



United Nations
Educational, Scientific and
Cultural Organization

MULTI-HAZARD EARLY WARNING

S O P S

TANDARD OPERATING PROCEDURE

IN PRACTICE

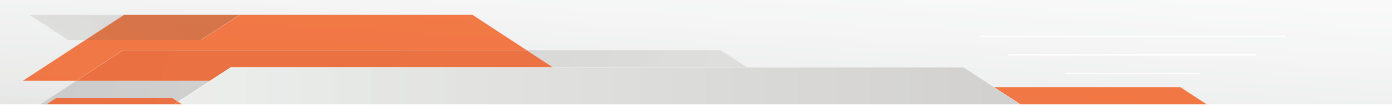
UNESCO ISLAMABAD

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PREFACE



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Frequent occurrence of natural hazards and their devastating impacts on human lives and economy has reminded us all of how important it is to improve Pakistan's Disaster Early Warning System and Procedures. To promote effective early warning practices in the country, there is a need to link all stakeholders' operational roles and responsibilities in a coherent manner. As a result of the floods in 2010 and 2011, flash floods in Chitral 2015 and many others, heavy loss of human lives and infrastructures indicate that most of the communities did not receive, understand or take the warnings seriously. These lessons from the past events suggest that one need to bridge the gaps which exist in Early Warning System (EWS) and in the information dissemination. The policy and practice level gaps can be bridged by creating synergized Standards Operating Procedures (SOPs) for multi hazards early warning system in Pakistan.

Within the framework of the UNESCO Programme 2016-17, UNESCO contributes to a variety of Disaster Risk Reduction and Early Warning Systems related initiatives in the country. In this regard, UNESCO developed this handbook of Standard Operating Procedures for Multi-Hazard Early Warning System. This handbook builds on current practices of standard operating procedures being practiced at national and provincial levels in Pakistan and aims to support the capacity building of relevant authorities involved in disaster situations and provide the road map for such future interventions.

CONTENTS

SECTION I

EARLY WARNING ISSUE & DISSEMINATION SYSTEM IN PAKISTAN

End to End Early Warning System Stakeholders	02
General Dissemination of Early Warnings	03

SECTION II

MULTIHAZARD EARLY WARNING SOPs

Flood	05
Flash Flood (Nullah Lai)	08
Drought	11
Cyclone	12
Tsunami	15
Earthquake	19

CONTENTS

SECTION III

MULTIHAZARD EARLY WARNING DISSEMINATION SOPs

NDMA	21
PTA	24
PDMA KP	25
State Disaster Management Authority AJK	29
PDMA Sindh	33
PDMA Balochistan	36
PDMA Punjab	42
Gilgit Baltistan Disaster Management Authority	48

SECTION IV

EMERGENCY CONTACT NUMBERS

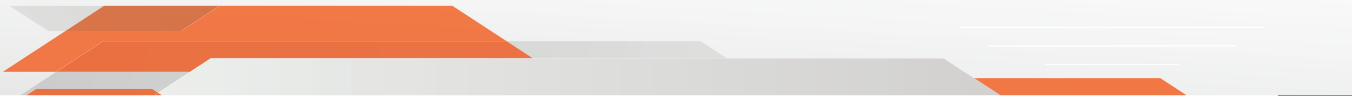
52

LIST OF ABBREVIATIONS

53

SECTION I

EARLY WARNING
ISSUE & DISSEMINATION
SYSTEM STAKEHOLDERS
IN PAKISTAN



End to End Early Warning System Stakeholders

Stakeholders involved in effective 'End-to-End Multi-Hazard Early Warning System' need to coordinate among themselves, with the appropriate understanding of each other's roles & protocols (Standard Operating Procedures) as shown below:



Figure 1.1: Successful (timely and effective) EWS requires End-to-End SOPs.

Warnings related to meteorological, climatological, seismic and geophysical hazards are issued by the Pakistan Meteorological Department (PMD). These warnings contain information about the magnitude and significance of anticipated hazards and are based on already defined threshold levels and/or Standard Operating Procedures.

Table 1.1: Major Hazards in Pakistan and the National Agency Mandated to Issue Warnings

Hazard	Mandated National Agency	Remarks	
Seismic & Geophysical			
1	Earthquake	(PMD) NSMC	Issued by Standard Bulletins
2	Tsunami	(PMD) NSM&TWC	Issued by SOPs
3	Landslide	(PMD) NWFC	PMD issues general advisory with the name of the vulnerable regions along with weather information.
Hydrological			
4	Flood	(PMD) FFD	Issued by SOP, prepared for Indus, Jhelum, Chenab, Ravi, Sutlaj and Kabul rivers, dams, barrages and headworks with the information and data provided by PIDs and WAPDA.
5	Flash Flood	(PMD) NWFC&FFD	General advisory with the name of the vulnerable regions along with weather information. Except by SOPs prepared for Nullahs: Bein, Aik, Basantar, Deg and Palkhu in accordance with Flood Relief plan Lai Nullah by FFWMC-NWFC.
6	Avalanche	(PMD) NWFC	Sole advisory with the name of the vulnerable regions.
7	GLOF	(PMD) NWFC	Sole advisory with name of the vulnerable regions.
Meteorological			
8	Cyclone/Storm	(PMD) TCWC	Issued by SOPs (Draft) and guidelines adopted from WMO manual for Bay of Bengal.
Climatological			
9	Extreme Weather	(PMD) NWFC	Advisory
10	Drought	(PMD) NDMC	Fortnightly advisory

Source: Adapted from National Disaster Management Plan (NDMP) Vol. II

General Dissemination of Early Warning

Most warnings are released by PMD, along with other relevant information. Except for the Indus River floods, certain hydrological data such as real-time observations are issued directly from PID in the interest of time. SOPs also include the dissemination list of recipients. General dissemination is tabulated below:

1. Chairman, NDMA Islamabad (NEOC)
2. D.G. Met Islamabad (Internal)
3. Secretary, Ministry of Defence, Rawalpindi
4. Director of RMC in Related Province (Internal)
5. Secretary of Water & Power Islamabad
6. F/G/S/PDMAs, Chief Ministers
7. Chairman, Federal Flood Commission (FFC) Islamabad
8. Print and Electronic Media
9. D. G. Engineers, Engineering Directorate, GHQ Rawalpindi
10. All others concerned, such as DCs/DCOs of districts likely affected, F/G/S/PDMAs

Table: 1.2: Dissemination Tools in Multi-Hazard EWS by PMD

Basic Tools For Communication	Details
Landline	Facsimile and Phone
Cellular Phone	Phone and SMS
Internet	On web: www.pakmet.com.pk

Source: NDMP Vol.II

SECTION II

MULTI-HAZARD EARLY WARNING SOPs



FLOOD EARLY WARNINGS

Pakistan's Flood Forecasting Division (FFD) is responsible for flood forecasting services all over Pakistan, as well as for the early warning system in the Indus River Basin covering the Indus River downstream of Tarbela Dam in collaboration with WAPDA and the Provincial Irrigation Departments (PIDs).

The types of flood forecasting released by the FFD are: (1) Qualitative flood forecasts; (2) Quantitative flood forecasts; and (3) Early warnings.

1. Qualitative Flood Forecast

Qualitative Flood Forecasts give alerts about an approaching weather system which may result in a significant flood wave in the Indus river system. These forecasts are categorized into three alerts: Blue, Yellow and Red.

Table 2.1: Color Coded Qualitative Flood Forecast

Blue alert	Yellow alert	Red alert
Issued in case of the possibility of flooding within 24 to 72 hours	Issued in case the occurrence of flood becomes imminent.	Issued in case the low pressure/depression appears and directly affects the catchment area with heavy flood-producing rains.

2. Quantitative Forecast

Quantitative Forecasts are categorized into two bulletins (Bulletin A and Bulletin B) and seven parts.

Table 2.2: Quantitative Flood Forecast & Warning by FFD

Title	Major Contents	Timing
Routine Daily Flood Forecast (RDFF) (For Basic Information) (For Flood Information)	Observed Indus River discharge, meteorological charts, data of meteorological radars Bulletin A 1. General situation of river flow 2. Meteorological Features 3. Weather forecast (next 24 hours) 4. Amount of rainfall (past 24 hrs) 5. Weather outlook (next 48 hrs) Bulletin B 6. Weather/rain forecast in upper & lower catchments of all rivers 7. Quantitative forecast of riverflows at 22 sites including rim stations	Once a day (before mid-day)

Source: PMD

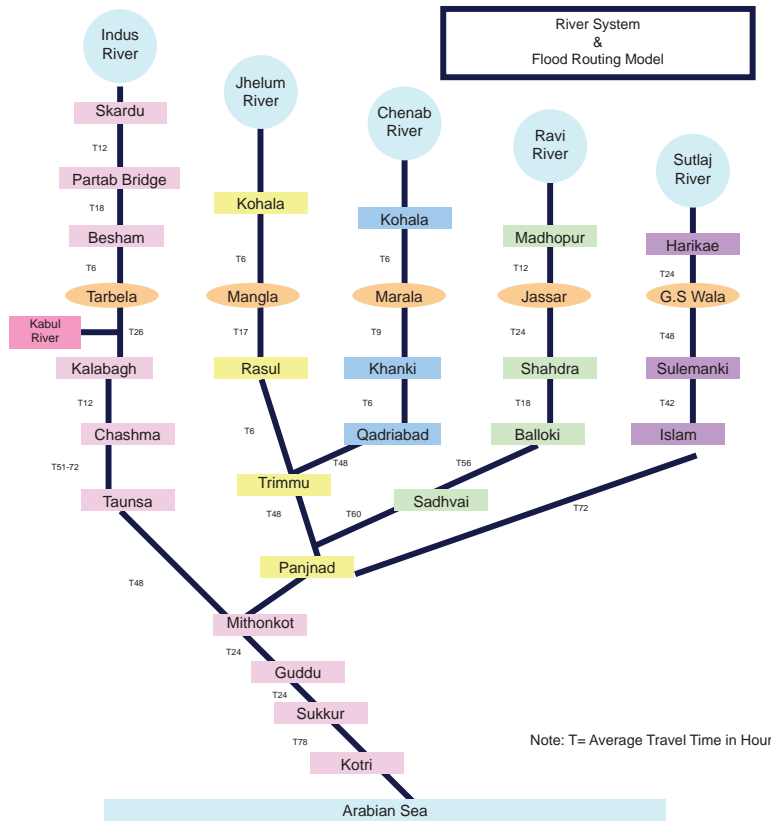
Riverine floods are classified into five levels as shown in the table below:

Table 2.3: Classification of Flood Intensity Level

Category	Flood Intensity Level
Low Flood	River flows within deep channel(s) but is about to spread over river islands/belas.
Medium Flood	River's flow is partly inundating river island/belas.
High Flood	River water levels have almost fully submerged islands/belas and water flows onto high banks/bunds without encroaching the freeboard.
Very High Flood	River water levels are between high banks/bunds and is encroaching the freeboard
Exceptionally High Flood	River flow is posing danger of overtopping/breaching or a breach has occurred/ high bank areas have become inundated.

Source: FFD

Figure 2.1: Discharge and travel time of rivers in normal conditions (hours)



Source: FFD-PMD

3. Early Warning

Early warnings are issued when there is an abrupt change in the flood situation under an approaching weather system. The following information is shared when an early warning is issued:

Table 2.4: Early warning Issued by FFD

Title Of Forecast	Major Content	Timing
Significant Flood Forecast	Name of river and location Flooding time, period and discharge quantity	Adhoc
Aerial Flood Inundation Forecast	Name of the villages likely to be inundated when flood exceeds the extraordinary high flood level and spill over is expected to occur causing inundation of the area along the river channel.	

Source: PMD

a) Miscellaneous Flood Forecast/Information

As the need arises, the following information may be issued besides the standard flood forecasting:

Table 2.5: Miscellaneous Flood Information by PMD

Title Of forecast	Major Content	Timing
Weather Information by FFD (as in the daily Bulletin A)	For non-technical persons: (1) Prevailing meteorological situation (2) Rainfall recorded during the last 24 hours (3) The weather and the flood forecast in descriptive form	Adhoc
Flood Information for Media	Generally conducted in the evening at about 6:00 p.m. only on occasions when flood situation is serious enough to call for such briefings to filter out unauthorized and incorrect flood information from reaching the public	
Special Press Briefings by Minister of Water and Power, Chairman of FFC or Chairman of NDMA	A brief mention of the prevailing weather system Mention of a few heavy rainfall amounts and any reported damage A brief on present and future flood situation Advice to the flood prone population Question answer session Concluding remarks	Chief Meteorologist FFD may advise the minister W&P/Chairman FFC or NDMA to conduct special press briefings for the public in the context of flood mitigation.

Source: PMD

b) Communication & Dissemination

Information related to the Indus River Flood as shown above is issued by FFD to NDMA, F/G/S/PDMAs, related DDMA and media through SMS, Facsimile, PMD's website and e-mail. In particular, FFD has recently started simultaneous warning delivery service by SMS to related government officials (200 recipients).

FFD communicates flood early warnings to NDMA and PDMA's for further dissemination to district authorities, and the public.

Table 2.6: List of recipients of qualitative & quantitative weather/flood forecast for next 24-hrs

- | | |
|---|---|
| 1. Federal Minister, Water & Power, Islamabad | 14. Chairman, Indus River System Authority, Islamabad |
| 2. Governor (All Provinces) | 15. Chairman, Federal Flood Commission, Islamabad |
| 3. Chief Minister (All Provinces) | 16. The Secretary General, Red Crescent, Islamabad |
| 4. Prime Minister House, Islamabad | 17. Secretary, Irrigation Department, (All Provinces) |
| 5. Chairman NDMA, Islamabad | 18. D.G. Engineers, Eng. Directorate GHQ, Rawalpindi |
| 6. PM Secretariat, Islamabad | 19. Chief Engineer, Mangla/Tarbela/Chashma |
| 7. Secretary, Aviation Division, Islamabad | 20. Chief Engineer, (All Barrages) |
| 8. Secretary, Ministry of Water & Power, Islamabad | 21. Chief Engineer, C.D.O. (Muzaffarabad) |
| 9. Secretary, Ministry of Information, Islamabad | 22. Commissioner for Indus Waters, Lahore |
| 10. Chairman NHA, Islamabad | 23. All other concerned |
| 11. Chief Secretary (All Provinces & AJK) | |
| 12. PDMA'S (D. G'S, All Provinces & AJK) | |
| 13. Administrator & Chief Secretary, Gilgit-Baltistan | |

Source: Bulletin No. A-123/16 dated 15th-October, 2016; Time: - 10:20 hours (PST)

LAI NULLAH FLASH - FLOOD EARLY WARNING

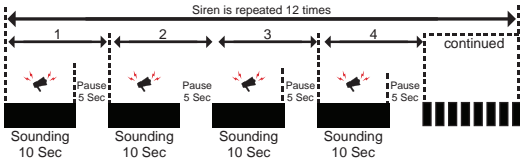
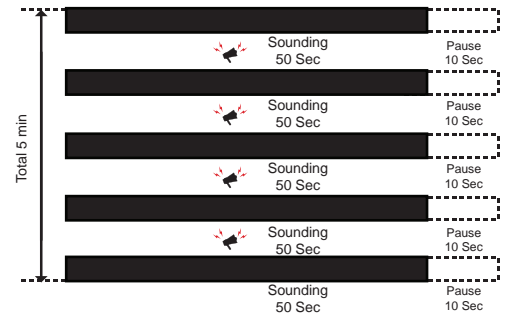
Table 2.7: Lai Nullah Flood Forecasting and Warning Codes

Warning Codes		Rainfall	Water level	Action
Pre Alert		50mm/180 Minutes	Kattarian Bridge: 11.4 feet from riverbed Gawalmandi Bridge: 8.3 feet from riverbed	Broadcast heavy rainfall and flood prediction. If the rainfall intensity or water level is higher than these mentioned values
Alert		35mm/60 minutes or 85mm/180 minutes	Kattarian Bridge: 15.7 feet from riverbed Gawalmandi Bridge: 14.1 feet from riverbed	Broadcast flood warning, if the rainfall intensity or water level is higher than these mentioned values.
Evacuation		Kattarian Bridge		
Pattern 1	exceed Alert Level (35mm/60min or 85mm / 180min)		exceed 20 feet from riverbed	Siren & Announcement for evacuation
Pattern 1	exceed Pre-Alert Level		exceed Pre-Alert Level	Siren & Announcement for evacuation
Gawalmandi Bridge				
Pattern 1	exceed Alert Level		exceed Alert Level	Siren & Announcement for evacuation
Pattern 2			exceed 20 feet from riverbed	Siren & Announcement for evacuation
Pattern 3	In case of Kattarian Evacuation			
All Clear	20mm /180 min	Kattarian Bridge : below pre-alert level Gawalmandi Bridge : below pre-alert level	All Clear Announcement	

Source: Master Control Center Nullah Lai Flood Early Warning System

Table 2.8: Siren Patterns, Announcements and Response on Nullah Lai EWS

When you hear this siren:

Stage	Siren Patterns and Announcements	What should you do?
<p>Flood Alert Warning</p>	 <p>*Before the siren, there will be an announcement</p>	<p>Prepare to be able to evacuate at any time!</p> <ul style="list-style-type: none"> ✓ Preparation of emergency goods ✓ Confirmation of evacuation center ✓ Confirmation with family of communication procedure in emergency ✓ Moving household goods upstairs ✓ Old persons should prepare to evacuate earlier
<p>Flood Evacuation Warning</p>		<p>Put out fire and lock doors, and evacuate to evacuation center with emergency goods.</p>
<p>All clear</p>	<p>Announcement from speaker and government officers</p>	<p>You may go home</p>

Source: Master Control Center Nullah Lai Flood Early Warning System

Table 2.9: System Summary Nullah Lai

Section	Function	Organization in Charge
1. Master Control Station		
1.1 PMD Islamabad	<ul style="list-style-type: none"> ▪ Flood forecasting: data collection ▪ Data processing ▪ Dissemination of flood information to related agencies MMM (Data transmission subsystem) 	PMD
2. Rainfall Gauging Station		
2.1 PMD Islamabad 2.2 Saidpur 2.3 Golra 2.4 Bokra 2.5 RAMC 2.6 Chaklala	Automatic Rainfall Data Observation (Telemetry subsystem)	PMD
3. Water Level Gauging Station		
3.1 Kattarian Bridge 3.2 Gawal Mandi Bridge	Automatic Water Level Data Observation	PMD
4. Repeater Station		
4.1 RAMC Telemetry Repeater 4.2 RAMC Wireless LAN Repeater	Repeater function for Telemetry Repeater function for wireless	PMD
5. Monitoring Station		
5.1 FFC 5.2 WASA of RDA	Flood information monitoring Flood information monitoring	FFC
6. Executive Warning Station		
6.1 TMA Rawalpindi -Warning Control Supervision -Flood Information Monitoring	Control and supervision of warning system Flood information Monitoring	CDG/TMA
7. Flood Warning Post		
7.1 WP-1 TMA Rawalpindi 7.2 WP-2 Christian Colony 7.3 WP-3 Water Treatment Facility adjacent to MC 7.4 WP-4 Ratta Amral Bridge 7.5 WP-5 Gunj Mandi Bridge 7.6 WP-6 Pir Wadhai Bridge 7.7 WP-7 Fire Station Pir Wadhai 7.8 WP-8 Sector IV-B Khayaban Park 7.9 WP-9 Gawal Mandi Children's Park 7.10 WP-10 Government Middle School - Dhoke	Flood Evacuation warning by motor siren and loudspeaker	TMA

DROUGHT EARLY WARNING

The National Drought Monitoring & Early Warning Center (NDMC-PMD) monitors drought situation in the country and issues advisories on the PMD website and electronic and print media through fortnightly bulletins.

Table 2.10: Sample Drought Advisory

<p>GOVERNMENT OF PAKISTAN MINISTRY OF DEFENCE (DEFENCE DIVISION) PAKISTAN METEOROLOGICAL DEPARTMENT (Headquarters Office) Post Box 1214 Sector H-8/2 Islamabad November 23, 2004 Advisory No.3 Drought: Update This update is being issued in continuation of our previous drought advisories issued on 27th July and 30th August 2004.</p> <p>Hydrological Drought: Hydrological drought conditions in the country, specially availability of surface water in major reservoirs have further aggravated. Since the temperatures in the catchment areas have already reached freezing level, as such no significant improvement in these reservoirs is expected during the next three months, though normal winter precipitation is expected in the catchment areas, but most of this precipitation would be in the form of snowfall and its melting generally start in March.</p> <p>Better water management by the concerned agencies during last few months have helped to ease out of water crisis to a manageable level but still we are likely to face about 45-50% water shortage for the Rabi crop. Initial estimates indicate normal winter rains which would help to manage this shortage to some extent (Insha ALLAH) as the wheat crop is not water demanding crop.</p>	<p>GOVERNMENT OF PAKISTAN MINISTRY OF DEFENCE (DEFENCE DIVISION) PAKISTAN METEOROLOGICAL DEPARTMENT (Headquarters Office) Post Box 1214 Sector H-8/2 Islamabad November 23, 2004</p> <p>Reservoirs Status</p> <p>Tarbela Dam: Today water level in Tarbela Dam is 113 feet below the maximum conservation level. Which means 1.655 million acre feet live water storage is available against the total dam live capacity of 9.30 million acre feet. Last year on 22nd November 2003, 3724 million acre feet was available in the dam, which means this year 56% less water is available in Tarbela even compared to last year.</p> <p>Mangla Dam: Today water level in Mangla Dam is 70 feet below the maximum conservation level. Which means that only 1,590 million acre feet live water storage is available against the total dam live capacity of 4.82 million acre feet. Last year on 22nd November 2003, 2817 million acre feet water was available in the dam, which means that this year 49% less water is available in Mangla compared to last year.</p>
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Source: NDMP Vol. II

Communication & Dissemination: Drought advisories and information are disseminated through the official website www.ndmc.gov.pk of NDMC-PMD and other electronic and print media.

TROPICAL CYCLONE EARLY WARNING

Cyclone warnings are issued by the Marine Meteorology and Tropical Cyclone Warning Centre (TCWC) of PMD. The types and kinds of observations, alerts and warnings issued by TCWC are mentioned below:

1. Tropical Cyclone Watch

When a tropical cyclone forms or enters the Arabian Sea north of Lat. 10°N the “Tropical Cyclone Watch” is issued.

2. Tropical Cyclone Alert

When there are chances of Pakistan’s coastal area being affected by the cyclone, the “Tropical Cyclone Alert” is issued.

3. Tropical Cyclone Warning

When there is a strong possibility of a cyclone affecting Pakistan, the “Tropical Cyclone Warning” is issued. These warnings are issued every three or six hours.

Table 2.11: Tropical Cyclone Warning by TCWC

Items	Description
Contents	<ul style="list-style-type: none"> a. The tropical cyclone TC location b. Intensity c. Maximum sustained winds d. Projected e. Expected Landfall
Types of Warning	<ul style="list-style-type: none"> (i) Warning bulletins for ships on the high seas. (ii) Warning bulletins for ships at the coastal waters (iii) Port warnings (iv) Fisheries warnings (v) Warning for government officials and functionaries (vi) Warning for recipients who are registered with PMD (vii) Warning for aviation (viii) NGOs and Civic Community bodies

Source: PMD

During normal undisturbed weather, two bulletins are broadcasted at fixed hours known as daily bulletins. In the event of disturbed weather, additional bulletins are issued and TCWC-PMD adopts WMO’s technical guidelines for Bay of Bengal and Arabian Sea Countries.

Table 2.12: Cyclone categories and associated damage and actions

System Intensity	Damage Expected	Action Suggested
Deep Depression (28-33Kts or 52-61Kmph)	Minor damage to unsecured structures.	Fishermen advised not to venture into the open seas.
Cyclonic storm (34-47Kts or 62-88Kmph)	Damages to thatched huts Broken tree branches cause minor damage to power and communications lines	Total suspension of fishing operations.

Severe cyclonic storm (48-63Kts or 89-118Kmph)	Extensive damage to thatched roofs and huts. Minor damage to power and communication lines due to uprooting of large avenue trees. Flooding of escape routes.	Total suspension of fishing operations. Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors.
Very Severe cyclonic storm (64-90Kts or 119-167Kmph)	Extensive damage to Kutcha (Mud) houses. Partial disruption of power and communication line. Minor disruption of rail and road traffic. Potential threat from flying debris. Flooding of escape routes.	Total suspension of fishing operations . Evacuation from coastal areas. Judicious regulation of rail and road traffic. People in affected areas instructed to remain indoors.
Very Severe cyclonic storm (91-119Kts or 168-221Kmph)	Extensive damage to Kutcha houses. Some damage to old buildings, power and communication lines. Disruption of rail and road traffic due to extensive flooding. Potential threat from flying debris.	Total suspension of fishing operations. Extensive evacuation from coastal areas. Diversion or suspension of rail and road traffic in vulnerable areas. People in affected areas instructed to remain indoors.
Super Cyclone (120Kts or more or 222Kmph or more)	Extensive structural damage to residential and industrial buildings. Total disruption of communication and power supply. Extensive damage to bridges causing large- scale disruption of rail and road traffic. Large-scale flooding and inundation of seawater. Surrounding air full of flying debris.	Total suspension of fishing operations. Large scale evacuation of coastal population. Total suspension of rail and road traffic in vulnerable areas. People in affected areas to remain indoors.

Source: Tropical Cyclone Operational Plan for the Bay of Bengal and the Arabian Sea, WMO Technical Document, 2007 (adopted by TCWC-PMD)

Dissemination Modes of Tropical Cyclone Warnings

- a) Coastal Radio (ASK) covering the Arabian Sea at 20°N
- b) Gulf of Oman and the Persian Gulf
- c) Telephones
- d) Electronic & print media
- e) Radio Pakistan
- f) Pakistan Television

- g) Telex/Telefax
- h) Website: www.pakmet.com.pk
- i) E-mail

The mode of communication differs for different types of messages; when one type of communication channel fails, an alternate is used.

TCWC communicates cyclone early warning to NDMA and PDMA for further dissemination to district authorities and the public.

TSUNAMI EARLY WARNING

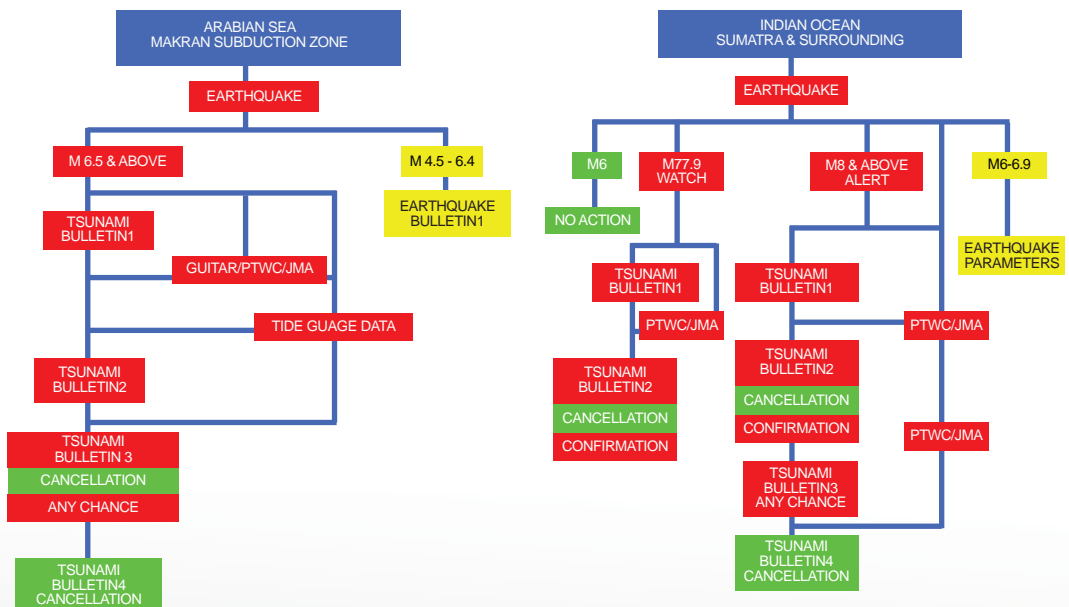
Three parameters (earthquake location, depth, and magnitude) are used to evaluate the tsunami potential of an earthquake as is shown in the table below:

Table 2.13: Tsunami Scenarios for Arabian Sea and for Indian Ocean

Magnitude of Earthquake	Arabian Sea			Indian Ocean		
	Type of Information	Response Authority *1	Media	Type of Information	Response Authority *1	Media
4.5 - 5.9	Earthquake B	SMS/Fax	SMS/Fax	No Action		
6.0 - 6.4				Earthquake B	SMS	No Info.
6.5 - 6.9	All Tsunami Bulletins	SMS/Fax	SMS/Fax	Tsunami B - 1	SMS/Fax	No Info.
7.0 - 7.9				Tsunami B - 2		Fax
>8.0				All Bulletins		SMS/Fax

Note *1: Response Authorities include National Disaster Management Authority (NDMA); Provincial Disaster Management Authorities (PDMA-Balochistan and Sindh); District Coordination Officer(s) (DCO) (DDMA: Gwadar, Lasbella, Karachi, Thatta, Sajawal and Badin); Pakistan Army, Pakistan Navy, Karachi Port Trust (KPT) and Maritime Security Agency (MSA).

Figure 2.2: Tsunami Scenarios for Arabian Sea and for Indian Ocean



SOPs (Timeline) for issuance of Tsunami bulletins for Arabian Sea (Makran Subduction Zone)

1. For earthquakes of a magnitude between **4.5** to **6.4**, only earthquake parameters will be sent to **RESPONSE AUTHORITIES** and **MEDIA** through **SMS** and **FAX**.
2. Maximum four Bulletins will be issued for earthquakes of magnitude 6.5 or above to **RESPONSE AUTHORITIES** and **MEDIA**.
3. **BULLETIN-1**: - This bulletin will contain:
 - i. Earthquake Parameters.
 - ii. Tsunami evaluation based on historical earthquake and tsunami data.

***This bulletin will be issued according to time line of Bulletin-1.**

4. **BULLETIN-2**: - This bulletin will contain:
 - i. Revised **Earthquake Parameters** (if so).
 - ii. **Estimated arrival times and wave heights** at various locations along Pakistan Coast based on **GUITAR/PTWC/JMA**.
 - iii. **Tide gauge data** if generation of tsunami has been confirmed.

***This bulletin will be issued soon after the dissemination process of Bulletin-1 is completed.**

****In case the Tsunami generation is confirmed, the first sentence of Evaluation will be deleted.***

5. **BULLETIN-3**: - This bulletin will contain:
 - i. Revised **earthquake parameters** (if so).
 - ii. **Tide gauge data** of Pakistan Coast to confirm the generation of tsunami
 - iii. Any change if tsunami has been confirmed in **Bulletin-2**.
 - iv. This bulletin will serve as a cancellation in case sufficient time has lapsed after the estimated arrival time but no significant change is observed in sea level. In such case it will be the last bulletin.

****This bulletin will be issued whenever tide gauge data confirms the tsunami generation (CONFIRMATION).***

6. **BULLETIN-4**: (Cancellation)
 - i. This bulletin will contain: Earthquake parameters and tsunami evaluation regarding cancellation.
 - ii. This will be the last bulletin and will serve as cancellation.

Important Supplementary bulletins (SMS/FAX) will be issued in between regular bulletins depending upon the prevailing situation.

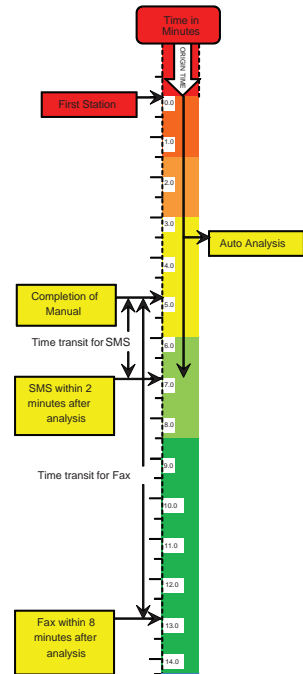


Figure 2.3- PMD's timeline for earthquake processing and dissemination of tsunami bulletin (for Makran Subduction zone)

SOPs for Operational Staff of NSM & TEWS Center Karachi

When Joining Duty:

1. Proper **briefing** from the outgoing shift.
2. Check the **operational status** of all components
 - i. Seiscomp-3
 - ii. SMS system
 - iii. DSL & Telephone lines
 - iv. FAX
 - v. GTS System for PTWC/JMA tsunami Advisories
 - vi. Uploading of data on website
 - vii. GUITAR
 - viii. Status of Electric Generator
 - ix. Air Conditioners installed in the Hall
 - x. All Computers
 - xi. Operational Status of all Broad Band Stations
 - xii. Satellite

Report O.K. or mention **un-serviceability** and inform the concerned officer for action and advice;

- Mr. Sohail, Computer Expert 03332100936
 - Mr. Attaullah, EE 03442221103
 - Mr. Nasir, EE (for Generator) 03332189724
 - Director (Seismic) 03337899442
 - Chief Met. Karachi 03008026286
3. Chalk out **strategy** for performing the following jobs;
 - i. Earthquake Analysis
 - ii. Guitar simulation
 - iii. SMS Message
 - iv. Satellite phone Message
 - v. Earthquake report/Bulletin through FAX
 4. Check **SOP(s)** for;
 - i. Arabian Sea
 - ii. Indian Ocean
 - iii. Pacific Ocean

Contact Islamabad, UARS Peshawar and G. C Quetta for **standby** in case of system failure at NSMC;

- i. Seismic Islamabad (24/7): 051-9250291
- ii. RMC Peshawar (24/7): 091-9212410
- iii. G. C. Quetta (24/7): 081-9213379

Stay prepared for a high target earthquake to hit soon.

Communication & Dissemination

NSM&TEWS center communicates early warning to NDMA, PDMAs for further dissemination to district authorities and public.

Pakistan Meteorological Department, Headquarter Office Sector H-8/2, Islamabad.

Website: <http://www.pmd.gov.pk>,

Email: pmd@pmd.gov.pk

Phone: (+92-51) 9250360, Fax: (+92-51) 9250368

EARTHQUAKE BULLETINS

PMD disseminates earthquake information to government, non-government organizations and to the public after the occurrence of any event.

(Sample website bulletins)

Event No. 102

Region: Afghanistan Tajikistan border region

Date	Origin Time	Magnitude	Latitude	Longitude	Depth
19 February, 2017	00:04:50	4.3	36.61N	71.37 E	180 km
Station	Distance (°)	Azimuth (°)	Phase	Time (UTC)	
NIL	3.3	152	P	00:05:42	
NIL	3.3	152	S	00:06:22	
AAK	6.5	21	P	00:06:27	
AAK	6.5	21	S	00:07:41	

Earthquake Bulletin/ Information shared via fax

Earthquake Bulletin (Sample)

Issued at 00:00:00 PST

National Seismic Monitoring Center of Pakistan Meteorological Department has recorded an earthquake with the following preliminary seismological parameters:

Earthquake Originated on 19-02-2017 at 00:04:50 PST

Mag: _____

Depth: _____

Lat: _____

Long: _____

Location: _____

Pak. Met. Dept.

EVALUATION: Based on the historical data, earthquakes of this size may not cause widespread infrastructure damages.

Source: PMD websites <http://www.pmd.gov.pk>

National Seismic Monitoring & Tsunami Early Warning Centre (Tsunami SOPs)

NSMC communicates earthquake information to NDMA, PDMA for further dissemination to districts authorities and public.

SECTION III

**MULTI-HAZARD EARLY
WARNING DISSEMINATION
SOPs**



NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

Disaster Response Functions

Upon declaration of emergency, various agencies must respond as early as possible to provide relief to affected people. However, during the process, standards and criteria must be adhered to. The purpose of this section is to explain the response functions of various agencies, as well as the standards and criteria to be used for organization of emergency response by different stakeholders.

1. Activation of Emergency Operation Centre (EOC)

The EOC will serve as the hub for receiving early warning and issuing information to the public, media, ministries, departments, and humanitarian response agencies. The EOCs will also lead the coordination and management of relief operations in the affected areas. All agencies such as Civil Defence, Armed Forces, Fire Services, Police, Ambulance Services, Red Crescent Societies, Edhi Foundation, and other humanitarian agencies will be coordinated by the EOCs at their respective levels. The EOCs will function throughout the year in disaster and non-disaster times. In times of disaster, the EOCs will coordinate relief and early recovery, and during non-disaster times, emergency centres will be working in emergency preparedness mode, e.g. contingency planning.

2. National Emergency Operation Centre (NEOC)

The NEOC will be part of the NDMA office with part time/full-time staff, and will facilitate representatives from different ministries, departments, media, and those humanitarian organizations who will join NEOC during times of disaster. NEOC will be equipped with facilities like telephones (landlines, cellular, and satellite phones), fax, internet/emails, computers, printers, photocopiers, TV sets, range of status boards and map boards, generators, and other facilities to include telecommunication systems (radio, telephone, handsets, VHF wireless radio communication and standby power system). The NEOC will be supervised and directed by the Chief Coordinator (Member Operations). The NEOC will be headed by the Director of Operations and supported by the operations, communication, public information, finance, administration and logistics support teams.

Detailed functions of NEOC and job description of various members are given in detail in the National Disaster Response Plan at <http://www.ndma.gov.pk/Documents/NDRP/NDRP.pdf>

The NEOC will be working round the clock for the duration of disaster. The main objectives of the NEOC are;

- a) Disseminating warning on time
- b) Issuing instructions to all stakeholders
- c) Communicating with stakeholders
- d) Coordinating with different stakeholders for effective response
- e) Organizing and managing emergency operations at national
- f) Collecting Information, undertake analysis and arrange dissemination

Activation and Stand Down Procedure

1. On Receipt of Alert (Standby - Stage 1)

Director NEOC will collect information from PEOC and DEOC about the potential disaster. After reviewing the information, he/she will advise the chief coordinator about the alert or standby position of NEOC. Chief Coordinator will update the Chairman NDMA and seek his approval for activation of NEOC.

The SOPs to be followed at this stage will be;

- i. Monitoring the situation
- ii. Alerting the NEOC staff for operationalization of NEOC at short notice.
- iii. Ensuring everything is functional in the NEOC
- iv. Coordinating with key ministries, departments, Armed Forces, JS-HQ, NLC, humanitarian organizations and alert them
- v. Communicating with the DG PDMA, PEOC to attain and review information

2. On Receipt of Warning (Stage 2)

Chairman NDMA will issue a notification for full activation of the NEOC. The Chief coordinator will then inform key ministries, Federal Flood Commission (only in case of floods), PDMC, PDMA, DDMA, Civil Defence, Emergency Relief Cell, Armed Forces, JS HQ, Pakistan Red Crescent Society, UN Agencies, INGOs, and Media. The NEOC will remain fully operational 24/7.

The SOPs to be followed at this stage will be;

- i. Making NEOC fully operational
- ii. Opening all communication systems and links
- iii. Collecting essential information including detail of resources, which might be required for relief operation
- iv. Informing all relevant ministries and departments to send their representative to sit in the NEOC
- v. Informing relevant ministries, departments, humanitarian agencies, etc., to get ready for relief services
- vi. Coordinating a meeting of the Chief Coordinator/Chairman NDMA with the NDMC for updates
- vii. Sharing information regularly with PEOC

3. Stand Down Procedure (Stage 3)

After reviewing situation and consultation with concerned PEOC and DG PDMA, Chief Coordinator NEOC will advise the Chairman to stand down. After getting approval of the Chairman NDMA, NEOC/NDMA will notify the key ministries and departments at federal and provincial level, PDMA, DDMA etc., to stand down.

The SOPs to be followed at this stage will be;

- i. Director NEOC will debrief Chief Coordinator (Member Operations) about the stand down
- ii. Chief Coordinator (Member Operations) will advise Chairman NDMA to approve stand down
- iii. Chairman NDMA will approve it for notification
- iv. Director NEOC will disseminate notification to the relevant ministries, departments and other stakeholders
- v. Final report on the emergency operations will be circulated to key stakeholders
- vi. PDMA & DEOC will be informed about the stand down and the final report will be shared with them
- vii. NEOC staff will work in normal mode

Source: National Disaster Response Plan 2010 (Part V)

For further details visit www.ndma.gov.pk
or call National Emergency Operation Center
(NEOC) UAN 111-157-157; Office +92-51-9205037

PAKISTAN TELECOMMUNICATION AUTHORITY (PTA)

Standard Operating Procedures (SOPs)

- a) National Disaster Management Authority (NDMA) and provincial disaster management authorities shall establish their SMS gateways for dissemination of information relating to disaster, disaster status, evacuation purposes and managing people in the affected areas.
- b) NDMA shall liaison and coordinate with international bodies, NGOs for resources arrangement on urgent basis during relief operation and disaster mitigation.
- c) NDMA shall arrange necessary funding for provision of satellite/wireless based equipment to National Telecommunication Corporation (NTC) for the establishment of emergency telecommunication network.
- d) NDMA/PDMAs shall upgrade their SMS aggregator systems for compatibility with cell broadcast system. NDMA/PDMAs shall establish separate SMS aggregator systems which may act as stand-by to each other as well.
- e) NDMA/PDMAs shall have their own VHF/UHF systems, satellite bandwidth and satellite mobile phones.
- f) NDMA/PDMAs shall establish call centers which will operate 24/7.

Source: PTA No. Letter No: Numbering/131 dated 10th Nov 2017

PDMA KHYBER PAKHTUNKHWA

The PDMA Khyber Pakhtunkhwa is responsible for issuing Early Warnings for Earthquake, Landslide, Flood, Flash Flood, Avalanche, GLOF, Cyclone/Storm, Extreme Weather and Drought.

Table 3.1: EOC SOPs to be used in event of any disaster

Responsibilities	Action by
<p>1. Communication</p> <ul style="list-style-type: none"> > News will be communicated to all Directors, Deputy Directors & Assistant Directors of the PDMA > All Directors, Deputy & Assistant Directors (O&C) will report to the PDMA Office > Everyone will be expected to report to duty irrespective of duties assigned for the evening & night as per duty roster > All concerned officers will ensure immediate availability of their respective staff 	<p>DD (Ops & Coord), In-charge (PEOC) / staff</p> <p>All Directors / Deputy Directors & A.Ds</p> <p>All Directors / Deputy Directors & A.Ds</p> <p>All Directors / Deputy Directors & A.Ds</p>
<p>2. Rescue & Relief</p> <ul style="list-style-type: none"> > Immediate contact will be made with the concerned district with an aim to assess the scale of damage done > Contact will be established with NDMA, Corps 11, Rescue 1122, civil defense, fire brigade, etc. (depending upon the nature of incident) to coordinate rescue efforts > Relief goods will be immediately arranged and dispatched to the concerned district > Timely communication will be made to procurement section of the non-availability of required relief items in the quantities needed > Immediate emergency procurement will be procured by procurement section > Relief account of the concerned district will be immediately replenished and extra funds will be made available if demanded > All information obtained from the district will be disseminated and all rescue and relief efforts will be mounted along with the quantum of goods being dispatched and relief accounts being replenished to PRO PDMA and Medical coordinator 	<p>Deputy Director (O&C)</p> <p>Deputy Director (O&C)</p> <p>Deputy Director (O&C)</p> <p>AD warehouse</p> <p>AD warehouse</p> <p>DD (Procurement), DD & AD (Relief and Finance)</p> <p>DD (O&C)</p>
<p>3. Media Coordination</p> <ul style="list-style-type: none"> > Proactive engagement with print and electronic media for timely dissemination of beepers and live feeds will be ensured > Press releases will be drafted in both in Urdu and English and will be published in all major English and Urdu dailies the next day > Live or recorded transmissions will be run on the issue > Awareness of the mandate of PDMA in such situations and especially of AREAS BEYOND PDMA MANDATE will be created > All print/electronic media including all news, emanating from there will be thoroughly checked for baseless news/allegations and will be promptly responded to > The availability of required personnel will be ensured 	<p>PRO & Media coordinator, DD(O&C)</p> <p>Deputy & Assistant Directors (O&C)</p> <p>Directors Relief PRO & Media coordinator</p> <p>D.D (O&C) PRO/Media coordinator</p> <p>AD (Admin), AD (PEOC)/Staff</p>

<p>4. Statistical Support</p> <ul style="list-style-type: none"> > All data including number of dead, injured, houses collapsed (partial and complete), relief items provided with (quantities and numbers), and the extent of relief funds provided during disasters will be acquired from all relevant sections > All data will be computed and updated on the website and social media (Twitter and Facebook) > All the communication technologies installed in PDMA will be ensured to be in operational and good working condition > Records of all available IT equipment will be streamlined and requests to fulfill gaps (if any) will be filed on a monthly basis > The functioning of DMIS will be ensured and regular follow ups will be conducted with the district administration of (Swat, Dir. upper, Dir. lower, Shangala, Chitral, Bannu, Batagram, Torghar, Kohistan and Mansehra) for regular update 	<p>Deputy Director (MIS)</p>
<p>5. General</p> <ul style="list-style-type: none"> > Incharge PEOC along with his staff and AD (DRM-IT) will ensure their availability in PEOC as usual. > Special duties will be assigned in case of weather advisory and/ or emergencies. 	

Source: PDMA/ParRSA Circular Dated 15th February 2017; No. PDMA/KP/DIR(R)/2017

Monsoon Coordination

The PDMA coordinates efforts of all stakeholders for effective disaster risk management. For the dissemination of early warning, it undertakes search and rescue activities and conducts relief operations to meet the needs of the vulnerable/affected groups. For this purpose, the PDMA coordination is shown in the diagram below:

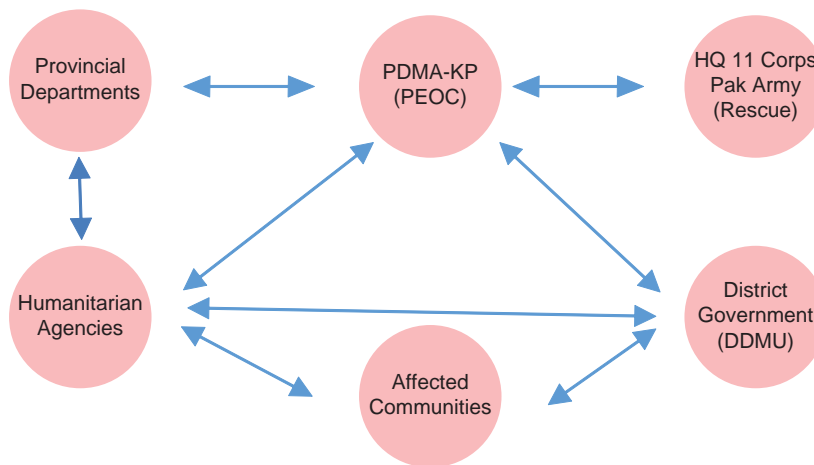


Figure 3.1: PDMA KP coordination for monsoon

1. The Deputy Commissioner issues an early warning if the situation demands. For issuance of timely warning and evacuation advisory, a joint cell of PID, PMD, and PDMA is established. PEOC after consultation with all relevant parties issues early warning and evacuation advisory (if required) in coordination with Deputy Commissioner(s) of the district(s) concerned.
2. DG PDMA in consultation with Secretary, RR&S Department and Chief Secretary takes responsibility for Flood Response & Relief Operations. Director Relief PDMA heads a Composite Team (comprising representatives of Lead Agency/Department and focal persons of support organizations) to coordinate response & relief operations. All relevant departments/agencies select a representative to take part in the provincial response team when requested. At the provincial level, in KP, these departments are activated and their SOPs are mentioned below.

District Administration

- i. Establishing control rooms and disseminating contact details
- ii. Arranging quick dissemination of flood warning and establishing observation
- iii. Posts (OPs) on the likely flood affected areas
- iv. Activating Civil Defense staff and volunteers for rescue and relief operations
- v. Identifying flood disaster prone areas and threatening water channels
- vi. Earmarking evacuation arrangements routes, building and guidance etc
- vii. Determining district level food stock (wheat) and NFIs quantities and locations
- viii. Coordinating with humanitarian agencies i.e. INGOs, NGOs and UN agencies
- ix. Training human resource, especially for operating rescue boats
- x. Coordinating with all relevant departments to ensure requisite preparedness before the monsoons

Irrigation Department

- i. Establishing provincial and district level Flood Emergency Cells
- ii. Formulating and executing a flood emergency response plan
- iii. Establishing Flood/Water Monitoring Network
- iv. Providing an early warning;
 - a. 16 - 24 hours warning along Swat River
 - b. 5 -7 hours along Kabul
 - c. 36 - 48 hours along Indus at DI Khan
- v. Removing encroached areas with the assistance of DCs, TMA , and C&W
- vi. Ensuring necessary liaison with Pak Army, Frontier Constabulary and Scouts for initiation of flood fighting operations (D.I Khan only)

Communication and Works Department

- i. Establishing Provincial Flood Emergency Cell
- ii. Formulating and executing flood emergency response plan
- iii. Identifying vulnerable infrastructure (buildings, roads and bridges)
- iv. Prepositioning available machinery/ plants at vulnerable areas
- v. Restoring land communication
- vi. Liaising with local army authorities

Health Department

- i. Establishing a Health Emergency Preparedness and Response Cell (HEPR)
- ii. Carrying out detailed planning with district officials (EDOs) and formulating district level health plans for execution
- iii. Carrying out needs analysis and gap analysis for medicines and required stocks
- iv. Ensuring availability of segregated health staff figures (No. of female and No. of male doctors)
- v. Coordinating with humanitarian agencies i.e. INGOs, NGOs and UN agencies to make up for short falls

Municipalities

- i. Nominating Chief Municipal Officers (CMO) as the representative/focal person
- ii. Ensuring the removal of encroachments through close coordination with Revenue, Irrigation and other relevant departments
- iii. Liaising and coordinating with respective DCs and DDMUs round the clock during the emergency
- iv. Training and sensitization of TMOs and their staff by the respective DCs/ DDMU for monsoon emergency response and determination of roles and responsibilities
- v. Cleaning sewerage system and nullah by the respective municipalities

Communication & Dissemination

1. Principal Secretary, Chief Minister's Secretariat, Govt. of Khyber Pakhtunkhwa
2. Secretary, Home & Tribal affairs department
3. Secretary, LG&RD, Govt. of Khyber Pakhtunkhwa
4. Secretary, Information Department, Govt, of Khyber Pakhtunkhwa
5. Secretary, Irrigation Department, Govt. of Khyber Pakhtunkhwa
6. Secretary, Health Department, Govt. of Khyber Pakhtunkhwa
7. Secretary, C& W department, Govt. of Khyber Pakhtunkhwa
8. All Divisional Commissioners in Khyber Pakhtunkhwa
9. Director General Rescue 1122. Govt.of Khyber Pakhtunkhwa
10. DG-PDA, Govt. of Khyber Pakhtunkhwa
11. MD Pakhtunkhwa Highway Authority of Khyber Pakhtunkhwa
12. Military Operations Directorate, GHQ Islamabad

13. The Colonel GS, II Corps.
14. The Colonel Staff 21 Division
15. Director Information and Public Relations Department Peshawar
16. Director Response, NDMA Islamabad
17. Director Civil Defence, Govt. of Khyber Pakhtunkhwa
18. Chief Executive, WSSP, Peshawar
19. PSO to Chief Secretary, Govt. of Khyber Pakhtunkhwa
20. PS to Secretary, RR&S Department, Govt. of Khyber Pakhtunkhwa

For further details visit <http://pdma.gov.pk/>

or Call 091 9211854; 091 9214095; 091 5274340; 091 9213959 & PDMA KP Helpline 1700

Source: Monsoon Contingency Plan 2017; DRM Road Map 2014-19
Chitral Floods 2015

PDMA notification NO. PEOC/(PDMA)/3- 1/2017/W&FCREPORT/VOI-1 Dated June, 19, 2017
PDMA/PARRSA notification No PDMA/KP/DIR(R) 2017 dated 15th Feb, 2017

STATE DISASTER MANAGEMENT AUTHORITY AJK

Standard Operating Procedures (SOPs)

1. Receipt and Dissemination of Warnings

The Director General of SDMA must ensure that all public warnings are disseminated through the appropriate media channels. The SDMA must issue warnings for the following hazards: Earthquake, Landslides, Floods, Flash Floods, Avalanches, GLOF, Cyclones/Storms, Extreme Weather and Drought.

- Warnings and Alerts

Warning bulletins and advisories are issued by the SDMA. These warning are to be based on the information obtained from PMD. Emergency contact numbers are listed in these warnings. Warnings or alert messages received from other source shall be verified by SDMA.

2. EOC Activation Levels

The level of the State Emergency Operation Center (SEOC) activation should depend on the nature and scope of the threat to the state. Localized road accidents may require only a minimal activation of the SEOC, while an impending earthquake, flood or massive landslide etc. will require a full activation of the SEOC.

Following are the three levels:

Level 1: Full Scale Activation - All stakeholders activated

Level 2: Partial Activation - Some emergency support functions activated

Level 3: Monitoring

On a daily basis the SEOC will be at level-3 activation

SEOC Staffing & Responsibilities

- SEOC must work on a 24-hour basis. The SEOC should perform its functions under the overall supervision of the Incident Commander (Director General SDMA). However, the head of the branch is Director of Operations and in-charge. The focal person of SEOC is Assistant Director of Operations. Rescue 1122 will act as the Emergency Response Force during the occurrence of a limited or small-scale emergency, and reports to the Focal person of SEOC regarding the incident.
- The In-charge/ Focal person should issue a weekly duty roster and ensure its implementation. The copies of the roster should be sent to Secretary SDMA, Directors, Deputy Directors, and all concerned personnel accordingly.
- In-charge/ Focal person should be responsible for the smooth and efficient functioning of SEOC. He/she must take on the responsibility for up-keep and proper functioning of all equipment, and should also check the presence and performance of all employees on duty.
- Staff of the SEOC must only serve in the SEOC and perform their duties as assigned by the officer in-charge.
- The SEOC must collect information about weather forecasts, hazards and weather alerts from the meteorological department.
- On a daily basis, incoming messages regarding update of daily emergency situation to the SEOC should be captured in writing on a specific form. Upon completion of this form, it is to be forwarded to the Director General of SDMA for appropriate action and dissemination to DDMA, Civil Defence/ Rescue 1122 and all concerned departments immediately.
- During the monsoon season and in winter, the SEOC must share information regarding weather changes and flood situation to all DDMA and other stakeholders on a daily basis.
- In-charge of the SEOC should be responsible for mobilization of the rescue 1122 (emergency response force) immediately in case of emergency.
- Incoming messages should be saved in the appropriate disaster operation file.
- The Director Operation SDMA must review and approve all outgoing messages prior to being sent.
- All outgoing messages are to be saved in the appropriate disaster operation file.
- In case of level-1 activation, a daily SEOC briefing is to be held to update agencies/ organizations on the status of emergency operations. Additional daily briefings should be scheduled as necessary.
- A daily Situation Report will be prepared through utilization of a specialized form, and forwarded to the Director General/Secretary of SDMA. An additional Situation Report must be provided and disseminated as warranted.
- Information will be disseminated to the public through available media outlets & further additional sources. Contact information for the media is available in the SDMA Notification Directory.

3. Public Information

A contact list of disaster focal persons is attached in the annex to source document (State Disaster Management AJK Plan, 2017). Other details and contacts for disaster information will be provided by the SEOC under the guidance of the Director General, SDMA. The State Disaster Management Authority will be responsible for disseminating disaster risk and response information to all the concerns.

4. Managing Public Information

Public information will be managed as follows;

- A news conference will be held as soon as possible after the event
- Media guidelines will be set upon accessibility to information
- Frequent updates and bulletins will be issued regularly
- A media pool will be formed by selecting a small number of media personnel from different media houses (representing both print and electronic news)
- All print and electronic coverage will be closely monitored

5. Information Management and Rumor Control

The following guidelines are used as SOPs for information management;

- Accurate and timely information will be shared with the public
- Information will be issued by SDMA management
- Information will be repeated frequently in the early stages
- Media will be given access to disaster information
- Focal persons for media management will be appointed
- A media “background information” sheet will be regularly updated
- Media visits to disaster sites will be organized by the SDMA

6. Reporting, Briefings and Conferences

All response organizations will share regular updates with the State Emergency Operation Center (SEOC). The Chairman DDMA will compile disaster reports and supply regular detailed situation reports to the Chairman SDMC, DG/Secretary SDMA and other stakeholders. Briefings for the DG of SDMA and the Public Information Officer will be scheduled at intervals and should include:

- New and unresolved problems
- Assistance needed from other agencies or outside organizations
- Situation updates

Additional briefings may be organized at the request of the Director General of the SDMA. Conferences of key personnel may be convened at any time by the DG SDMA to discuss and resolve major issues. The Director General of SDMA will be responsible for ensuring that any decisions reached at conferences are relayed to all personnel and acted upon.

7. During Disaster Reports

SDMA will be responsible for preparing and sending any special reports on damages, threats, or required assistance. The locations of temporary medical, feeding, or shelter facilities will be rapidly disseminated to all field workers.

Communication & Dissemination

- i. Principal Secretary, Prime Minister's Secretariat, Govt. of AJK
- ii. Secretary LG&RD, Govt. of AJK
- iii. Secretary Information Department, Govt. of AJK
- iv. Secretary Irrigation Department, Govt. of AJK
- v. Secretary, Health Department, Govt. of AJK
- vi. Secretary, C& W department, Govt. of AJK
- vii. All Divisional Commissioners in AJK
- viii. Director General Rescue 1122 Govt. of AJK
- ix. MD Highway Authority of AJK
- x. Military Operations Directorate, GHQ Islamabad
- xi. Director Information and Public Relations Department AJK
- xii. Director Response, NDMA Islamabad
- xiii. Director Civil Defense, Govt. of AJK
- xiv. PSO to Chief Secretary, Govt. of AJK
- xv. PS to Secretary, RR&S Department, Govt. of AJK

For further details visit www.sdmagok.pk or Call Emergency Operation Center 058-22921043

Source: State Disaster Management AJK Plan, 2017

PDMA SINDH

Standard Operating Procedures (SOPs)

The PDMA is to cater to all types of major disaster situations like floods/rains, cyclones/storms/tsunamis, droughts, earthquake, fires, accidents, pollution, and hazardous substance accidents in which district authorities are overwhelmed, or the disaster affects more than one district, or for which a request has been made by the district authority to the PDMA.

1. Receipt of Warning and Dissemination

The Director General (DG) will be informed of the appropriate response activity to be undertaken for the specific natural hazard against which the early warning has been issued. All warnings to the public and concerned authorities for preparedness and response will be disseminated through EOC in PDMA upon recommendation of the Director General.

The PDMA headed by the DG will be responsible for;

- The establishment and activation of EOC
- Operations of the EOC

2. Information Management and Dissemination Strategy for Emergency Response

Information about the hazard may have come from a source within the officially established early warning system and/or an un-official/public source. The un-official source must be confirmed from the concerned local officials. As soon as the information is authenticated, it should be communicated by the fastest means of communication by (e-mail/telephone/fax) to the concerned disaster responding agency through PEOC. The concerned agencies should provide information on the action taken. The information should be collected/ compiled at PEOC, PDMA for analysis and further instruction.

Media management during emergency response;

- Information should be controlled by a single public spokesperson. This should be handled by a senior official of the PDMA
- The press should also convey information about risk reduction and safety measures to be adopted by the public

3. The PEOC Activation

The EOC may be permanently activated by a small number of full-time staff or may be expanded to represent all relevant agencies for response to disaster events. The physical size, staff and equipment of an EOC will depend on its jurisdiction, availability of resources and anticipated incident management workload. EOC may be organized and staffed in a variety of ways. Regardless of the specific organizational structure used, the EOC should include the following core functions:

- Coordination
- Communication
- Resource dispatching and tracking
- Information collection, analysis and dissemination

EOC may also support multi-agency coordination and joint information activities as discussed below;

- On activation of a district EOC, communication and coordination must be established between the ground and the EOC
- Field organizations must also establish communication with the activated local EOC, either directly or through their parent organizations

- Additionally, EOCs at all levels of government and across functional agencies must be capable of communicating appropriately with others as well as the EOC during incidents-including those maintained by private organizations
- Communication between EOCs must be reliable and contain built-in redundancies. The efficient functioning of EOCs most frequently depends on the existence of mutual-aid agreements and joint communication protocols among participating agencies

Figure 3.2: Organizational Chart of EOC

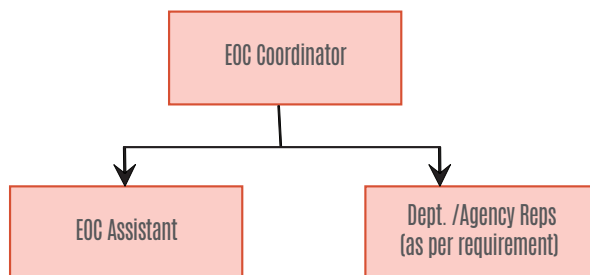


Table 3.2: Directory of Provincial Department Heads for Emergency Response

Departments/Organization/Agency									
Chief secretary	Acs, P&D (Dev)	Secretary LG, KA spatial Dev	SMBR	Secretary finance & coop.	Secretary (GA&C)	Secretary (services)	Secretary Culture, Tourism & SW	P.Secy. to Governor	M.S to Governor
P&D (Plan Principal secy.to CM	Secretary, L&F	P&D (Plan & imp)	Auqaf, R&M, Z&U	Education & literacy	Food	Mines & M.D Dept	Information & Arch	Work & services	E&T
Pop & Welfare	Home	LT & I	Law PA & H.R.	I & P	Agriculture	Health	Forest &WL	Information Tech	Women Dev. Dept
Energy & Alternative Energy	Secretary coop	Secretary IPC	DG (project) & SI, SGA & CD						

Table 3.3: Role and Responsibilities of Various Departments and Agencies in EW & Emergency

S#	Role Responsibilities & Task/ Emergency Response Action	Department/Agency	External Linkage
1	Develop & appropriate early warning system monitoring and coordination systems	PDMA/ Relief dept., NDMA, SUPARCO, MET and GSP	
2	Manage search and rescue services	PDMA/ Relief dept., DDMA, Civil Defense, Army, NDMA and NGOs	
3	Provide first aid and hospitalization	Health department and NGOs	

4	Provide support	PMDA/ Relief dept., DDMA, Civil Defense, Army, Navy, Air force, NDMA and NGOs.	
5	Arrange food for the affected people	PMDA/ Relief dept., DDMA, NDMA and NGOs	WEP
6	Arrange shelter for affected people	PMDA/ Relief dept., DDMA and NDMA	UNICEF
7	Arrange water and sanitation	Public Health Department	
8	Provide clothing to the affected people	PMDA/ Relief dept., DDMA and NGOs	
9	Management of camps	Social Welfare depts.	UNICEF
10	Provide protection to the affected people	Law enforcement agencies and social welfare depts.	
11	Arrange logistical services	PMDA/ Relief dept.	WEP

Communication & Dissemination

Following are the officials who are to be kept informed for necessary action when EW is issued.

- i. Principal Secretary, Chief Minister's Secretariat, Govt. of Sindh
- ii. Secretary Home Department Govt. of Sindh
- iii. Secretary LG&RD, Govt. of Sindh
- iv. Secretary Information Department, Govt. of Sindh
- v. Secretary Irrigation Department, Govt. of Sindh
- vi. Secretary Health Department, Govt. of Sindh
- vii. Secretary C& W department, Govt. of Sindh
- viii. All Divisional Commissioners in Sindh
- ix. MD Sindh Highway Authority of Govt. of Sindh
- x. Military Operations Directorate, GHQ Islamabad
- xi. Director Information and Public Relations Department Govt. of Sindh
- xii. Director Response, NDMA Islamabad
- xiii. Director Civil Defense, Govt. of Sindh
- xiv. PSO to Chief Secretary, Govt. Govt. of Sindh
- xv. PS to Secretary, RR&S Department, Govt. of Sindh

For further details visit www.pdma.gos.pk or Call 021-99332701-2

Source: Disaster Risk Management Plan, PDMA Sindh 2008

PDMA BALOCHISTAN

Standard Operating Procedures (SOPs)

PDMA Balochistan issues early warnings in the province when it receives information from PMD. Overall the DG PDMA is responsible for issuing the EW and other activities related to the DRM/DRR.

1. Receipt of Warnings

Warnings of a natural hazard (e.g. floods, severe drought, and winter storms) or occurrence of a rapid onset disaster such as an earthquake will be issued in the first instance by the early warning department, or other warning systems available. The information should be passed to the chairman in order to ensure activation of the appropriate response activity.

2. Standard Operating Procedures

Upon receiving the information (EW/ Emergency situation), DG PDMA will be responsible for establishing and activating EOC as needed.

The Director General, PDMA will be responsible for:

- a) The activation of the Provincial EOC
- b) The operations of the Provincial EOC
- c) Staffing the Provincial EOC at the required level

DG PDMA will also take the following action in different phases of emergency:

Table 3.4: Actions taken in different phases of emergency

Phase	Action
Alert	<ul style="list-style-type: none">• Director General will receive the advice of impending threat from an early warning agency• Director General will then advise commission chairman• Director General will require all relevant primary and support agencies to be on ALERT• DG will put PDMA and EOC on ALERT if needed
Activation	<ul style="list-style-type: none">• The Director General will advise the chairman of required assistance• The chairman will direct the Director General to escalate the Provincial EOC to required staff and activate unit if required• Secretary will advise appropriate respective organizations in the province to respond accordingly• The response will be as per the hazard threat• DG will advise chairman if assistance is needed from federal level• Chairman will liaison with the NDMC and NDMA for federal assistance

NB: Depending on the type of disaster at hand, the phases and action may overlap at times. It will be upto the discretion of the Director General to activate the appropriate action as the conditions and resources dictate.

Provincial Emergency Operations Center (PEOC)

The PEOC includes the following functions;

- Coordination
- Communication
- Resource dispatching and tracking
- Information collection, analysis, and dissemination
- EOCs may also support multi-agency coordination and joint information activities as discussed below
- On the activation of a district EOC or ICP, communication and coordination must be established between the ground and the PEOC
- Field organizations must also establish communication with the activated local EOC, either directly or through their parent organization
- Additionally, EOCs at all level of government and across functional agencies must be capable of communicating appropriately with others and the PEDC during incident, including those maintained by private organizations
- Communication between EOCs must be reliable and contain built-in redundancies. The functioning of EOCs most frequently depends on the existence of mutual-aid agreements and joint communication protocols among participating agencies

Activation of the PEOC

Response to an emergency incident is the function of law enforcement, emergency medical services, fire-rescue department, civil defense and first responders.

2.1. Level of operations

The response of the PDMA will depend on the severity of the situation and the type of assistance required. There are three levels of emergency/disaster response:

Level 1

Localized emergency events dealt within the regular operating mode of the protective and health services in the district

Level 2

Emergency/disaster events that overwhelm the capacity of resources in the municipal/district/tehsil but do not overwhelm the capacity of provincial resources to respond and recover (such zones of impact can be declared Disaster Areas).

Level 3

Emergency/disaster events that overwhelm the capacity of provincial resources to respond and recover

2.2. Standard Operating Procedure for varying level of operations:

a. Level 1: Emergency

- i. Monitor situation: Should the situation warrant, PDMA will establish contact with a qualified observer in the field to monitor the situation until it has calmed down.
- ii. Compile report on incident and assess response
As soon as possible after an emergency incident, agencies will compile a report on the incident.

b. Level 2: Disaster/Emergency

- i. Confirm event and issue call out: Confirm the situation and ensure that emergency response services and appropriate collaborating members are informed and mobilized. Following core group are to be contacted at all times:

- Fire services
- Police
- Civil defence
- PDMA

- Medical and public health: As a matter of course, PDMA personnel will seek technical details of the incident and any additional safety procedures from the incident specialist (e.g. Meteorological Service, Public Works, Seismic Research Unit or the particular industry) PDMA staff will also check with the public utilities; Water, Electricity, Gas and Sewage to determine the impact of the emergency upon their respective services.

For level 2 and higher emergencies, the Director General of PDMA shall determine if it is necessary for the information division representative/communication officer to be called in for the first 48 hours of the emergency, or longer.

- ii. Established field command post: Provided that it is safe to do so the PDMA Director General will attend to the incident area with the necessary equipment, specifically to the established incident command post. This forward command post should be organized in such a manner as to ensure:
 - The safety of responders and affected people
 - The facilitation of the maximum efficiency of flow of emergency response information among responding agencies
 - The facilitation of the effective coordination and control of the situation including, the movement of emergency
 - Vehicles to the event site
 - Minimum personnel for the forward command post include;
 - Fire service representatives
 - Police service representatives

- Health department representatives
 - Work department representatives
 - Municipal corporation representatives
 - PDMA Director General
 - Facility owner/operator
- iii. Coordination for the Disaster/Emergency
- Once established, a PDMA representative will assist in the coordination of the disaster/emergency by:
- Obtaining a detailed list of those affected by arranging for a damage assessment and needs analysis, if not fully underway.
 - Liaising with various services at the command post to determine any shortfalls in the manpower and resources required to address immediate priorities.
 - Establishing information flow procedures for concerned parties.
 - Reporting frequently to PDMA control on the state of the response resource on the hand and needs of population.
 - Reporting to PDMA's office to compile situation reports.

2.3 Lead agency and support organizations for various hazards.

The following agencies have primary and secondary responsibilities to provide emergency assistance as per their mandate and areas of competence to the respective hazard(s) identified;

Table 3.5: Hazard and corresponding agency/organizational Roles

Hazard Threat	Lead Agency/ Department	Support Organizations
Drought	Livestock & Agriculture Department	PHED, Irrigation, Planning, Forest, Health & Social Welfare departments, DDMA,s NGOs, PRCS and Community
Earthquake	PDMA	All provincial departments, PRCS, Civil Defence, Community, NGOs, CBOs, Police, Military, Sui Southern Gas, QESCO, and NHA
Floods	Irrigation Department	Civil Defence, Agriculture, Livestock, PHE, Health, C&W Meteorological Departments, Police, Military, NGOs, and Community
Fire (Urban / Rural)	TMA's	Civil Defence, Pakistan Red Crescent Society, Boy Scouts Association, Police, Community, and C&W department
Major Transport Accident - Road Accidents	Police	Civil Defence, Fire Brigade, Health, PRCS, Boy Scouts Association, DDMA's, and Community
Major Transport Accident - Rail Accidents	Pakistan Railways	Police, Health, Civil Defence, Fire Brigade, Community PRCS, and Boy Scouts Association

Major Transport Accident - Aviation accidents	Civil Aviation Authority	Police, Health, Civil Defence, Fire Brigade, Community, PRCS, Boy Scouts Association, and DDMA's
Major Transport Accident - Oil spill and Maritime	Fisheries Department, BCDA	Police, Environment, Community, Civil Defence, Fire Brigade, GPA, MSA, Boy Scouts Association, Hospitals, and DDMA's
Industrial and Mine Accidents/Fires	Industries, Mines and Mineral Department	Police, Community, PRCS, Boy Scouts, Industries and Mines & Mineral Department, and DDMA's
Pollution	Department	
Pollution, Hazardous Substances accident(Nuclear, Radiological & Chemical)	Environment & TMA	Fisheries, Health, Forest, Mines, Industry, Health & PHED Department, Police, Civil Defence, and DDMA's
Refugees & IDPs	Home & Tribal Affairs Department	UNHCR, PRCS, and DDMA's
Crisis (bomb threat, bomb explosions, hostage taking, and demonstrations)	Police	Civil Defence, Community, PRCS, Boy Scouts, Military and DDMA's

The respective lead agencies in response to the various identified potential hazards identified will take the lead in developing contingency plans and disaster response plans to the respective hazards.

2.4. SOPs regarding involvement of various stakeholders in Disaster Response.

Upon formation of the Provincial Disaster Management Commission (PDMC) and Provincial Disaster Management Authority (PDMA), the implementation procedure of disaster risk management will start through the Director General (DG) PDMA/ Relief Department. As per the set procedure, PDMA is linked to the Relief Commissioner by acting as its Director General(DG). While seeking government consent the matter will be processed through the Minister of Revenue and Relief. Their role in disaster management is briefly given as under:-

Role of Minister of Revenue and Relief in Disaster Management

The Minister of Revenue and Relief will be responsible for all the activities of his/her department, including referring matters to the Chief Minister for approval, and passing orders under the approval of the Chief Minister. In case of disaster management through the Relief department, the minister will guide the actions of the relief department and look after the PDMA as per laid down procedures.

Role of Relief Commissioner in Disaster Management

The Relief Commissioner will act as the Director General (DG) of the PDMA, execute the operations of PDMA, coordinate with NDMA, provincial government departments, and districts. He/She will be responsible for coordinating with international donor agencies for disaster management, while ensuring relief, recovery, and rehabilitation/reconstruction as per the previously determined procedures. The PDMA DG will coordinate the work of PDMC and organize the Provincial Emergency operation Centre (PEOC) with the approval of PDMC.

3. Warnings Dissemination

Upon the implementation of this plan, all public warnings will be disseminated through the EOC of the PDMA after recommendations are issued from the Director General of the PDMA on behalf of the chairman. Appropriate media channels will be used to issue warnings to the public and concerned authorities for appropriate standby measures, preparedness, and response.

4. Public Information

The distribution of contacts or telephone numbers for disaster information to the public will be the responsibility and at the discretion of the Director General. The PDMA has the responsibility for the dissemination of disaster risk management information to public.

Upon activation of this plan, the Director General of the PDMA will become the official source of public and media information. All outside media enquiries will be directed to the Director General. He will arrange for media briefings and interviews with the key personnel and media channel. The Director General will have to sign off on any briefings being issued by media houses and radio stations.

5. Reporting

All response organizations are to submit regular situation reports to the EOC at the PDMA. The executive officer will collect the reports received and will supply regular situation reports to the chairman and other concerned stakeholders.

6. Information Management and Dissemination Strategy for Emergency Response

Information about hazard risks may come from an officially established system and/ or an un-official/public source. The official source must be confirmed from the concerned local officials. As soon as the authenticated source has been established, it should be communicated by the fastest means of communication- i.e. through e-mail/telephone/fax to the concerned disaster management agency through PEOC. The concerned agencies will provide information on the action to be taken. The information should be collected at the PEOC, PDMA for analysis and further instruction.

7. Media management during Emergency Response

- Information should be controlled by a single public spokesperson. This should be handled by a senior officer of PDMA.
- The press should also convey relevant information about risk reduction and safety measures to be adopted by the public.
- The spokesman should be trustworthy and straightforward with the press in order to maintain credibility and trust.
- The process should be clear as to what is known, as misconceptions are likely to lead to inappropriate responses by the press and other partners in an emergency situation.

Source: Disaster Risk Management Plan 2008, PDMA Baluchistan

For further details visit www.pdma.gob.pk or call Control Room: 92-81-9241133; Office Phone: 92-81-9241117

PDMA PUNJAB

Standard Operating Procedures (SOPs)

Punjab PDMA issues EW to the concerned departments.

- PDMA coordinates with all stakeholders during disasters and acts as a hub between district, provincial, and national stakeholders in accordance with the severity level of disasters.
- PDMA remains ready to provide additional rescue and relief resources to DDMA upon demand/request by DDMA i.e. boats, OBMs, life jackets, tents, mats, mosquito nets, food hampers, bailey bridges, and de-watering pumps.
- PDMA operationalizes the Command and Control Center (Control Room) at the PDMA Lahore office which operates 24/7 (from 15th June to 15th October) during the flood season, and in case of other disasters as well; they provide an alternate mean of communication to all DDMA and other agencies if the routine communication system collapses in any disaster.
- The PDMA prepares a consolidated inventory list of materials, equipment, gadgets, and machinery available, including all stakeholders with their location that are related to disaster response. This list is then shared with all DDMA to help channel them to where they are required, and at whichever time.
- PDMA makes the necessary arrangements for the provision of food, shelter, drinking water, medical supplies, and non-food items to the affected districts and areas to complement the efforts of the District Administration.
- PDMA requests NDMA or other federal and international agencies to jump in, when it is deemed necessary, and acts as a platform to all national and international stakeholders in the case of an exceptional disaster.

PDMA Control Room

PDMA has set up a control room at its head office in Lahore. It starts functioning from June 15 and continues till October 15 every year for monsoon season. Stakeholders watch the weather and issue alert on daily basis through SMS. The representatives of PDMA, Punjab Irrigation Department, C&W department, Punjab Police, Rescue 1122, Met departments, WAPDA, Pakistan Army, Airforce and SUPARCO remain there round the clock. All sort of communication facilities are provided there such as wireless, phone, fax, email, internet and television. PDMA control room collects the information and passes it on to the concerned department in order to forewarn.

The PDMA receives warnings from PMD in the case of floods, earthquakes, extreme weather, and flash floods; the DG then decides on which further action needs to be taken (including establishment/activation of EOC).

Table 3.6: Staffing of EOC

Sr. No.	Name	Designation and Contact detail	Status
1	Mr. Muhammad Sajjad	Director Operations PDMA 042-99203163, 0300-4441170 e-mail: sajjad1658@gmail.com	In charge
2	Mr. Zafar Haider Shamsi	Assistant Director Admin, PDMA 042 -36375526,0307 4444785	Liaison Officer
3	Mr. Muzammil Bashir	Procurement Officer, PDMA, 042-36375527, 0333-6032588	Logistic Officer

Figure 3.3: Control Room PDMA & Flood Warning Center

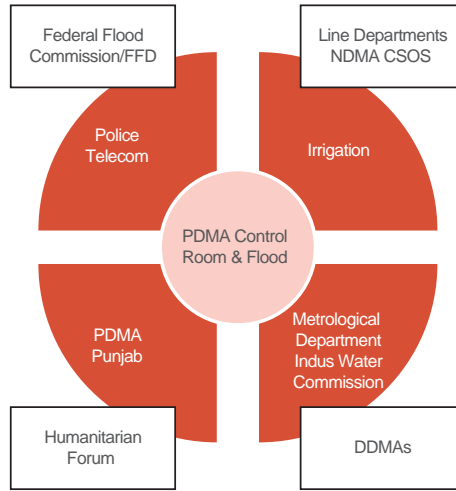
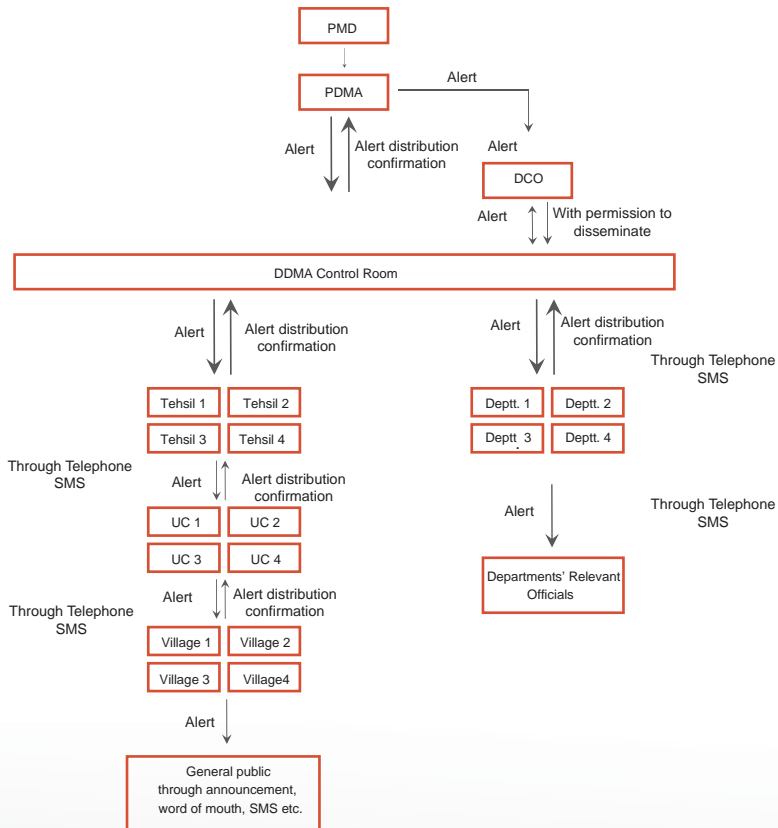


Figure 3.4: Flood Management Mechanism of PDMA Punjab



Media Watch and Public Awareness

The PDMA keeps the 1129 helpline operative on a 24-hour basis in collaboration with the Punjab Information Technology Board. It helps vulnerable communities take timely evacuation measures. The helpline receives SOS/Emergency calls which are sent to respective districts. The PDMA shares all weather updates with the helpline team on a daily basis. Before the monsoon begins, PDMA conducts orientation sessions with the helpline operators.

Rescue and Evacuation

In the case of disaster, the DRF (PDMA Punjab and Rescue 1122) and the District Administration act as First Responders. PDMA and allied stakeholders have changed their approach and shifted from a reactive to proactive mode of operation, and this approach has proved quite useful. The early warning system and evacuation has proved very fruitful; less resources are needed as compared to rescue efforts. PDMA, in collaboration with stakeholders, have succeeded in gaining the trust and confidence of the people inhabiting flood affected areas. PDMA relies more on early warning and recommends DDMA to evacuate risk prone area within the given timeframe. At times, services of the police are also required to get an area evacuated. However, it has also been observed that few people remain with their livestock at livestock sheds which are constructed on elevated plinth and remain safe. Timely evacuation significantly lessens the burden of rescue efforts. Nevertheless, rescue operations continue until water recedes and come down its normal level. Once a disaster or calamity strikes at any place or region, then the three R's (Rescue, Relief, and Rehabilitation), come into play. The first step or response is that of rescue, but if proper information is available and the threatened area is identified then the people at risk can be safely evacuated. Hence, for practical purposes the evacuation precedes the rescue as a response to any disaster.

DDMAs normally take the services of the revenue department to carry out evacuation activities; however, this decision rests with the DDMA to decide which department is to be assigned this duty. It may vary from district to district.

Evacuations would be coordinated and ordered by the Deputy Commissioner considering the scenario on the ground. Forced evacuations can also be ordered by the Deputy Commissioner depending upon the magnitude of the disaster. People may also be warned to evacuate through sirens, drum beatings, radio, cable TV or other local means e.g. mosque announcement. The PDMA is working on an innovative idea of voice messaging to risk prone areas for early warnings and evacuations from endangered areas.

If the disaster is of an exceptionally high level, and the DDMA feels that it would not be possible for them to handle the situation themselves with available means, they may invite the Pakistan Army to intervene (which act as Reserve Responders).

Table 3.7: SOPs for CAMP Management

Facility	Standard
Land	3.0 - 4.5 square meter per person
Shelter	3.5 square meter per person
Water	15 -20 liters per person per day
Food	2100 kcal per person per day
Toilet	One per family of 6 -10 persons
Health Centre	One per 20,000 persons
Child Friendly Spaces	2 - 4 year olds -15 children:2 facilitators 5 - 9 year olds - 20 children : 2 facilitators 10 -18 year olds - 30 children :2 facilitators
Hospital	One for as many as 200,000 persons

Principles for Irrigation Department Punjab

Punjab's Irrigation Infrastructure consists of 14 Headworks and Barrages that generate 21 different main canals. These canals along with their branches cover almost 4000 miles to deliver water to more than 2000 distributaries and minor canals. This vast network of water channels irrigate 20 million acres of land in the Province. As such, the role of the Provincial Irrigation Department (PID) Punjab is critical during floods and the monsoon seasons.

The irrigation department should ensure that the following actions are taken well before the onset of the monsoon season:

- Continuous monitoring of the water levels in the major water channels and dams.
- In case of rising discharge rates, the irrigation department issues early warnings to the PDMA and other districts about such discharges. This information is very critical regarding discharges from spillways of the two major dams.
- Protection of barrages, settlements, canals, bunds, spurs, and communication infrastructure such as railways, highways etc. have to be ensured. Vulnerable embankments have to be properly protected and strengthened throughout the Province. The embankments stretch for more than 3,300 kilometers.
- All the six different zones, headed by a zonal chief should prepare a flood fighting plan and submit it to the Chief Engineer of Drainage and Floods for review.
- The Chief Engineer should review the zonal plans and prepare a comprehensive contingency plan for the entire department.
- Chief Engineer (Drainage and Floods) through the Executive Engineers (XENs) should ensure inspection of flood works to identify damages to embankments or the encroachments blocking passage of water in various channels.
- The irrigation department has to work in coordination with other civil authorities to take care of the encroachments on embankments and spurs.
- The department must also maintain a state of readiness and ensure the availability of stones and other flood fighting materials in proper stocks prior to the monsoon season.
- The flood warning and control room should be established in coordination with the allied departments.

Refer to Figure 2.1

The Disaster Response Force

The Government of Punjab has notified a Disaster Response Force (DRF) under the PDMA comprising Rescue 1122, Civil Defence, and the District Disaster Coordinators. Rescue 1122 and the Civil Defence constitute the working and implementing arm of the DRF. It would comprise of 7,500 personnel of Rescue 1122, trained in water rescue and generally any form of disaster. The DRF would be under the operational command of Rescue 1122. PDMA has already provided 210 boats to Rescue 1122 for rescue and evacuation efforts. The Disaster Response Force would carry out sophisticated search and rescue operations and evacuate the affected and vulnerable people. To manage the high number of operations during a disaster, Rescue 1122 would establish a Provincial Monitoring Cell at its headquarters in Lahore. This monitoring cell, along with Rescue 1122's command and control room, would be operational around the clock and would also be linked with PDMA through video conferencing and radio link.

The Rescue 1122 organization has been established for immediate response to emergencies and disasters. 1122 specializes in the provision of emergency medical treatment to persons affected by emergencies. PES evacuated thousands of victims from the flood-hit districts of the province specially Jhang, Muzaffargarh, and Multan during the recent floods of the river Chenab in 2014. They are trained in sophisticated search and rescue techniques and 1122 is Punjab's foremost rescue agency. The agency possesses multipurpose rescue vehicles that contain essential rescue equipment such as heavy duty hydraulic cutters, spreaders, and electronic search and rescue devices. Apart from the rescue vehicles the agency also possesses ambulances, fire fighting vehicles, water bowsers, water rescue vans, recovery vehicles, boats, OBM engines, life jackets, rings, and buoys etc.

The DRF should ensure that the following actions are taken:

- The immediate evacuation of people from the disaster prone and vulnerable areas.
- Provision of immediate medical aid during any emergency, and at the same time transporting the injured or sick to the nearby hospital through their fleet of ambulances.
- In flood situations rescuing people from drowning in the strong currents is a specialty of 1122 as it has its own set of divers and boats. Similarly, in case of collapsed buildings or structures the force is equipped with heavy machinery to cut through heavy debris.
- Apart from that responsible deployment of fire fighters, cordoning off hazardous areas, provision of first aid and medical treatment, immediate search and rescue of victims and management of the prehospital emergency system.
- Rescue 1122 is well trained in setting up medical camps for provision of emergency medical treatment. These camps are set up by Rescue 1122's doctors and paramedical staff.

Civil Defence

- The Civil Defence force assists the district administration in the evacuation of people and their properties from the disaster affected areas.
- The Directorate engages a large number of volunteers for search, rescue, evacuation, and disbursement of relief goods. These volunteers generally known as "Razakars" are usually trained in swimming, rowing, handling of OBM, basic rescue techniques, first aid etc.
- Civil Defence Razakars basically help local administration / police and Pakistan Army, Rescue 1122 in evacuation and other disaster response activities.
- Razakars manage and utilize all boats, oars, outboard engines, generators, searchlights, and other lifesaving equipment. Razakars that know how to swim and dive are utilized for specialized water rescue.
- These volunteers also assist the fire brigade in rescue, and the health department's representatives in the treatment of injured victims.

- Civil Defence also assists the District Administration and Police in setting up information desks for general public in emergencies.
- The civil defence Razakars are very helpful in management of relief camps set up by the district administration in disaster situations, performing watch and ward duties as well managing distribution points.

Source: PDMA Punjab Disaster Response Plan 2017

For further details visit http://pdma.gop.pk/rescue_relief_initiatives or call 1129

GILGIT BALTIKISTAN DISASTER MANAGEMENT AUTHORITY

Standard Operating Procedures (SOPs)

Normally, the information received by the GBDMA for earthquakes, landslides, floods, flash floods, avalanche, GLOF, and extreme weather conditions through PMD is passed on to the district administrations. The district administrations take appropriate measures for issuing the EW. Emergency Operation Center is established at GDMA office at the discretion of Director General, GBDMA.

EOC at GBDMA has direct lines of communication with district administrations, police, and other concerned agencies and departments. Various NGOs with good network systems (and presence) at remote areas and with remote communities, establish links through their volunteers; such contacts are already shared with GBDMA. The focal person of EOC at Gilgit establishes and ensures communication/contact via cell phone messages, calls, telephone, faxes, and police wireless system.

District Administrations

The district administration is the key player in dealing with any sort of sudden situations. The district administration stays in close contact with all the stakeholders regarding dissemination of any crucial information to the GBDMA and NDMA from their respective area so that early approach can be ensured.

Early Warning

The district administration deploys responsible persons at different locations within their respective areas, and train individuals from every village/settlement to enable direct contact between them and all the affected areas. These individuals of the villages further train the locals like Lamderdars (village level revenue collector), Mukhis (village elders) and Imams (religious leaders) and school teachers etc. Furthermore, it is the responsibility of the district administrations to disseminate the message of the first warning of the floods received from any area. Secondly, they are to connect with a focal person at every vulnerable village for prompt action; this focal person must have direct contact with GBDMA Gilgit. For effective communication, different means such as loudspeakers at mosques and Jamatkhanas (Agha Khani religious building), announcements in schools, cellular phones, walkie-talkie sets and radios etc., are used. Moreover, wireless communication systems of the police department is also used. A functional committee, coordinates with the local administrations in case of emergency situation in a timely manner, and also monitors the situation 24/7. An immediate simulation is carried out to ensure that all the stakeholders are familiar with their responsibilities.

Establishment of Control Room

The district administration establishes an emergency control room at the AC office and it operates around the clock. Sometimes, a small level control room is set up at the tehsil level. The various government departments in GB are used and are assigned their roles and responsibilities. Details of some of them are mentioned below:-

Police Department

The main responsibility of the Police Department is to inform the masses about flood situations through its wireless system, to maintain law and order, and provide necessary assistance to the district administrations. It helps the administration to support the community in case of any sudden situation from monsoon rains. Furthermore, the police department has the following additional responsibilities:

- To ensure safety of relief goods being sent to affected areas
- To provide security to volunteers, government officials, and staff of international and national NGOs and the IDPs
- To train the police personnel regarding emergency handling of, and response to, the disaster situation.

Education Department

The Education Department has the following responsibilities:

- To identify vulnerable educational institutions
- To conduct immediate orientation programmes for school students
- To involve its teachers in drills and emergency response and provide school buildings for IDPs
- Schools can be used for shelter for the flood affected

Food and Agriculture & Livestock Department

The Food and Agriculture Department has the following responsibilities:

- To ensure supply of wheat quotas to the affected far-flung areas without delay and deploy vets/doctors to the affected areas to provide necessary medication and other support
- Conduct a survey of food items required for people and fodder for animals
- Provide assistance to the villagers to save crops, agriculture land and livestock in disaster situation
- Ensure availability of adequate food stocks in disaster situation
- Dump wheat flour to the far-flung valleys in the district before the flood season starts in the district

Health Department

The Health Department has the following responsibilities:

- To establish emergency response centres until the area is tranquil
- To prepare plans for handling mass casualties/ injuries
- To set up medical camps and mobilize emergency health teams including mobile teams to be deployed in the event of disaster
- To mobilize all available health resources and possible assets for emergency interventions
- To send all the necessary medicine to the far-flung areas

Public Works Department

The Public Works Department has the following responsibilities:

- Conduct detailed assessment of all government (and other) properties from the identified areas of the district and submit a report to DC offices.
- Ensure all link roads lead to safe places and ensures the maintenance of those roads; deploy all the employees to clear the road to safe areas and connect the areas with the entire districts.
- Assist the respective district administrations whenever and wherever required.
- Position machinery and materials near vulnerable zones for quick action in the affected area.
- Carry-out a survey of assets likely to be damaged in case of outburst of reservoir.

WASA

WASA has the following responsibilities:

- Assess all the damage of water channels and water supplies in the district.
- Arranges for water pumps to ensure the supply of irrigation and clean drinking water to the affected population.
- Complete all water channels under construction at the river bank and nullahs.
- Store pipes and other accessories for installation of those pipes and technical staff.

Local Government and Rural Development (LG&RD)

The LGRD has the following responsibilities:

- Provide pipes for drinking and cultivation purposes
- Store pipes and other accessories for installation of those pipes and technical staff

Non-Governmental Organizations

All the active NGOs are to be contacted as the need arises. They may be asked to provide trained personnel and equipment for operation/activities at different areas.

Communication & Dissemination

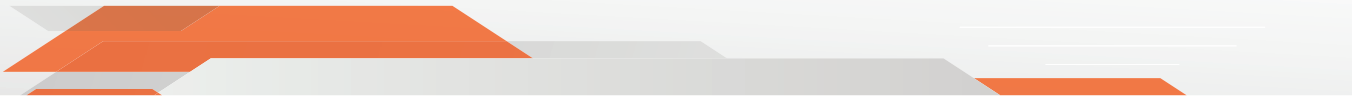
1. Principal Secretary Chief Minister's Secretariat Govt. of GB
2. Secretary Home Department Govt. of GB
3. Secretary, LG&RD, Govt. of GB
4. Secretary, Information Department, Govt. of GB
5. Secretary, Irrigation Department Govt. of GB
6. Secretary, Health Department, Govt. of GB
7. Secretary, C& W department, Govt. of GB
8. All Divisional Commissioners in Sindh
9. MD Sindh Highway Authority of Govt. of GB
10. Military Operations Directorate, GHQ Islamabad
11. Director Information and Public Relations Department Govt. of GB
12. Director Response, NDMA Islamabad
13. Director Civil Defense, Govt. of GB
14. PSO to Chief Secretary Govt. of GB
15. PS to Secretary, RR&S Department, Govt. of GB.

For further details visit www.gbdma.gog.pk or call Control Room: 05811-92087; Office 05811-920874

Source: Contingency Plan GBDMA 2012

SECTION IV

EMERGENCY CONTACT NUMBERS



EMERGENCY CONTACT NUMBERS

Organization	Peshawar	Lahore	Islamabad	Quetta	Muzaffarabad	Gilgit Baltistan	Karachi
Superintendent Police	091-9212765	042-35728462	051-9260072	081-9202761	0-5822-930410		021-9202761
Deputy Commissioner	091-9211743	042-99214322-3	051-9108108	081-9201406	0-5822-920055	0572-2521	021-99205610
Police Station (City)	091-9210735	042-99239651	051-9204830	081-9211080	0-5822-930404-43		021-32782587
Control Room	091-9217087		051-9270680-696	081-9202832	0-5822-930418-20		021-35888828
Rescue 1122		042-37501122				0572-1122	
Ambulance	091-115	042-115	051-115	081-115	058-115		021-115
Police Emergency	091-15	042-15	051-15	081-15	058-15		021-15
Fire Brigade Center	091-16	042-16	051-16	081-16	058-16		021-16
Bomb Disposal	091-278092	042-7352828	051-9222362	081-831280			021-2416626
Edhi Trust	091-214575	042-440159	051-251191	081-83081	058-3006		021-2310066
Hilal-e-Ahmar	091-210836	042-6304703	051-855292	081-440406			021-721359
Fatmia Blood Bank	091-843050	042-853491		081-2005356			021-7225284
Railway Police	091-273128	042-6366953	051-562664	081-65235			
Civil Defence	091-271257	042-7352828	051-565797	081-71143			021-7728311
Civil Secretariat	091-60117	042-210123	051-816081	081-62020	0-5822-920437		021-2632075
Hospital Civil (Casualties)	091-40324	042-7310130	051-556311	081-62017			021-7729719
Hospital Services (Casualties)	091-214213	042-7588351	051-218300	081-827927			021-7724943
WAPDA Enquiry	091-2563556	042-6366911	051-411423	081-71166			021-210704
News Agency (APP)	091-246313	042-6367461	051-825648				021-210281
Sui Gas Enquiry	091-272511	042-5756120	051-410787	081-828880			021-4934881

LIST OF ABBREVIATIONS

AC	Assistant Commissioner
AJK	Azad Jammu Kashmir
APP	Associated Press of Pakistan
BCDA	Balochistan Coastal Development Authority
C&W	Communication & Works
CBO	Community Based Organization
CD	Cooperative Department
CDG	City District Government
CDO	Central Design Office
CMO	Chief Municipal Office
D.G.	Met - Director General Meteorological Department
DC	Deputy Commissioner
DCO	District Coordination Officer
DDMA	District Disaster Management Authority
DDMUs	District Disaster Management Units
DEOC	District Emergency Operation Centre
DG	Director General
DRF	Disaster Response Force
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSL	Digital Subscriber Line
E&AE	Energy & Alternative Energy
EDO	Executive District Office
EOC	Emergency Operation Centre
EW	Early Warning
EWS	Early Warning System
F/G/S PDMA	Fata/Gilgit/State Provincial Disaster Management Authorities
FAX	Facsimile Automatic Xerox
FFC	Federal Flood Commission
FFD	Flood Forecast Division
FFWMC	Flood Forecast and Warning Master Control Center
GBDMA	Gilgit Baltistan Disaster Management Authority
GC Quetta	Geophysical Centre Quetta
GHQ	General Head Quarters
GLOF	Glacial Lake Outburst Floods
GPA	Gwadar Port Authority
GTS	Global Telecommunication System
GUITAR	Graphic User Interface for Tsunami Arrival
HEPR	Health Emergency Preparedness and Response
I&P	Irrigation & Power
IDP	Internally Displaced Personnel
INGO	International Non Government Organization
JMA	Japan Meteorological Agency
JS-HQ	Joint Staff Head Quarters
KPK	Khyber Pakhtunkhwa

KPK	Khyber Pakhtunkhwa
KPT	Karachi Port Trust
L&F	Livestock and Food
LG&RD	Local Government and Rural Development
M&MD	Mines & Minerals Department
MSA	Maritime Security Agency
NB	Nota bene (Take Note)
NDMA	National Disaster Management Authority
NDMC	National Drought Monitoring Council
NDMP	National Disaster Management Plan
NEOC	National Emergency Operation Centre
NFI	Non-Food Item
NGO	Non-Government Organization
NHA	National Highway Authority
NLC	National Logistics Cell
NSM	National Seismic Monitoring
NSM&TEWS	National Seismic Monitoring & Tsunami Early Warning System
NSMC	National Seismic Monitoring Centre
NTC	National Telecommunication Corporation
NTWC	National Tsunami Warning Centre
NWFC	National Weather Forecast Centre
OBM	Outboard Motor (Boat)
P&D	Planning & Development
P&SI	Project & Special Initiative
PaRRSA	Provincial Reconstruction, Rehabilitation & Settlement Authority
PDA	Peshawar Development Authority
PDMA	Provincial Disaster Management Authorities
PDMC	Provincial Disaster Management Commission
PEOC	Provincial Emergency Operation Centre
PES	Punjab Emergency Services
PHED	Public Health Engineering Department
PID	Provincial Irrigation Department
PMD	Pakistan Meteorological Department
PRCS	Pakistan Red Crescent Society
PST	Pakistan Standard Time
PTWC	Pacific Tsunami Warning Centre
QESCO	Quetta Electric Supply Company
RAMC	Regional Agro Met Centre
RDA	Rawalpindi Development Authority
RMC	Regional Meteorological Centre
RR&S	Relief, Rehabilitation & Settlement
SDMA	State Disaster Management Authority
SEOC	State Emergency Operation Centre
SGA&CD	Services and General Administration and Coordination Department
SMBR	Senior Member Board of Revenue
SMS	Short Message Service
SOPs	Standard Operating Procedures
SUPARCO	Space and Upper Atmosphere Research Commission
TC	Tropical Cyclone
TCWC	Tropical Cyclone Warning Centre
TEWS	Tsunami Early Warning System
TMA	Tehsil Municipal Administration
TMO	Tehsil Municipal Officer

TWC	Tsunami Warning Centre
UARS Peshawar	Upper Atmospheric Research Station Peshawar
UC	Union Council
UHF	Ultra High Frequency
UNHCR	United Nations High Commissioner for Refugees
VHF	Very High Frequency
W&P	Water & Power
WAPDA	Water & Power Development Authority
WASA	Water & Sanitation Agency
WMO	World Meteorological Organization
WSSP	Water & Sanitation Services Peshawar
Z&U	Zakat & Ushr













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