



NATIONAL MONSOON CONTINGENCY RESPONSE DIRECTIVE 2017

(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 is a disaster prone Country and considered amongst top ten most vulnerable countries of the World to the effects of Global Climate Change. Recurrence of floods since 2010 coupled with extreme weather events like heat wave, drought like situation in arid zone, landslides and Glacier Lake Outburst Floods (GLOF) bear testimony to the stated fact. Pakistan experiences Monsoon normally from July to September each year with variable intensity of rainfall. Floods being the most recurrent phenomena are potent hazard to turn into a disaster thus pose myriad challenges to disaster management structure of the Country. Therefore, risks of flood hazards merit adoption of a pro-active strategy to deal with the associated challenges.
2. National Disaster Management Authority (NDMA) is the lead agency at Federal level to deal with whole spectrum of disaster management activities. NDMA's annual Monsoon preparedness activities range from conduct of high level regional consultative process to National Monsoon Preparedness



National Monsoon Contingency Response Directive 2017
National Disaster Management Authority, Government of Pakistan



Conference culminating at issuance of National Monsoon Contingency Response Directive before the onset of Monsoon Season. The Directive is based on the forecast of Pakistan Meteorological Department to lay down National response guidelines in the realm of Flood Disaster Management i.e. flood fighting, preparedness, rescue, relief, recovery, rehabilitation etc. NDMA undertakes annual Monsoon preparedness activities as per following salient Clauses of **NDM Act 2010 of the Parliament**:-

- a. Act as implementing, coordinating and monitoring body for disaster management.
- b. Implement, coordinate and monitor the implementation of National Policies / Plans.
- c. Lay down guidelines for preparing disaster management plans by different Ministries / Departments and Provincial Authorities.
- d. Coordinate disaster response in the event of any threatening disaster situation or disaster (s).
- e. Lay down guidelines for and give directions to concerned Ministries or Provincial Governments / Provincial Authorities regarding measures to be taken in response to any threatening disaster situation or disaster (s).
- f. For any specific purpose or general assistance, requisition the services of any person.
- g. Promote general education and awareness in relation to disaster management.

Aim

3. To formulate National response guidelines for stakeholders at Federal, Provincial and Regional level for a well-articulated flood disaster response as per envisaged contingencies of Monsoon 2017, based on the forecast of Pakistan Meteorological Department (PMD).

Scope

4. The Directive is envisaged to encompass following:-

a. Part I - General Aspects

- (1) Responsibility Matrix for Flood Disaster 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 2017 by PMD.
- (2) NDMA's Conclusions from Summer Monsoon Outlook 2017.
- (3) NDMA's Visualised Contingencies of Summer Monsoon Outlook 2017.
- (4) Provincial Flood Hazards and District Wise Flood Vulnerability Matrix.

c. Part III - National Response Guidelines for Monsoon 2017

Responsibility Matrix

5. To deal with the challenges of Flood Disaster Management, the responsibility matrix of National and Provincial departments is as under:-



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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 Disaster 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 / ICT DM 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 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. Some limitations exist in the response mechanism against flood hazards. These limitations must be kept in view while planning and preparing flood response plans by all stakeholders:-



a. **Meteorological 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. **Adhoc Functioning of District Disaster Management Authorities**. In most of the Provinces, DDMA's have yet not been notified. Dedicated human resource has only been posted in four districts of Khyber Pakhtunkhwa but still the structure has to go a long way for adoption in its entirety. The gap at this critical tier of response causes an immediate pull on resources of other National organizations especially Pakistan Armed 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 for 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. Their requisitioning and employment entails time. Furthermore, the helicopters of Pak Navy and Pakistan Air Force are normally not employed in Northern Areas. The limitation has pronounced bearing on initiation of timely disaster rescue and relief activities.

f. **Non Availability of Heavy Earth Moving Machinery**. Non availability of heavy earth moving



machinery especially in mountainous regions of the Country renders vulnerable districts disconnected from the relief bases. 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 Experiences

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 2017:-

- a. Non-Adoption of standardized Situation Report (SITREP) format results in delay to formulate disaster picture, initiate timely rescue / relief effort and compile reports for early decision making process.
- b. Gaps in inter Provincial coordination mechanism lead to under utilization of response capability of one Province / Region for the critical areas of the other.
- c. Non rehabilitation of flood protection structure at inter provincial boundary. Non Rehabilitation / strengthening of Shori Nullah Protection Bund is a case in point.
- d. Incomplete flood mitigation measures downstream Mangla Dam and delay in resolution of Barakas Nullah issue.
- e. Inadequate discharge capacity of some Barrage structures on major rivers like Trimmu & Sukkur Barrage.
- f. 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).
- g. Inadequate O&M budget for flood protection structures and inadequate budget allocation under PSDP for execution of new flood protection projects.
- h. Inadequate discharge capacity and weak Marginal Bunds of Shahdara and Shershah Railway Bridges, Head Muhammad Wala and newly constructed Shaheed Benazir Bhutto Bridge of NHA.
- i. Chronic and increasing threat of encroachments in river plains.
- j. Dumping of solid waste and building material on banks/waterway of Lai Nullah presents a continuous threat of Urban Flooding in Rawalpindi / Islamabad.
- k. Loss of precious lives due to neglect to awareness drive and venturing in flooded / swollen water channels.



- l. 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.
- m. Inefficient management of database regarding recipient of relief assistance.
- n. Unregulated / uncoordinated relief effort by civil society leads to saturated relief effort in some areas while dilution of the same in some critical areas.
- o. 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).
- p. 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.
- 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 fiber glass 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 under utilized.
- u. Delay in meeting flood fighting equipment demand of Pakistan Army.

Outlook for Summer Monsoon – 2017 by PMD

8. Large uncertainties prevail in the evolution of El Nino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD), however, most of the models are in consensus of neutral phase of phenomena during the season. Consequent upon prevailing ocean and atmospheric conditions, **summer Monsoon rainfall is expected to be normal in the first half and below normal in the second half of the season, in Pakistan.**

Based on statistical and dynamical downscaling of global circulation models, salient features of outlook for the season (July to September) 2017 are as under:-

- a. Area weighted rainfall during Monsoon season over Pakistan is expected to **fall short of long term average**. However, rainfall will be highly variable over temporal and spatial scale.
- b. During July, Monsoon rainfall may range in **normal limits but less than normal rainfall is likely in August and September**.
- c. Less frequent rains in southern half of the Country **may trigger drought like conditions**.
- d. There is a **high probability of localized rain spells** which may generate flash flooding in mountainous and sub-mountainous regions.
- e. Due to erratic behaviour of summer Monsoon, **extreme precipitation events** may occur at isolated places in the Country, which can result into floods.
- f. Localized events of rainfall coupled with rapid melting in the glaciated regions of Gilgit Baltistan and Chitral may trigger **GLOF events**.

NDMA's Conclusions from PMD's Outlook for Summer Monsoon – 2017

9. Considering PMD's Outlook for Summer Monsoon – 2017, impediments of existing response mechanism, past experience and predominant factor of Global Climate Change, following is concluded:-
- a. The Forecast is broad based, predicting possibility of riverine, flash, urban floods, GLOFs, cloudburst and drought in different regions of the Country including AJ&K which calls for a **“Comprehensive Response”** against all eventualities.
 - b. Interpretation of **“Normal rainfall during July & Below Normal rainfall in August & September”** means onset of Monsoon with variable intensity throughout the Country during Monsoon season. 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. Due to erratic behaviour of Monsoon, extreme rainfall events like 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 floods, flash flood 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 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.

NDMA's Visualised Monsoon Contingencies

10. **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.

11. **Visualised Contingency Scenarios.** Monsoon visualised contingency scenarios derived from PMD's Outlook for Summer Monsoon 2017 are as under:-

- a. **Scenario - 1 (Most Likely) – Below Normal to 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 and AJ&K.
 - (2) Variable intensity from High (Northern Punjab, KP & AJ&K) to Normal (GB & FATA) 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 2017. 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 repetitive 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 & AJ&K.
- (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 (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 (Urban flooding, landslides, avalanches, flash floods, GLOF) emerge as a more frequent and recurrent phenomena to a high degree in cities / regions prone to such hazards.

12. **Provincial Flood Hazards Maps.** Attached as **Annex A – L.**

13. **District Wise Monsoon Hazards Vulnerability Matrix.** Attached as **Annex M – S.**

National Response Guidelines for Monsoon 2017

14. **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.

15. **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

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

17. **Protective Measures against Flash Flood.** Management of Pre-Monsoon and Monsoon Season 2016 quantified anticipated losses due to flash flood events. Following protective measures based on past experiences will help mitigate losses from flash floods:-

- a. Awareness drive of recorded flash flood history in regions prone to such hazards.
- b. 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.
- c. Long term planning for rehabilitation of population under threat of flash floods.
- d. Signposting of waterways in local language with known flash flood history. It should clearly demarcate threat level of waterways preventing any misadventure to cross.
- e. 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.

18. **Protective Measures against GLOF**

- a. **Prevention of Lake Burst.** To prevent the 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.

19. **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.
- 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. Assured provision of heavy duty de-watering pumps at most vulnerable areas of city centres.
- h. Provision of backup electricity arrangements in the form of generators for sewage disposal stations.



20. **Protective Measures against Landslides / Avalanches.** Threat of landslides /avalanches in vulnerable areas underscores outlook of impending Monsoon Season 2017. It merits for reappraisal of basic precautionary measures such as:-
- Refresh recorded history of landslides / avalanches prone areas. Besides vulnerability risk assessment, personal experience of notables in such areas can also prove useful.
 - 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.
 - 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.
 - 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.
21. **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.
22. **Resolution of Major Issues.** Following issues are required to be resolved at priority by relevant stakeholders as mentioned against each:-
- Removal of **encroachments** from flood river plains by district administrations / PDMA.
 - Flood mitigation measures **downstream Mangla Dam** by PDMA Punjab.
 - Dumping of solid waste and building material on banks/waterway of **Lai Nullah** by WASA Rawalpindi / District Administration Rawalpindi / PDMA Punjab.
 - Barakas Nullah**, Mangla Dam by Mangla Dam management and Pak Army.
 - Rehabilitation / strengthening of **Shori Nullah** Protection Bund by PDMA Punjab / PID Punjab.
 - Inadequate discharge capacity of **Trimmu and Sukkur Barrage** by PID Punjab / PDMA Punjab and PID Sindh / PDMA Sindh respectively.
 - Inadequate discharge capacity and weak Marginal Bunds of **Shahdara and Shershah Railway Bridges, Head Muhammad Wala and Shaheed Benazir Bhutto Bridge of NHA** by PID Punjab, PID Sindh, Pakistan Railways and NHA respectively.
23. **Requisitioning of Armed Forces.** Armed Forces will be requisitioned by Provinces only in case of emergency while keeping NDMA, informed. Aviation support will be coordinated centrally by NDMA based



- on request of Provinces and Regions when called to assist in aid of Civil Power. Armed Forces will be employed for following:-
- Rescue and relief operations by Field Units of Pak Army and Pak Navy (Sindh only).
 - Aviation support including provision of C-130 by PAF (helicopters of only Pak Army and Ministry of Interior will be employed in Northern Areas and AJ&K).
 - Support of drivers of Pak Army and Pak Navy.
 - Special search and rescue operations for riverine floods.
 - Medical support teams of all three services.
 - Search and rescue in urban areas collapsed structures and landslides / avalanches by Pak Army teams.
24. **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:-
- 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.
 - Districts must be prioritized as High Threat (Priority-I), Medium Threat (Priority-II) and Low Threat (Priority-III) based on following aspects: -
 - Historical flood data record especially last 20 years flood events.
 - Population density.
 - Urban / rural divide.
 - Type of flood threat i.e. riverine, flash, urban, rain induced etc.
 - Degree of vulnerability and exposure e.g. population centres in water ways / proximity to rivers.
 - Reaction time.
 - Standard size of rescue boat will be 19 feet for fiber glass boats.
 - Maximum number of passengers carried by a fiber 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.
 - Response action will have following sequence: -
 - 1st Tier – Immediate Response (Maximum One Hour).** By District Administration through Rescue 1122 (if held), Police or trained Volunteers (if held), Civil Defence.
 - 2nd Tier – Build Up Response (4 – 6Hours).** By Armed Forces / Civil Armed Forces, when requisitioned. Alongside, PDMA may shift the resources of respective province from other



less threatened districts.

- 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 District	Minimum Number of Boats	
		Immediate Response Capacity	Build Up Response Capacities
(1)	Priority – I (High Threat)	25 (250 Persons) rescue at one time	25 (250 Persons) rescue at one time
(2)	Priority – II (Medium Threat)	10 (100 Persons) rescue at one time	10 (100 Persons) rescue at one time
(3)	Priority – III (Low Threat)	5 (50 Persons) rescue at one time	5 (50 Persons) rescue at one time

i. **Concept of Employment of Rescue Boats**

- (1) Fiber 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 or a pondage exists.

- (2) Boats will not be used in hill torrents with fast currents or shallow water and boulders underneath.
- (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:-

Ser	Districts Affected by	Engine Horse Power		
		15 - 30	30 - 40	Above 40
(a)	River Indus	-	75%	25% (Mianwali, Rajanpur, DG Khan, Muzafargarh, R.Y. 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:-

Ser	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.



25. 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 DMA's, 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 **30th June 2017** 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's by **30th June 2017**. 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.

26. Awareness Campaign

- a. Public Service Messages (PSMs) through print / electronic media must be started forthwith by PDMA's / SDMA / GBDMA / FDMA / DDMA's.
- 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

27. 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 PDMA's to disseminate warning to District Authorities / Relevant Stakeholders via fax / email / telephone / SMS etc.
- e. PMD shall directly issue the weather warnings to NDMA, PDMA's, 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 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.

28. 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 PDMA's and forwarded to NDMA, 24 hours in advance.
- c. Same SMS will be displayed on website of NDMA / PDMA's 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.

29. To ward off “False Warning”, all Disaster Management Authorities will ensure implementation of Clause 35 of NDM Act 2010.

Response, Rescue & Relief Phase

30. 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).



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- 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 Pak Army USAR Team will also be coordinated through NDMA.
 - e. **Demand of Pak Army has already been rationalized. PDMA's to complete provision of rationalized flood equipment demand of Pak Army before onset of Monsoon 2017.**
 - f. Pak Army has identified some surplus items after rationalization of flood fighting equipment demand. A mechanism be mutually devised by all PDMA's and Pak 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 Pak Army be expedited.
 - h. Deficiency in explosives / accessories of Sher Shah Breaching Section (Right & Left) of Pak Army be met at priority in coordination with PID Punjab / FFC, District Administration Multan, PDMA Punjab and Pakistan Railway.
31. **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 **30th June 2017**. Effective coordination must be done amongst members of Flood Management Committee (FMC) of Mangla Dam after reservoir level of 1232 feet.
32. **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 **30th June 2017**.
 - 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 /



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- 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.

33. **Disaster Management Planning**

- a. PDMA's 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 prepositioning 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) Gilgit – Skardu (S-1) Road.
 - (2) Karakoram Highway (KKH).
 - (3) Nowshera – Chitral (N-45) Road.
 - (4) Khawazakhela – Besham (N-90) Road.
 - (5) Chakdara – Kalam (N-95) Road.
 - (6) Kohala – Muzaffarabad (S-2) Road.
 - (7) Abbottabad – Murree Road in Galiyat.
 - (8) Murree – Kohala Road.
 - (9) Rawalpindi – Sudhnoti Road.
- f. Flood Contingency Plans be updated by all concerned based on NDMA's National Monsoon Contingency Response Directive 2017 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 upto Union Council level. Focus



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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 centers.
- 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.

34. **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.

35. **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 effort 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 dearth 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.

36. **Relief Operations**

- 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. Dignity of all the affected persons should be especially ensured during relief phase.
- h. **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.

i. **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

37. **Damage Assessment**

- a. **Multi Sector Initial Rapid Assessment (MIRA)**. 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 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.**

38. **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 time 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.**

39. **Needs & Concerns of Vulnerable Groups**. Following aspects must be kept in special focus during all stages of flood disaster 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

40. It is pertinent to highlight that while a Below Normal to Normal Monsoon may result into floods in anticipated regions, possibility of drought like conditions in arid zones of South Punjab, Sindh and Balochistan cannot be ruled out in case of asignificantly deficient rainfall in such regions. 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.

Coordination Aspects

41. 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 **1st July to 15th September 2017**, unless Monsoon is prolonged. This Directive will be taken as authority for incurring all expenditures.

- b. All stakeholders including Pakistan Armed Forces, FFC, FFD, PMD, NHA & SUPARCO involved in flood disaster management will nominate respective Liaison Officers for National Emergency Operation Centre (NEOC) by **30th June 2017**.
- 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.

42. 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 1 July 2017 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 **30th June 2017**.
- e. Important telephone numbers from NDMA perspective are shared at **Annex V**. All PDMA's / relevant takeholders will share telephone directory of respective Provinces / Regions with NDMA



and host it at respective website by **30th June 2017**.

43. **Assistance from Ministries / Departments.** Following ministries / departments are requested for assistance as mentioned against each:-
- Ministry of Defence.** Conduct of relief / rescue operations through Pakistan Armed Forces.
 - Ministry of Interior & Anti-Narcotics Force.** Availability of Aviation assets for emergency response, at a short notice.
 - Pakistan Electronic Media Regulatory Authority (PEMRA).** Airing of Public Service Messages for community awareness on all media channels during prime hours.
 - Pakistan Telecommunication Authority (PTA).** To facilitate generation of SMS Alerts for early warning, emergency relief and evacuation to required populace.
 - 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.

Conclusion

44. Monsoon in Pakistan is a regular feature and dictates configuration of well integrated response through better preparedness, efficient coordination and proactive approach by all stakeholders. Devastation by flood related hazards can be considerably mitigated through vigilance, timely, correct and anticipated response against developing situations. Execution of measures as highlighted in National Monsoon Contingency Response Directive will assist stakeholders to meet the challenges of impending Monsoon Season in a desired manner.

Government of Pakistan
Ministry of Climate Change
National Disaster Management Authority
(Prime Minister's Office), Islamabad
Dated: 15 June 2017

Lieutenant Colonel
For Chairman NDMA
(Khuda Bakhsh)
Tel. 051-9205035
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 Hazards Map – Pakistan
- J - Avalanche Hazards Map – Pakistan
- K - Landslide Hazards Map – Pakistan
- L - Drought Hazards Map – Pakistan
- M - District Wise Monsoon Hazards Vulnerability Matrix – Punjab
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- S - District Wise Monsoon Hazards Vulnerability Matrix – FATA
- T - Country Wide Location of NDMA Warehouses
- U - Drought Mitigation Plan Matrix
- V - Telephone Directory



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17.	DG PDMA, Khyber Pukhtunkhawa, Peshawar	3
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National Monsoon Contingency Response Directive 2017
National Disaster Management Authority, Government of Pakistan



National Monsoon Contingency Response Directive 2017
National Disaster Management Authority, Government of Pakistan



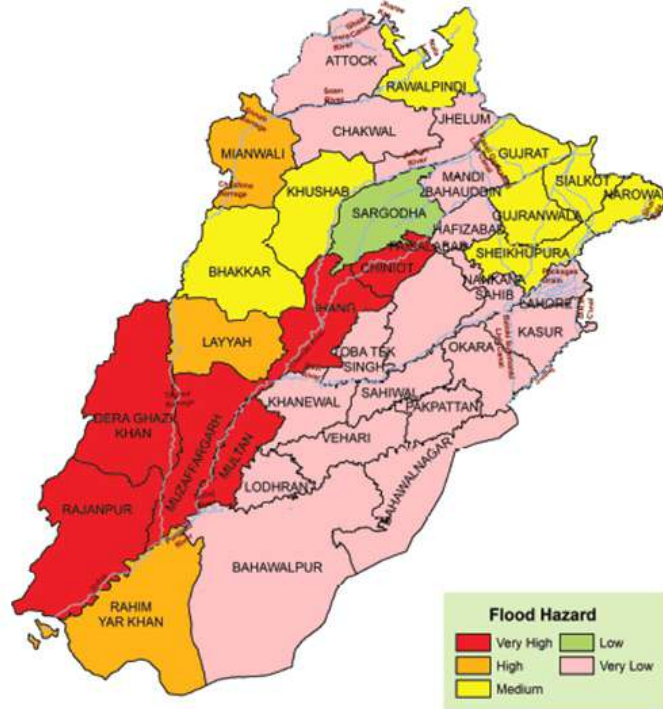
Ser	Department / Agencies	No of Copies
<u>Pakistan Armed Forces</u>		
1.	Crisis Management Cell, JS HQ, Chaklala, Rawalpindi	4
2.	Military Operations Directorate, General Headquarters Rawalpindi (For Distribution to Field Formations / Commands / Headquarters)	30
3.	Director (Operations), Naval Headquarters, Islamabad	5
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10.	Headquarters Sindh Rangers (Operations Branch), Karachi	2
11.	Headquarters Frontier Corps (Operations Branch), Khyber Pakhtunkhawa, Peshawar	2
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2.	Member (Operations), NDMA	1
3.	Member (A&F), NDMA	1
4.	Member (DRR), NDMA	1
5.	Director (Response), NDMA	5
6.	National Institute of Disaster Management (NIDM)	5
7.	Director (Logistics), NDMA	3
8.	Director (R&R), NDMA	1

Ser	Department / Agencies	No of Copies
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10.	Director (Finance), NDMA	1
11.	Project Director (PMU), NDMA	3
12.	Project Manager (GCC), NDMA	2
13.	Deputy Director (ICT), NDMA	2
14.	Deputy Director (Media), NDMA	2
15.	Deputy Director (Procurement), NDMA	1
16.	Deputy Director (Coordination), NDMA	2



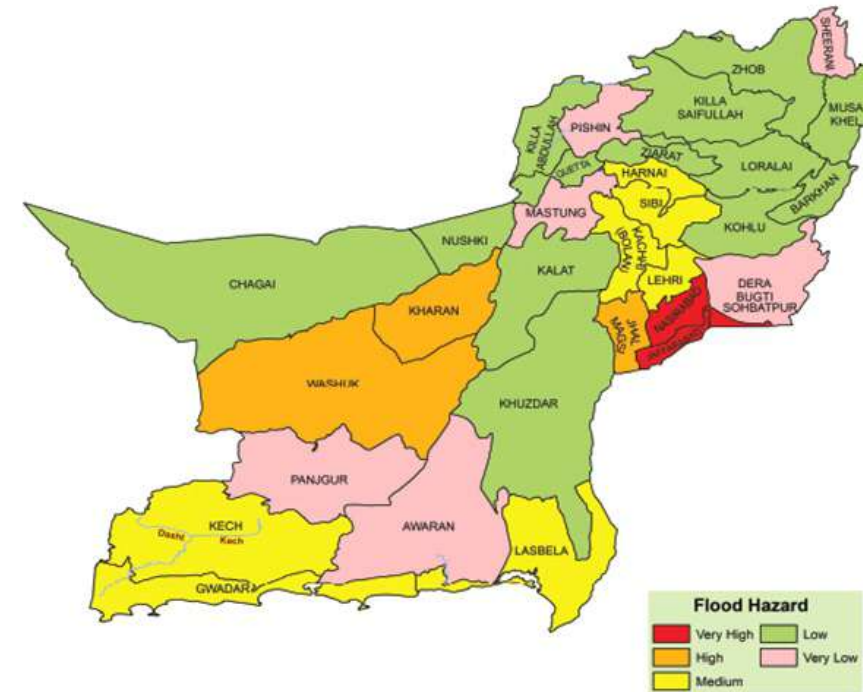
Annex A

FLOOD HAZARDS MAP – PUNJAB



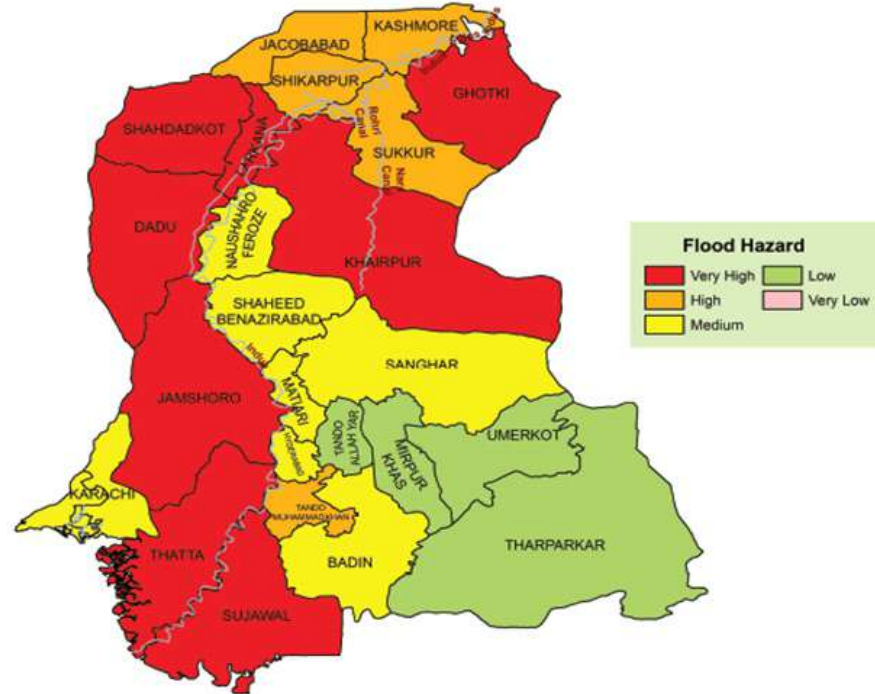
Annex C

FLOOD HAZARDS MAP – BALOCHISTAN



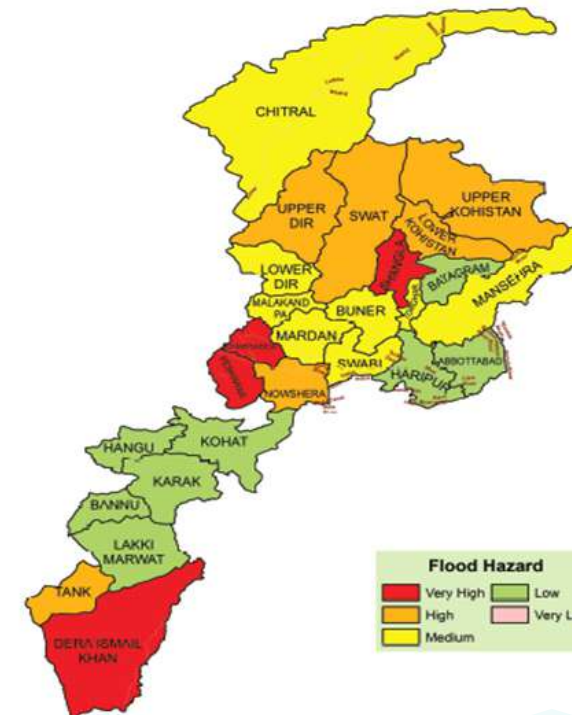
Annex B

FLOOD HAZARDS MAP – SINDH



Annex D

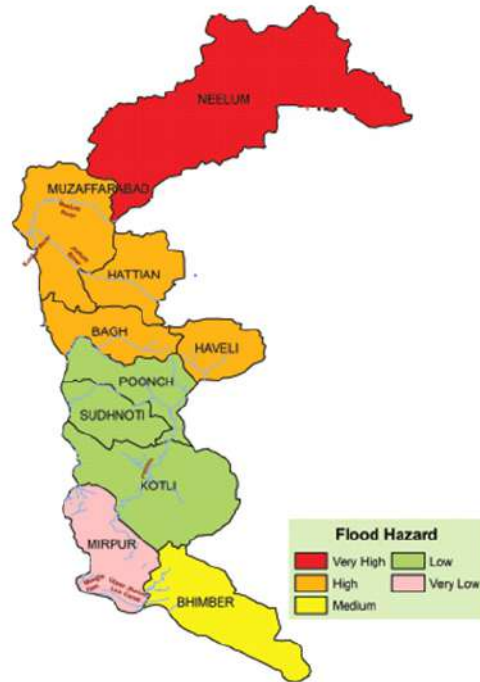
FLOOD HAZARDS MAP – KHYBER PAKHTUNKHWA





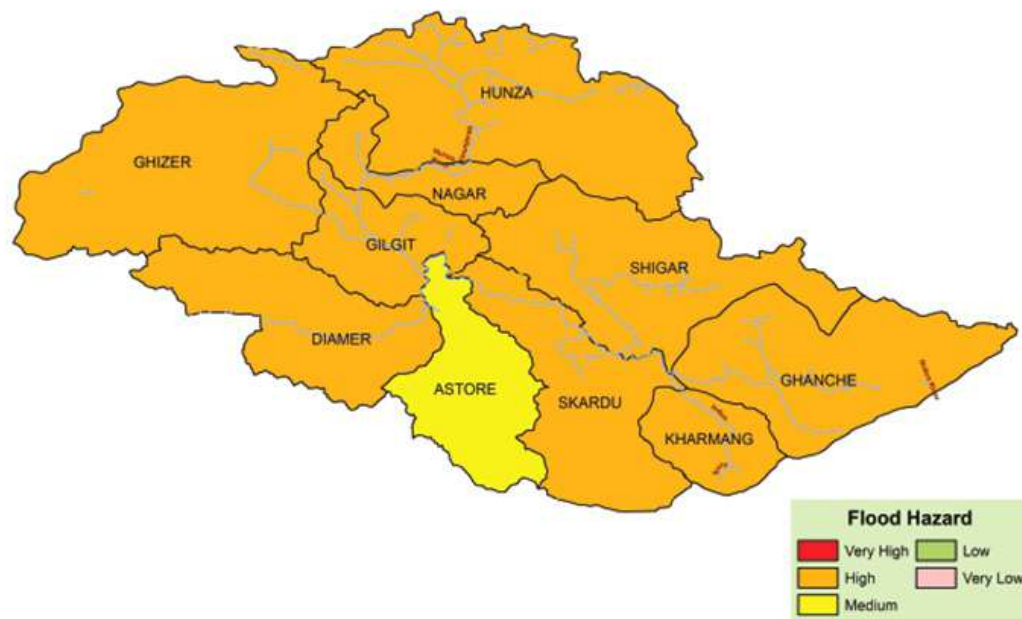
Annex E

FLOOD HAZARDS MAP – AZAD JAMMU & KASHMIR (AJ&K)



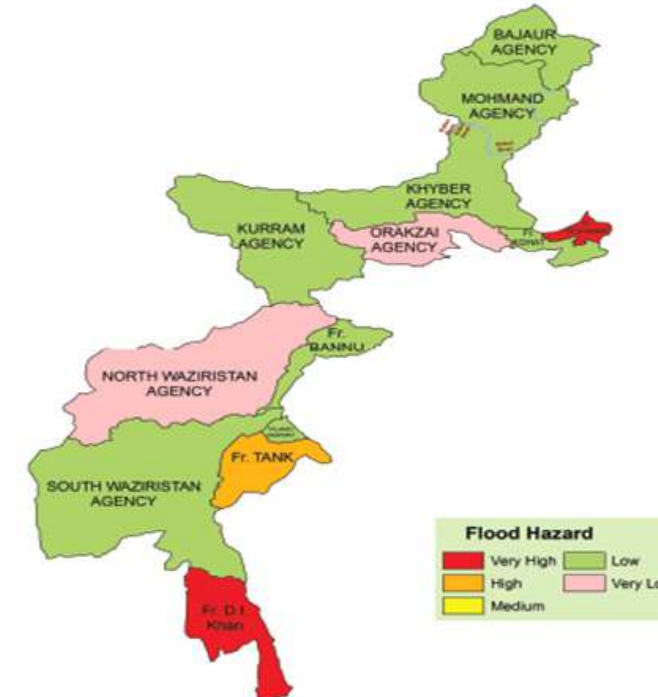
Annex F

FLOOD HAZARDS MAP – GILGIT BALTISTAN (GB)



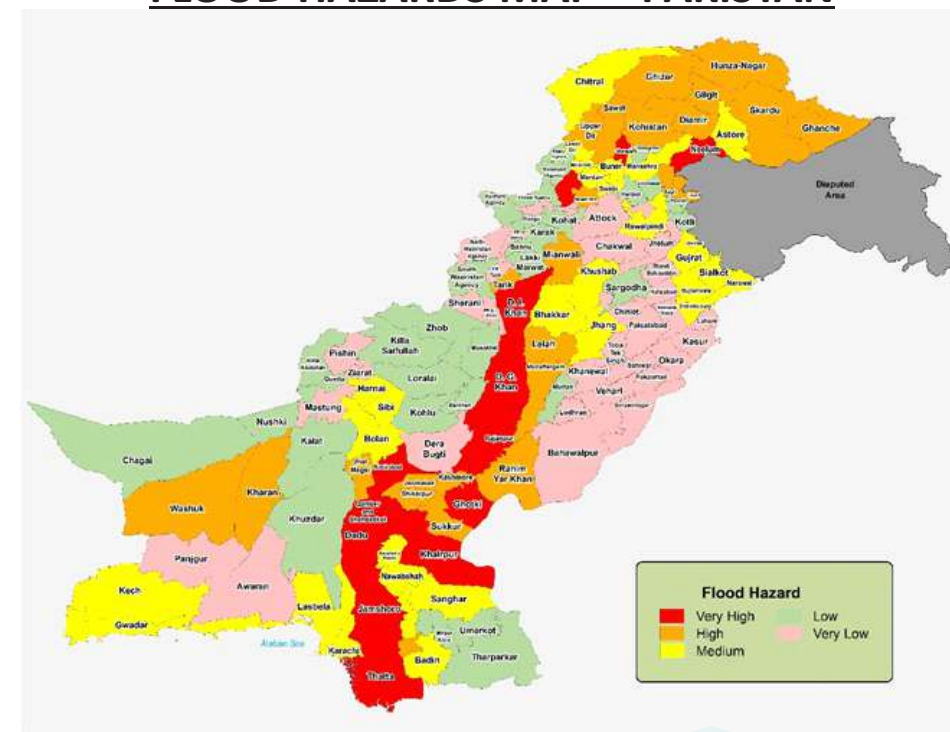
Annex G

FLOOD HAZARDS MAP – FATA



Annex H

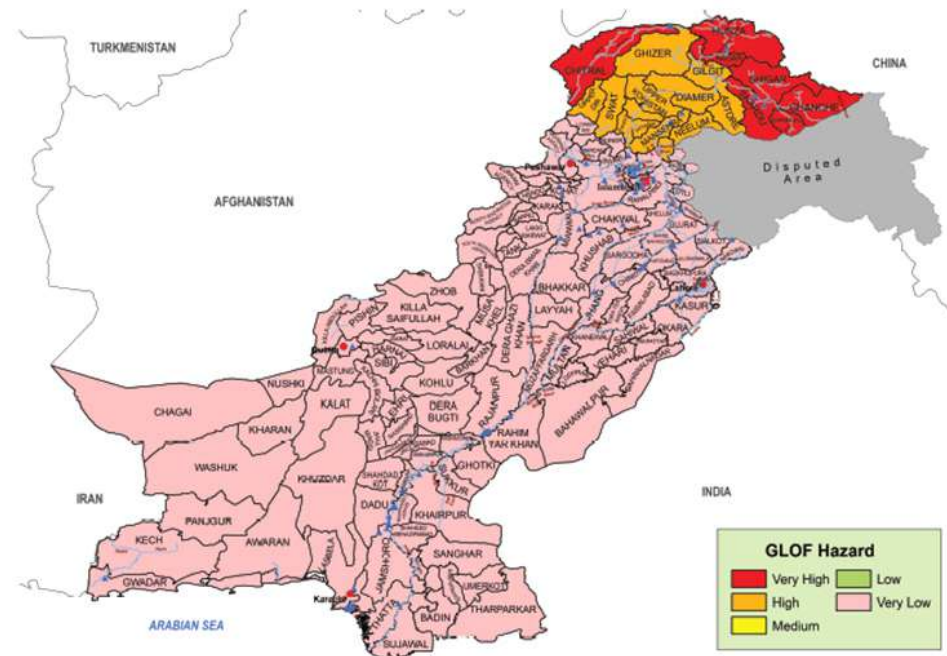
FLOOD HAZARDS MAP – PAKISTAN





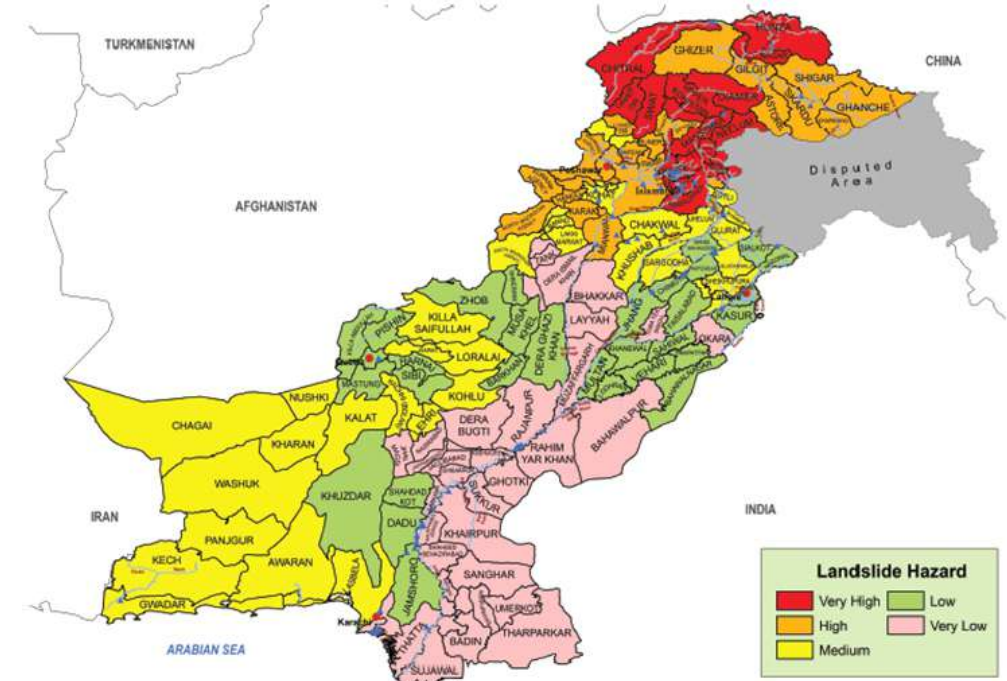
Annex I

GLOF HAZARDS MAP – PAKISTAN



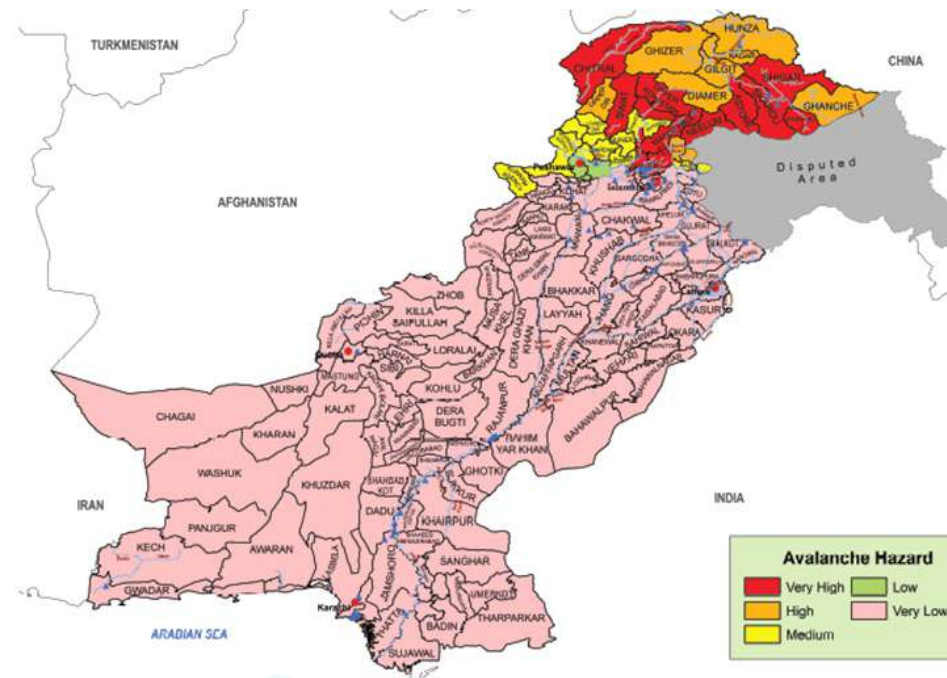
Annex K

LANDSLIDE HAZARDS MAP – PAKISTAN



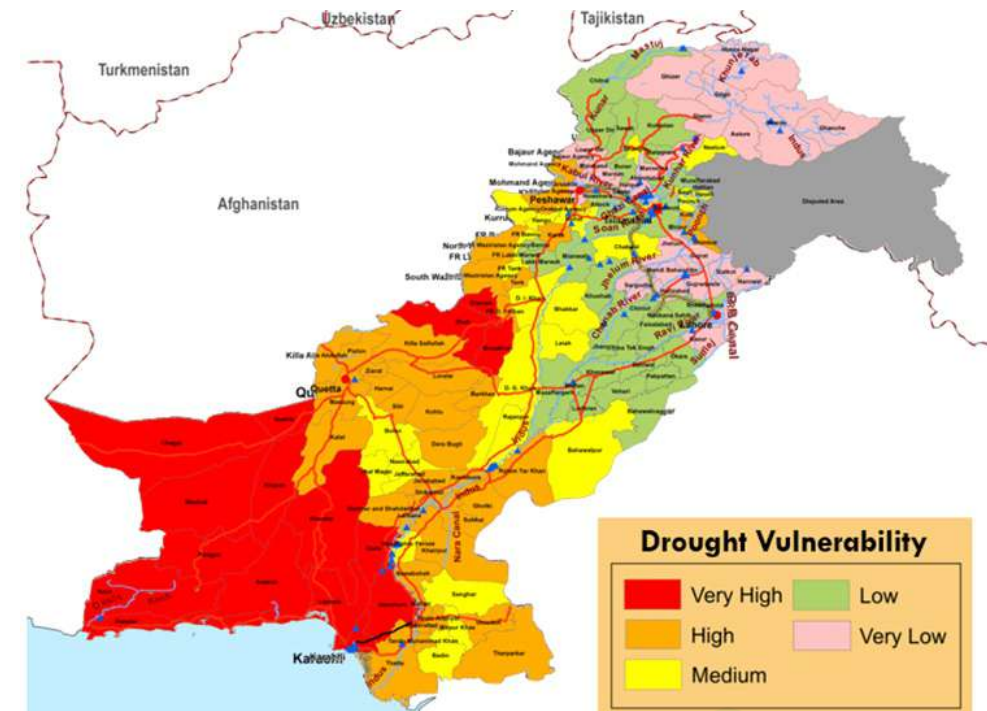
Annex J

AVALANCHE HAZARDS MAP – PAKISTAN



Annex L

DROUGHT HAZARDS 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
Matari	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



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



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 - GB

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)

Ser	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) Sukkar (Central stock to support Sindh / Balochistan)
- c. **Balochistan**. Quetta.
- d. **AJ&K**. Muzaffarabad.
- e. **Gilgit Baltistan**
 - (1) Gilgit.
 - (2) Skardu.

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 	Supply Side Development Interventions: <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 Hygiene & sanitation
		Water Demand Management: <ul style="list-style-type: none"> Water conservation awareness Participatory approaches Legislative & administrative measures Community based sustainable solutions 	
Food & Agriculture	<ul style="list-style-type: none"> Introduce drought and heat resistant crops Horizontal expansion of cultivated lands Crops risks management Efficient food chain management 	Arid Zone Agricultural Practices: <ul style="list-style-type: none"> Promote sailaba and khushkaba practices Introduce drip irrigation Cropping calendars adapted to avoid heat losses 	Food Security Short Term Response: <ul style="list-style-type: none"> Wheat reserves in the vulnerable districts Food security
		Ecological Solutions: <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 	



Indicator	Policy Inputs	Developmental / Mitigation / Emergency Response Measures	
		Long to Medium Term	Short Term
	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 Research institutes Sustainable livestock population Promote livestock and rangeland research Private sector's inclusion in veterinary service 	<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 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 	<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"> 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

TELEPHONE DIRECTORY

Ser	Department	Contact Number
1.	National Emergency Operation Centre (NEOC) 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) Khyber Pakhtunkhwa	091-9213867 091-9213845 091-9211854
6.	State Emergency Operation Centre (SDMA) SDMA AJ&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) Islamabad	051-9250367 051-9250595
10.	Flood Forecasting Division (FFD), 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 (FFC), Islamabad	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

Ser	Department	Contact Number
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 05822-921157
32.	KP Irrigation Department	091-9210845 091-9212116
33.	Civil Defence Punjab	042-99212104 042-99212111
34.	Civil Defence Sindh	021-99215667 021-99215665
35.	Civil Defence Khyber Pakhtunkhwa	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