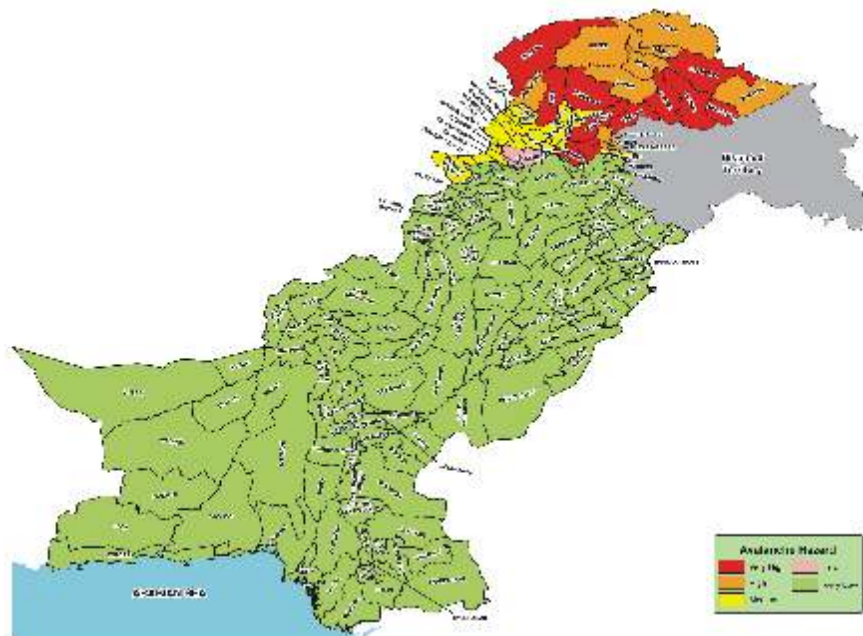
Annex I

GLOF Hazard Map – Pakistan



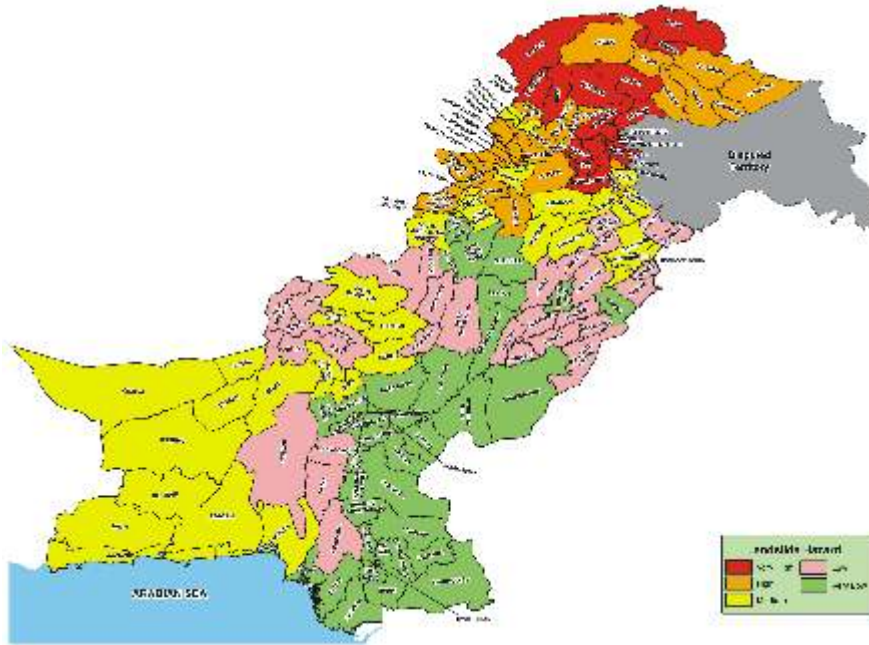
Annex J

Avalanche Hazard Map – Pakistan



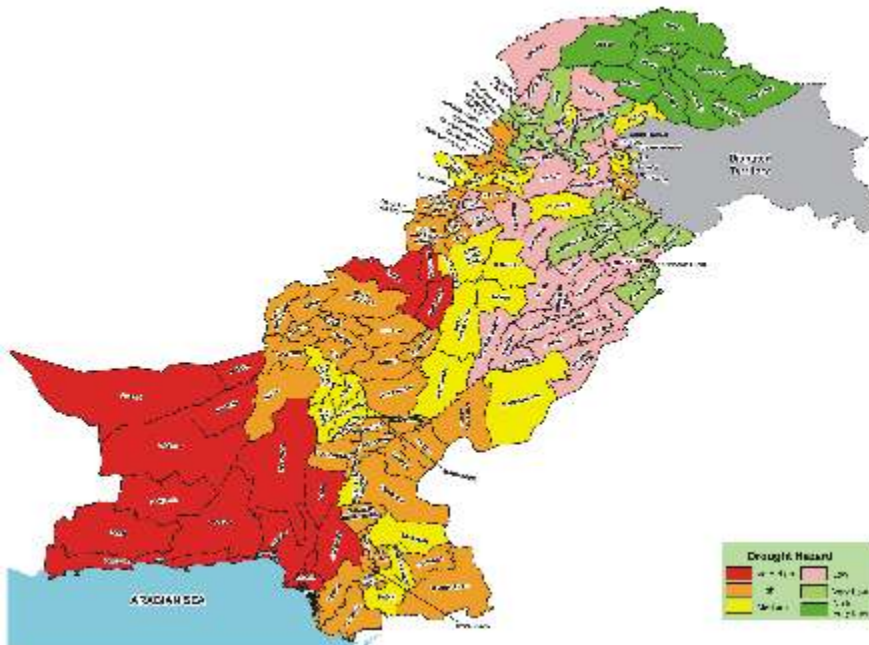
Annex K

Landslide Hazard Map – Pakistan



Annex L

Drought Hazard Map – Pakistan



Annex M

District Wise Monsoon Hazards Vulnerability Matrix – Punjab

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
D. G. Khan	Very High	Yes	Yes	No	No	No	No
Rajanpur	Very High	Yes	Yes	No	No	No	No
Layyah	High	Yes	No	No	No	No	No
Mianwali	High	Yes	Yes	Yes	Yes	No	No
Muzaffargarh	High	Yes	No	No	No	No	No
Rahim Yar Khan	High	Yes	No	No	No	No	No
Bhakkar	Medium	Yes	No	No	No	No	No
Gujranwala	Medium	Yes	No	No	No	No	No
Gujrat	Medium	Yes	No	No	No	No	No
Jhang	Medium	Yes	No	No	No	No	No
Khushab	Medium	Yes	Yes	No	Yes	No	No
Narowal	Medium	Yes	No	No	No	No	No
Rawalpindi	Medium	Yes	Yes	Yes	Yes	No	No
Sheikhupura	Medium	Yes	No	No	No	No	No
Sialkot	Medium	Yes	No	No	No	No	No
Multan	Low	Yes	No	Yes	No	No	No
Sargodha	Low	Yes	No	No	No	No	No
Attock	Very Low	Yes	Yes	No	Yes	No	No
Bahawalnagar	Very Low	Yes	No	No	No	No	No
Bahawalpur	Very Low	Yes	No	No	No	No	No
Chakwal	Very Low	Yes	Yes	No	Yes	No	No
Chiniot	Very Low	Yes	No	No	No	No	No
Faisalabad	Very Low	Yes	No	No	No	No	No
Hafizabad	Very Low	Yes	No	No	No	No	No
Jhelum	Very Low	Yes	Yes	No	No	No	No
Kasur	Very Low	Yes	No	No	No	No	No
Khanewal	Very Low	Yes	No	No	No	No	No
Lahore	Very Low	Yes	No	Yes	No	No	No
Lodhran	Very Low	No	No	No	No	No	No
Mandi Bahauddin	Very Low	Yes	No	No	No	No	No
Nankana Sahib	Very Low	Yes	No	No	No	No	No
Okara	Very Low	Yes	No	No	No	No	No
Pakpattan	Very Low	Yes	No	No	No	No	No
Sahiwal	Very Low	Yes	No	No	No	No	No
Toba Tek Singh	Very Low	Yes	No	No	No	No	No
Vehari	Very Low	No	No	No	No	No	No

Very High	High	Medium	Low	Very Low
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Annex N

District Wise Monsoon Hazards Vulnerability Matrix – Sindh

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Dadu	Very High	Yes	No	No	No	No	No
Ghotki	Very High	Yes	No	No	No	No	No
Jamshoro	Very High	Yes	No	No	No	No	No
Khairpur	Very High	Yes	No	No	No	No	No
Larkana	Very High	Yes	No	No	No	No	No
Qamber Shahdadkot	Very High	Yes	No	No	No	No	No
Sujawal	Very High	Yes	No	Yes	No	No	No
Thatta	Very High	Yes	No	Yes	No	No	No
Jacobabad	High	Yes	No	No	No	No	No
Kashmore	High	Yes	No	No	No	No	No
Shikarpur	High	Yes	No	No	No	No	No
Sukkur	High	Yes	No	No	No	No	No
Tando Muhammad Khan	High	Yes	No	No	No	No	No
Hyderabad	Medium	Yes	No	Yes	No	No	No
Matiari	Medium	Yes	No	No	No	No	No
NaushahroFeroze	Medium	Yes	No	No	No	No	No
Nawabshah	Medium	Yes	No	No	No	No	No
Badin	Medium	No	No	Yes	No	No	No
Karachi	Medium	No	No	Yes	No	No	No
Sanghar	Medium	No	No	Yes	No	No	No
Mirpur Khas	Low	Yes	No	No	No	No	No
Tando Allahyar	Low	Yes	No	No	No	No	No
Tharparkar	Low	No	No	No	No	No	No
Umerkot	Low	No	No	No	No	No	No

Very High	High	Medium	Low	Very Low
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Annex O

District Wise Monsoon Hazards Vulnerability Matrix – Balochistan

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Jaffarabad	Very High	Yes	Yes	No	No	No	No
Sohbatpur	Very High	Yes	Yes	No	No	No	No
Nasirabad	Very High	Yes	Yes	No	No	No	No
Jhal Magsi	High	Yes	No	No	No	No	No
Kharan	High	No	No	No	No	No	No
Washuk	High	No	No	No	No	No	No
Bolan	Medium	Yes	Yes	No	Yes	No	No
Gwadar	Medium	No	Yes	Yes	Yes	No	No
Harnai	Medium	No	Yes	No	No	No	No
Kech	Medium	No	Yes	No	No	No	No
Lehri	Medium	No	No	No	No	No	No
Lasbela	Medium	No	No	No	No	No	No
Sibi	Medium	Yes	Yes	No	No	No	No
Barkhan	Low	No	Yes	No	No	No	No
Chagai	Low	No	Yes	No	No	No	No
Kalat	Low	No	Yes	No	Yes	No	No
Khuzdar	Low	No	Yes	No	No	No	No
Killa Abdullah	Low	No	Yes	No	No	No	No
Killa Saifullah	Low	No	Yes	No	Yes	No	No
Kohlu	Low	No	Yes	No	No	No	No
Loralai	Low	No	Yes	No	No	No	No
Musakhel	Low	No	Yes	No	No	No	No
Nushki	Low	No	Yes	No	No	No	No
Quetta	Low	No	Yes	Yes	No	No	No
Zhob	Low	No	Yes	No	No	No	No
Awaran	Very Low	No	No	No	No	No	No
Dera Bugti	Very Low	No	Yes	No	No	No	No
Mastung	Very Low	No	Yes	No	No	No	No
Panjgur	Very Low	No	No	No	No	No	No
Pishin	Very Low	No	Yes	No	No	No	No
Sherani	Very Low	No	Yes	No	No	No	No
Ziarat	Very Low	No	Yes	No	No	No	No

Very High	High	Medium	Low	Very Low
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Annex P

District Wise Monsoon Hazards Vulnerability Matrix – KP

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Charsadda	Very High	Yes	No	No	No	No	No
D. I. Khan	Very High	Yes	Yes	Yes	No	No	No
Peshawar	Very High	Yes	No	Yes	No	No	No
Shangla	Very High	Yes	Yes	No	Yes	Yes	Yes
Upper Kohistan	High	Yes	Yes	No	Yes	Yes	Yes
Lower Kohistan	High	Yes	Yes	No	Yes	Yes	Yes
Nowshera	High	Yes	Yes	Yes	Yes	No	No
Swat	High	Yes	Yes	No	Yes	Yes	Yes
Tank	High	Yes	Yes	No	No	No	No
Upper Dir	High	Yes	Yes	No	Yes	Yes	Yes
Buner	Medium	No	Yes	No	Yes	Yes	No
Chitral	Medium	Yes	Yes	No	Yes	Yes	Yes
Lower Dir	Medium	Yes	Yes	No	Yes	Yes	No
Malakand	Medium	Yes	Yes	No	Yes	No	No
Mansehra	Medium	Yes	Yes	No	Yes	No	No
Torghar	Medium	Yes	Yes	No	Yes	Yes	No
Mardan	Medium	Yes	No	Yes	No	No	No
Swabi	Medium	Yes	Yes	No	Yes	No	No
Abbotabad	Low	No	Yes	No	Yes	No	No
Bannu	Low	Yes	No	No	No	No	No
Batagram	Low	No	Yes	No	Yes	No	Yes
Hangu	Low	No	Yes	No	No	No	No
Haripur	Low	No	No	No	Yes	No	No
Karak	Low	No	Yes	No	No	No	No
Kohat	Low	No	No	Yes	Yes	No	No
LakkiMarwat	Low	Yes	No	No	No	No	No

Very High	High	Medium	Low	Very Low
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Annex Q

District Wise Monsoon Hazards Vulnerability Matrix – AJ&K

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Neelum	Very High	Yes	Yes	No	Yes	Yes	No
Bagh	High	Yes	Yes	No	Yes	No	No
Hattian	High	Yes	Yes	No	Yes	No	No
Haveli	High	Yes	Yes	No	Yes	No	No
Muzaffarabad	High	Yes	Yes	No	Yes	No	No
Bhimber	Medium	No	Yes	No	No	No	No
Kotli	Low	Yes	Yes	No	Yes	No	No
Poonch	Low	Yes	Yes	No	Yes	No	No
Sudhnoti	Low	Yes	Yes	No	Yes	No	No
Mirpur	Very Low	No	No	No	No	No	No

Very High	High	Medium	Low	Very Low
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Annex R

District Wise Monsoon Hazards Vulnerability Matrix – Gilgit Baltistan

District	Flood Hazard	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Diamer	High	Yes	Yes	No	Yes	Yes	No
Ghanche	High	Yes	Yes	No	Yes	Yes	Yes
Ghizer	High	No	Yes	No	Yes	Yes	Yes
Gilgit	High	Yes	Yes	No	Yes	Yes	Yes
Hunza	High	Yes	Yes	No	Yes	Yes	Yes
Skardu	High	Yes	Yes	No	Yes	Yes	Yes
Nagar	High	No	Yes	No	Yes	Yes	Yes
Kharmang	High	No	Yes	No	Yes	Yes	Yes
Shigar	High	Yes	Yes	No	Yes	Yes	Yes
Astore	Medium	No	Yes	No	Yes	Yes	No

Very High	High	Medium	Low	Very Low
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Annex S

District Wise Monsoon Hazards Vulnerability Matrix – FATA

District	Flood	Riverine Flood	Flash Flood	Urban Flood	Land Slide	Avalanche	GLOF
Bajaur Agency	Low	Yes	Yes	No	Yes	No	No
Khyber Agency	Low	No	Yes	No	Yes	No	No
Kurram Agency	Low	No	Yes	No	Yes	No	No
Mohmand Agency	Low	No	Yes	No	Yes	No	No
South Waziristan Agency	Low	Yes	Yes	No	Yes	No	No
FR Bannu	Very Low	No	No	No	No	No	No
FR D. I. Khan	Very Low	No	Yes	No	Yes	No	No
FR Kohat	Very Low	No	Yes	No	No	No	No
FR LakkiMarwat	Very Low	No	No	No	No	No	No
FR Peshawar	Very Low	No	Yes	No	No	No	No
FR Tank	Very Low	No	No	No	No	No	No
North Waziristan Agency	Very Low	No	Yes	No	Yes	No	No
Orakzai Agency	Very Low	No	Yes	No	Yes	No	No

Very High	High	Medium	Low	Very Low
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Annex T

Country Wide Location of NDMA Warehouses

1. Strategic Humanitarian Response Facilities (HRFs)

Serial	Location	No of Sheds		
		PDMA	NDMA	Total
a.	Jallozai / KP	3	1	4
b.	Lahore / Punjab	3	1	4
c.	Muzaffargarh / Punjab	2	1	3
d.	Jamshoro / Sindh	2	1	3
e.	Sukkur / Sindh	2	1	3
f.	Quetta / Balochistan	3	1	4

@Excluding Cold Storage.

2. **NDMA Warehouses.** In addition to strategic HRFs, NDMA has following warehouses in the Country:-

a. **Punjab**

- (1) Rawalpindi (Central Stock to support Punjab / KP / FATA / AJ&K / GB / ICT).
- (2) Lahore.

b. **Sindh**

- (1) Karachi.
- (2) Sukkur (Central stock to support Sindh / Balochistan).

c. **Balochistan.** Quetta.

d. **AJ&K.** Muzaffarabad.

e. **Gilgit Baltistan**

- (1) Gilgit.
- (2) Skardu.

3. **Flospans.** 53 x Flospans have been established at different location across the Country.

Annex U

Drought Mitigation Plan Matrix

Indicator	Policy Inputs	Developmental / Mitigation / Emergency Response Measures	
		Long to Medium Term	Short Term
Water Security	<ul style="list-style-type: none"> Enhance water storage infrastructure capacity Promote <ul style="list-style-type: none"> Water conservation Integrate water resource management Remote sensing driven capacity Sustainable use of water Community participation & public awareness on water conservation Ecological approaches Reinforce legislative framework Optimize Wetlands capacity Mainstreaming Climate Change 	<p>Supply Side Development Interventions:</p> <ul style="list-style-type: none"> National water storage capacity enhanced; Thar Canal; Flood water storage along Sutlej; Extension of Raineer Canal; Transferring piped water in Thar & Kohistan; RO Plants installation; Fresh water extraction; Tube wells; Extension of water distribution network 	<ul style="list-style-type: none"> Water contingency planning Water tinkering / bottled distribution Water purification Cloud seeding (artificial rains) Hygiene & sanitation
		<p>Water Demand Management:</p> <ul style="list-style-type: none"> Water conservation awareness Participatory approaches Legislative & administrative measures Community based sustainable solutions 	
		<p>Ecological Solutions:</p> <ul style="list-style-type: none"> Revive natural water basins Promote rain water harvesting Water storage promotion Small and check dams Reverse osmosis plants Water spreading Recycling of used water Participatory approach in public interventions; Create Water Management Boards regionally and in provinces 	

National Monsoon Contingency Response Directive-2018

Indicator	Policy Inputs	Developmental / Mitigation / Emergency Response Measures	
		Long to Medium Term	Short Term
Food & Agriculture	<ul style="list-style-type: none"> Introduce drought and heat resistant crops Horizontal expansion of cultivated lands Corps risks management Efficient food chain management Coordinated and inclusive policy implementation Awareness raising and community capacity building in arid zone Arid zone agriculture research institutes in Sindh & Balochistan Water loss reduction Integrated water basin management 	<p>Arid Zone Agricultural Practices:</p> <ul style="list-style-type: none"> Promote sailaba and khushkaba practices Introduce drip irrigation Cropping calendars adapted to avoid heat losses Conjunctive use of surface and ground water Shift to less water demanding crops Saline water agricultural practices Soil conservation Rain water harvesting & storage Watershed agricultural management Soil fertilization Best practices to be widely shared 	<p>Food Security Short Term Response:</p> <ul style="list-style-type: none"> Deployment of wheat reserves in the vulnerable districts Food security vulnerability assessment Food distributions to the vulnerable population Efficient & equitable distribution mechanisms Exit strategy
Health	<ul style="list-style-type: none"> Promote health security through improved health service delivery Reinforce preventive and curative health focus Mainstreaming reproductive health standards Infrastructure and human resource development Health awareness raising 	<p>Developmental: Gap filling in health infrastructure; Health Service Delivery & Emergency Response: Following to be reinforced:-</p> <ul style="list-style-type: none"> Preventive health care Emergency health outreach Reproductive health care Community based malnutrition programme Disease early warning, epidemic control and responses Health referral system Human resource deficiencies addressed Health advocacy and capacity building 	
Rangeland & Livestock Management	<ul style="list-style-type: none"> Policies aligned with environmental sustainability Promote collaborative rangeland management Governance & ownership issues streamlined Incentive driven community based management Afforestation efforts Mitigate desertification Renewable energy solutions to check deforestation 	<p>Rangeland Management: Promote:</p> <ul style="list-style-type: none"> Vegetative barriers to prevent erosion Mapping / stock taking Introduction of exotic grasses, trees varieties Water storage and rainwater harvesting Sustainable usages Revival / reinvigoration Heat tolerance promoted Desertification measures Watershed management 	<p>Livestock Emergency Management:</p> <ul style="list-style-type: none"> Mapping and monitoring of vulnerable caseload Emergency response planning, management Livestock sanctuaries deployed with fodder and water Fodder banks to be deployed Introduce briquettes / MNBs as emergency fodder

Indicator	Policy Inputs	Developmental / Mitigation / Emergency Response Measures	
		Long to Medium Term	Short Term
	<ul style="list-style-type: none"> Research institutes Sustainable livestock population Promote livestock and rangeland research Private sector's inclusion in veterinary service 	<ul style="list-style-type: none"> Check deforestation through participatory methods Artificial fertilization techniques Controlled rangeland burning <p>Livestock Management:</p> <ul style="list-style-type: none"> Census, audit Veterinary cover Disease surveillance & response Multi nutrient blocks Promote de-stocking Livestock sanctuaries Communities capacity building in livestock management Advocacy, awareness generation Value addition of livestock products 	
Climate Change Adaptation		<ul style="list-style-type: none"> Climate change hazards, risk and vulnerability mapping Scenarios development Adaptation strategies and actions Generate awareness 	
Community Resilience		<p>CBDRM approach for reinforcing resilience as:</p> <ul style="list-style-type: none"> Structural solutions Non-structural solutions Ecological solutions Climate change adaptation 	

Annex V

Important Telephone Numbers

Serial	Department	Contact Number
1	National Emergency Operation Centre (NDMA) Islamabad	UAN-051-111-157-157, 051-9205037
2	Provincial Emergency Operation Centre (PEOC) Punjab	042-99203302, 042-99204408 042-99203163, 042-36371839
3	Provincial Emergency Operation Centre (PEOC) Sindh	021-99239524, 021-99332701-2
4	Provincial Emergency Operation Centre (PEOC) Balochistan	081-9241133, 081-2881168, 081-9241118
5	Provincial Emergency Operation Centre (PEOC) KPK	091-9213867, 091-9213845, 091-9211854
6	State Emergency Operation Centre (SDMA) SDMAAJ&K	05822-921536, 05822-921643, 05822-921101
7	FATA Emergency Operation Centre, Peshawar	091-9216336, 091-9216864, 091-9218351
8	GBDMA Emergency Operation Centre, Gilgit	05811-922030, 920874,75
9	Pakistan Meteorological Department (PMD)	051-9250367, 051-9250595
10	Flood Forecasting Division, Lahore	042-99200139
11	Army Flood Control Centre, Engineers Directorate	051-5202059, 051-5202060 203525 (DEFCON), 8000-33548 (PASCOM)
12	DG NHEPRN	051-9255708-9
13	Federal Flood Commission	051-9244604, 051-9244616
14	IRSA, Islamabad	051-9108013-14, 051-9108008
15	SUPARCO Islamabad	051-9075260
16	Nullah Lai Control Room	051-9250566
17	Rescue 1122 Punjab	042-37421122
18	Rescue 1122 Rawalpindi	051-9291185
19	Rescue 1122 Khyber Pakhtunkhwa	091-9222483-4
20	Rescue 1122 Gilgit Baltistan	05811-922137, 05811-922135
21	Rescue 1122 Azad Jammu & Kashmir (SDMA)	05822-921335
22	Geological Survey of Pakistan, Islamabad	051-9257182, 051-9255141
23	COMKAR Karachi	021-48506113
24	Pakistan Maritime Security Agency, Karachi	021-48508851, 021-99214624
25	Marala Headworks Observatory	052-35021027
26	PCIW (Pakistan Commission for Indus Water) Lahore	042-99212783-86
27	GM, Pakistan Railway Lahore	042-99201700
28	Punjab Irrigation Department	042-99212117-8
29	Balochistan Irrigation Department	081-9201074
30	Sindh Irrigation Department	021-992111445, 021-992111451
31	Azad Jammu & Kashmir Irrigation Department	05822-921596
32	KPK Irrigation Department	05822-921157

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Serial	Department	Contact Number
33	Civil Defence Punjab	042-99212104, 042-99212111
34	Civil Defence Sindh	021-99215667, 021-99215665
35	Civil Defence KPK	091-9212176, 091-2263158
36	Civil Defence Balochistan	081-9203514, 081-9203513
37	Tarbela Dam	0938-281185
38	Mangla Dam	0544-639353
39	Rawal Dam	051-9255756, 051-9255758



National Disaster Management Authority
Prime Minister's Office
Government of Pakistan