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PAKISTAN COUNTRY REPORT PRESENTATION



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Beautiful and Historical Places



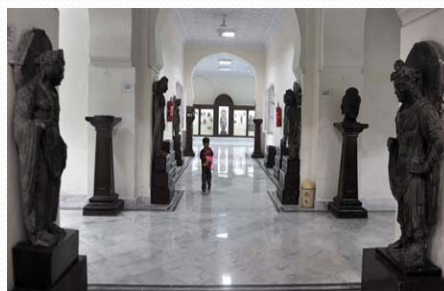
Badshahi Mosque



Minar-e-Pakistan

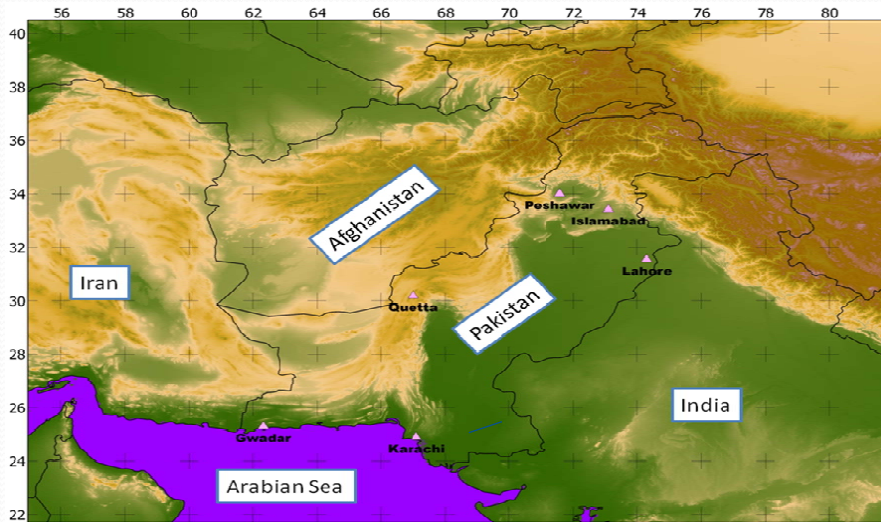


K2



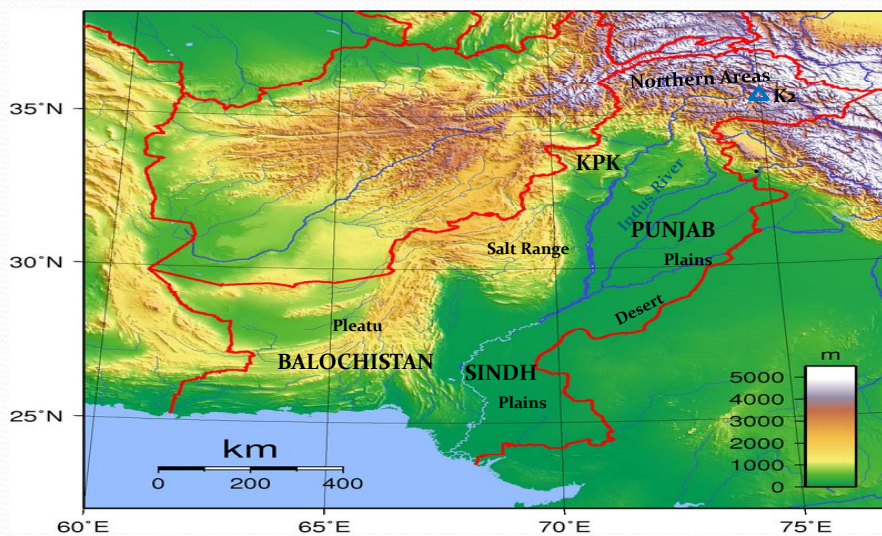
Taxila Museum (Buddist Legacy)

Pakistan's Location and Main Cities



- Country Name: Islamic Republic of Pakistan
- Chief Executive : Prime Minister (Nawaz Sharif)
- Constitutional Head: President (Mamoon Hussain)
- Total Area: 803,940 Sq km
- No. of Provinces: 4 (Balochistan, Khyber Pakhtunkhwa (KPK), Punjab and Sindh)
- Population: More than 185 million (World Bank up to 2015)
- National language: Urdu

Topographical Map of Pakistan



Five Major Geographic Areas:

- Northern Highlands:(Himalayas, Karakorum, Hindukush)
- Indus River Plains
- Balochistan Pleatu
- Salt Range
- Deserts

Destructive Earthquakes

Earthquake	Magnitude	Intensity	Dead
Quetta 1935	7.5	X	35000
Makran Coast 1945	8.3	X	4000
Pattan 1974	6.0	VIII	5300
Kashmir 2005	7.6	VIII	73,380
Ziarat 2008	6.5	VI	397
Awaran 2013	7.3	VII	386

Kashmir Earthquake 2005



- Magnitude: 7.6 Mw
- Areas affected: Pak, Ind, Afg
- Dead: More than 73,338 people
- Affected: 5 million people
- Depth: 15 km
- Intensity: VIII
- Injured: 1,28,309 people
- Estimated Damaged Coast: US\$ 5 Billion

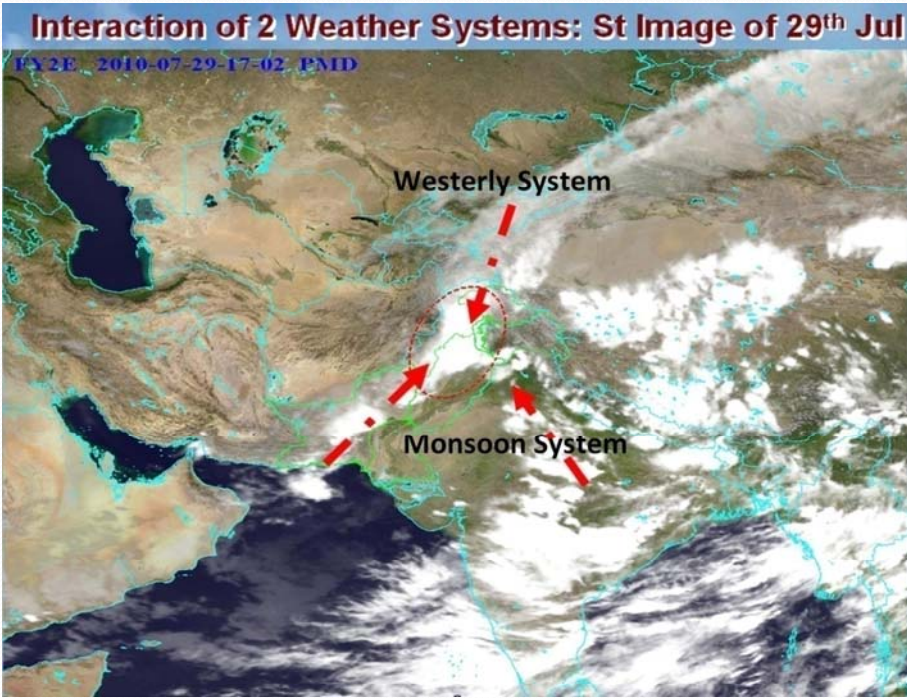
Tsunami-1945 (Makran Coast Earthquake)



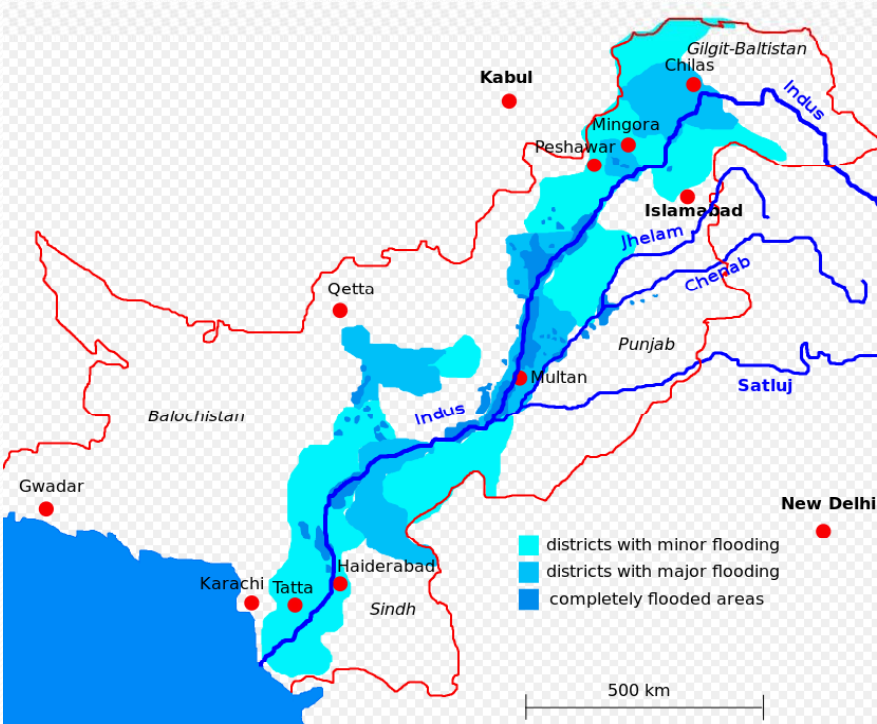
Destructive Floods

Year	Lives Lost	Villages Affected
1950	2910	10000
1956	160	11609
1976	425	9150
1978	393	9199
1992	1008	13208
2010	1645	-
2011	-	38347
2012	571	14119
2013	333	8297
2014	367	-
2015	228	4111

Flood 2010



Affected areas during Flood 2010



Damages/Losses in KPK & Balochistan during Flood 2010

KPK

1. Houses	-	257,294
2. Health	-	190
3. Education	-	886
4. Govt Buildings	-	880
5. Transport & Comm	-	6511 KM damages / affected
6. WSS	-	3,923 affected
7. Cropped Area Affected	-	121.5 thousand
8. <u>Animals</u>		
a. Large	-	72.4 thousands
b. Small (goats etc)	-	67.8 thousands
9. Industries	-	89
10. Hotels / Shops	-	17700 approx

Balochistan

1. Houses	-	79,720
2. Health	-	45
3. Education	-	557
4. Govt Buildings	-	27
5. Transport & Comm	-	2077 KM damages / affected
6. WSS	-	146 affected
7. Cropped Area Affected	-	132.5 thousand
8. <u>Animals</u>		
a. Large	-	139.6 thousands
b. Small (goats etc)	-	1,036.7 thousands
9. Industries	-	-
10. Hotels / Shops	-	6500 approx

Damages/Losses in Sind & Punjab during Flood 2010

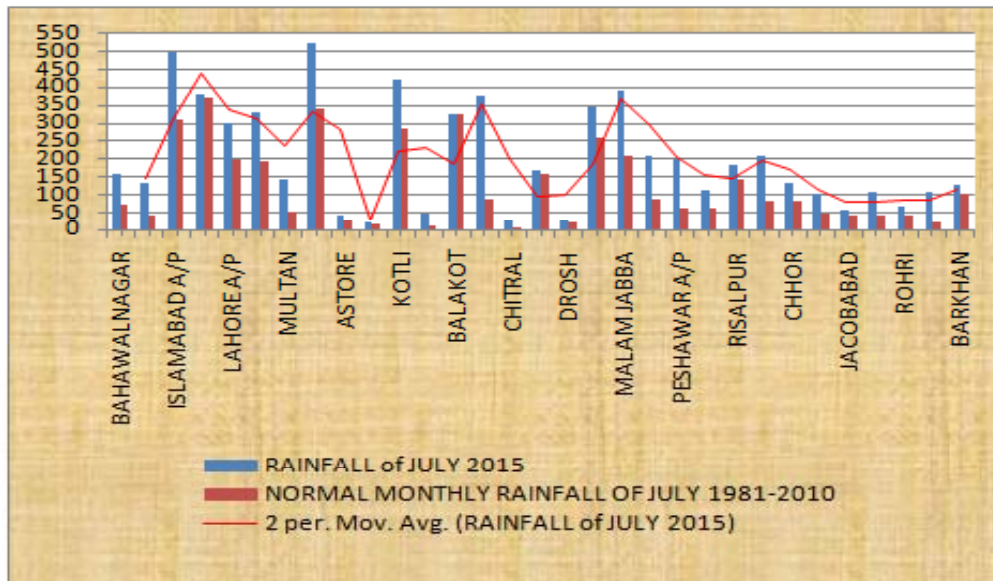
Sindh

1. Houses	-	879,978
2. Health	-	151
3. Education	-	5655
4. Govt Buildings	-	331
5. Transport & Comm	-	8467 KM damages / affected
6. WSS	-	1018 affected
7. Cropped Area Affected	-	1,043.5 thousand
8. <u>Animals</u>		
a. Large	-	93.7 thousands
b. Small (goats etc)	-	81.9 thousands
9. Industries	-	16
10. Hotels / Shops	-	54000 approx

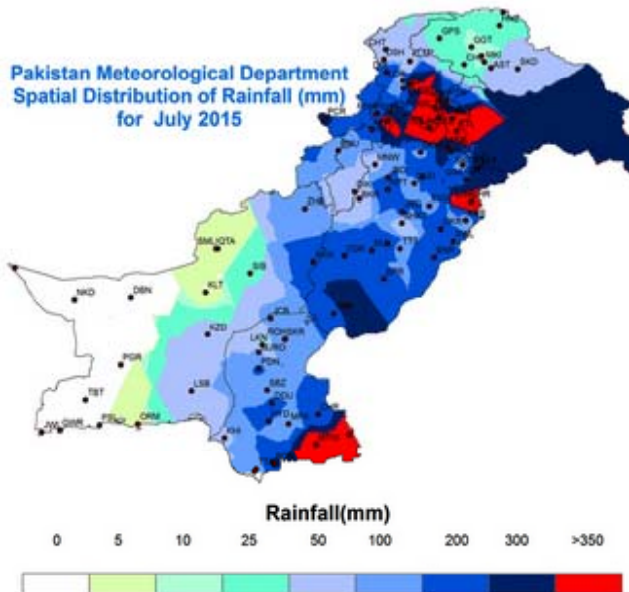
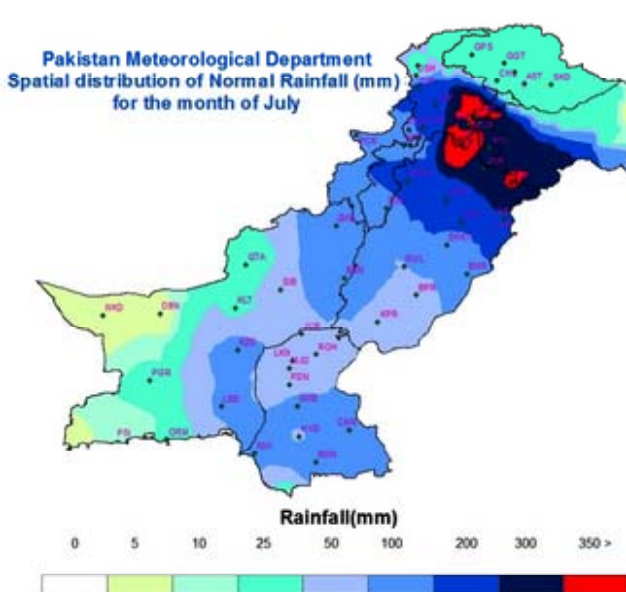
Punjab

1. Houses	-	375,773
2. Health	-	57
3. Education	-	2,821
4. Govt Buildings	-	127
5. Transport & Comm	-	2819 KM damages / affected
6. WSS	-	1,193 affected
7. Cropped Area Affected	-	746.9 thousand
8. <u>Animals</u>		
a. Large	-	2.3 thousands
b. Small (goats etc)	-	2.5 thousands
9. Industries	-	41
10. Hotels / Shops	-	40000 approx

Graphical Distribution of Rainfall in July 2015 Flood



Spatial Distribution of Rainfall in July 2015 Flood



Destructive Tropical Cyclones

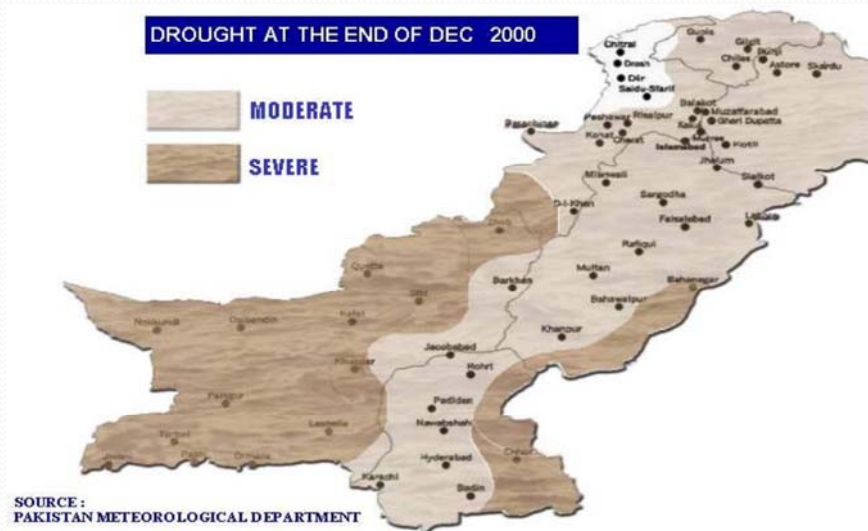
- Karachi Cyclone (1965) : Caused 10, 000 casualties .
- Pak – Indo (1993) Cyclone: 609 people killed and displaced about 200,000 people from the area.
- Pakistan Cyclone (1999): Killed about 6400 people.
- Yemyin Cyclone (2007): 730 people killed and affected the lives of 2 million people in Pakistan.

Land slide (Attabad) 2010 in Gilgit-Baltistan Region



- Killed: 20 people
- Displaced: 6000 people due to Lake Flooding
- Blocked Hunza River: For 5 Months
- Inundated: 12 km of Karakoram Highway washed away as a result further 25,000 people displaced

Extreme Drought of 1998-2002



- It is considered worst in 50 years in Pakistan
- In Balochistan: 1.2 million people affected and 2 million animals killed in 26 districts.
- In Sindh: 127 people died. Due to severe water shortages and dehydration, nearly 60% of the population of Sindh migrated to irrigated land.

National Disaster Management Commission (NDMC)

➤ Creation:

Under National Disaster Management Ordinance 2006, National Disaster Management Commission (NDMC) was formed which works under Prime Minister.

➤ Vision:

“To achieve sustainable social, economic and environmental development in Pakistan through reducing risks and vulnerabilities, particularly those of the poor and marginalized groups, and by effectively responding to and recovering from all types of disaster events”

National Disaster Management Commission (NDMC)

➤ Members:

Prime Minister, Opposition Leader, Provincial Chief Ministers and Civil Society Representatives

➤ Functions:

- 1) Lays Down Policies at National Level**
- 2) Approves National Disaster Management Framework and Plan**
- 3) Ensure Integrated National Response**

National Disaster Management Authority (NDMA)

- Executive Arm of NDMC**
- Secretariat to NDMC**
- Manages Complete Spectrum of DRM at National Level**
- Map all Hazards in the Country**
- Organize Training and Awareness Raising Activities**
- Act as GOP's Focal Point for Dealing with National and International Community.**

Disaster Prevention Strategies

- **Institutional and Legal Arrangements for Disaster Recovery Management**
- **Hazard and Vulnerability Assessment.**
- **Training, Education and Awareness.**
- **Disaster Risk Management Planning.**
- **Community and Local Level Programming.**
- **Multi-Hazard Early Warning System.**
- **Mainstreaming Disaster Risk Reduction into Development.**
- **Emergency Response System**
- **Capacity Development for Post Disaster Recovery**

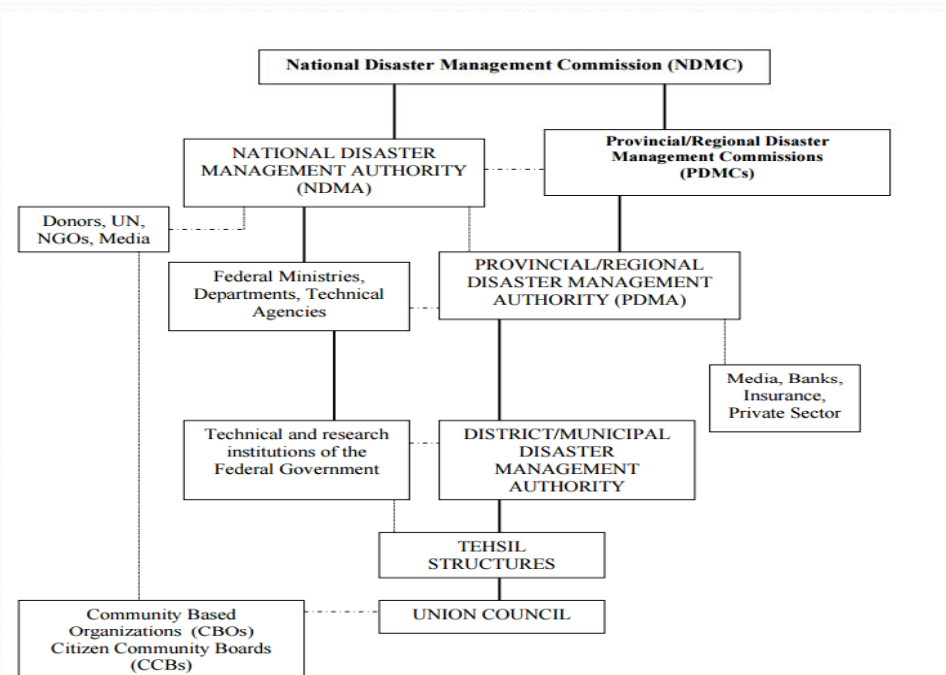
DRR Objectives

- **Creating an Integrated National Capacity**
- **Creating Multi-Hazard Early Warning Capacity**
- **Strengthening an Integrated Disaster Preparedness and Response Capacity**
- **Promoting Development Planning**
- **Strengthening the Structural and Non-Structural Resilience of key Infrastructure and Life Lines in Pakistan**
- **Strengthening Capacity at National and Provincial Levels to Facilitate and provide Support to the Implementation of DRR Policies, Plans and Programs across Sectors and in High-Risk Areas.**
- **Strengthening Local Level Risk Reduction Capacity Focusing upon Communities**
- **Ensuring DRR is Systematically Integrated into Recovery and Reconstruction Programming**

Government Institutions currently working on various phases on DM in Pakistan

Phase	Agency
Mitigation/Prevention	Federal Flood Commission
	Provincial Irrigation Departments
	Water and Power Development Authority (WAPDA)/ Dams safety council
Preparedness and Response	Armed Forces
	Civil Defence
	Emergency Relief Cell
	Fire Services
	National Crisis Management Cell (NCMC)
	Pakistan Meteorological Department
	Police
	Provincial Communication and Works
	Provincial Food Departments
	Provincial Health Departments
	Provincial Relief Commissioners
	Provincial Agriculture and Livestock Departments
Recovery & Reconstruction	Rescue 1122
	Space and Upper Atmospheric Research Commission (SUPARCO)
	Earthquake Reconstruction and Rehabilitation Authority (ERRA)
	Provincial Irrigation Departments

The Legal and Institutional System of DM in Pakistan



Pakistan Meteorological Department (PMD) Role in DRM

It Scientific and a Service Department, lead by Director General Meteorological Services (*Dr. Ghulam Rasul*) and Functions under the Cabinet Secretariat, Aviation Division.

- **Services:** Providing Services in Seismology, Meteorology, Agrometeorology, Hydrology, Astronomy and Astrophysics,, Geomagnetism, Atmospheric Electricity and studies of the Ionosphere and Cosmic Rays.
- **Functions:** Providing information on Meteorological and Geophysical matters with the objective of Disaster Mitigation due to Weather and Geophysical Phenomena, Agriculture Development based on Climatic Potential of the Country, Prediction and Modification of Weather Forecasts.

Organization of Pakistan Meteorological Department (PMD)

Divisions

- National Centre for Drought Monitoring, Islamabad
- Research and Development Division, Islamabad
- Flood Forecasting Division, Lahore
- National Seismic Monitoring and Tsunami Warning Centre, Karachi

Organization of Pakistan Meteorological Department (PMD)

Field Setup of the Departments

- Director ,Regional Meteorological Centre, Karachi
- Director ,Regional Meteorological Centre, Lahore
- Director ,Regional Meteorological Centre, Peshawar.
- Director ,Geophysical Centre, Quetta.
- Director ,Computerized Data Processing Centre, Karachi
- Director , National Agromet Centre, Islamabad.
- Director , National weather forecasting Centre, Islamabad
- Director ,Institute of Meteorology & Geophysics, Karachi
- Director , Tropical Cyclone Warning Centre, Karachi
- Director ,Maintenance, Karachi
- Director, Flood Early Warning Centre, Lai, Nullah, Islamabad
- Chief Administration Officer, Islamabad

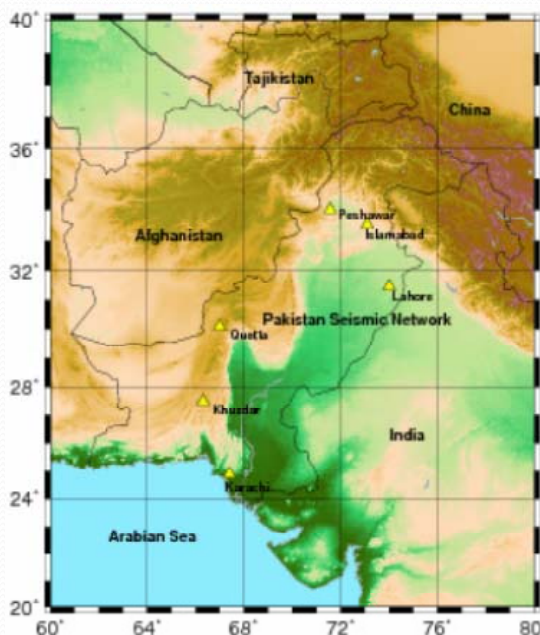
Existing Specialized EWS of Pakistan Meteorological Department (PMD)

- National Weather Forecasting Centre Islamabad(NWFC)
- Marine Meteorology & Tropical Cyclone Early Warning Centre Karachi (TCWC)
- National Drought Monitoring Center Islamabad (NDMC)
- National Seismic Monitoring and Tsunami Early Warning Centre Karachi (NTWC)
- Flood Forecasting Division Lahore (FFD)
- Flood Forecasting and Warning System for Lai Nullah Basin Islamabad

Pakistan Meteorological Department (PMD) Development Projects

- PMD-UNDP Joint Project in DRR in Pakistan
- PMD-WFP Joint Project
- Strengthening of Early Warning System Project sponsored by SLMP(MOE)
- PMD Wind Energy Project
- Multi Hazard Early Warning System
- Tropical Cyclone Warning Centre
- PMD Capacity Building

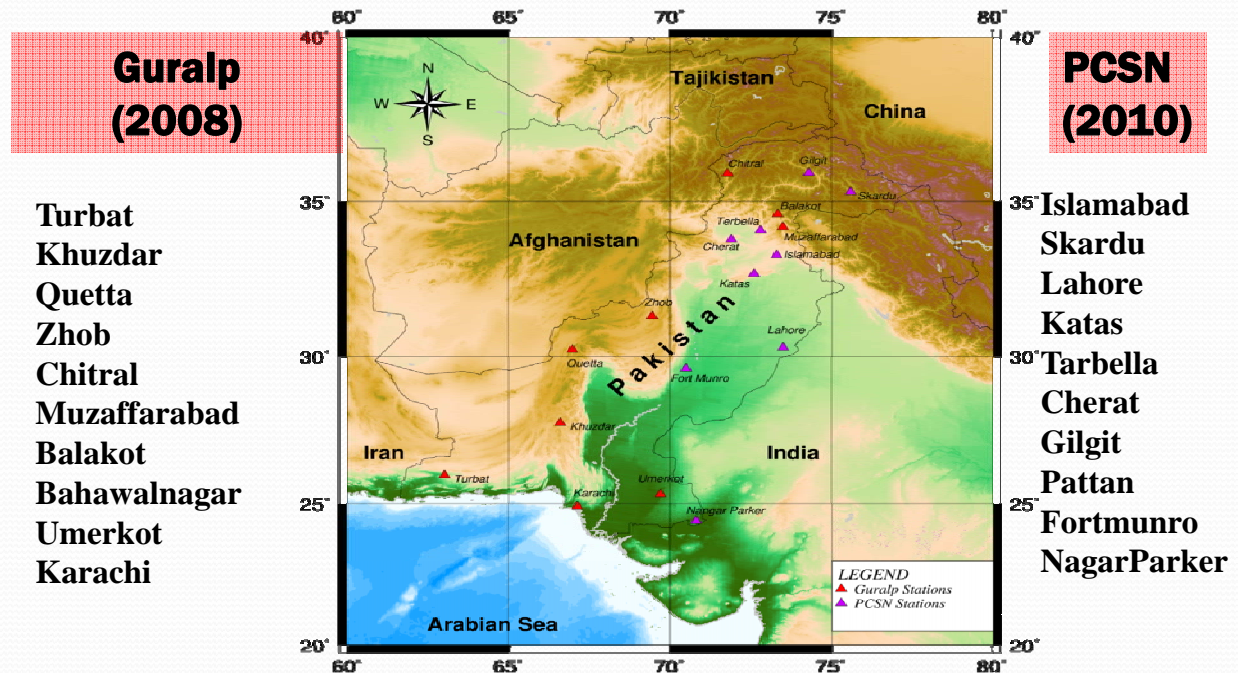
National Seismic Monitoring Network of Pakistan before Kashmir Earthquake 2005



Station	Lat.	Long.	Elev.
Quetta	30.11°N	66.57°E	1721m
Saidpur	33.74°N	73.06°E	838 m
Peshawar	33.93°N	71.43°E	456 m
Lahore	31.55°N	74.33°E	210 m
Karachi	24.50°N	67.02°E	30 m
Khuzdar	27.50°N	66.38°E	1231m

The Network consisted of 05 short period sensors 01 long period sensor with wssn system at Quetta. Stations Quetta, Peshawar and Saidpur are listed in International Registry of seismograph stations, Denver and ISC.

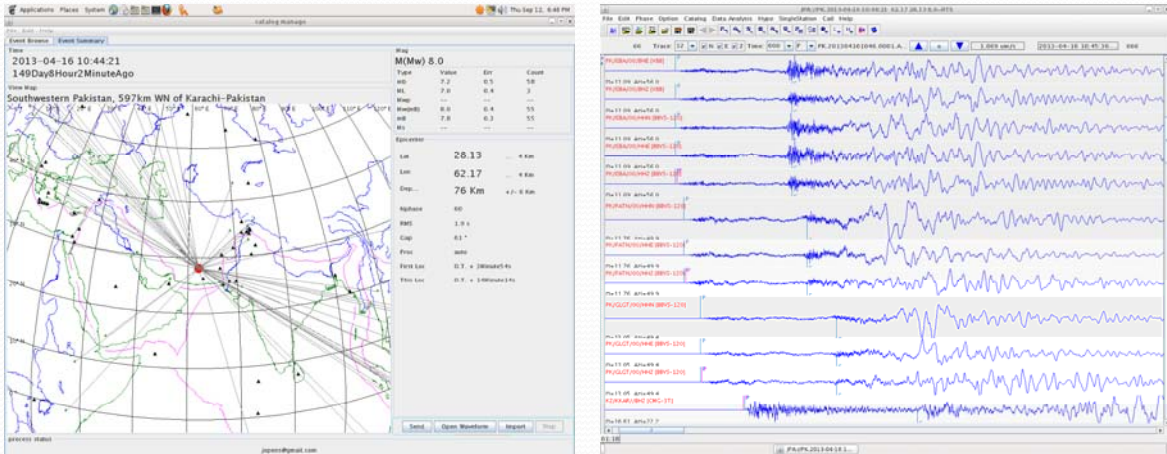
National Seismic Network of Pakistan after Kashmir Earthquake 2005



National Seismic Monitoring Centre (NSMC) Islamabad

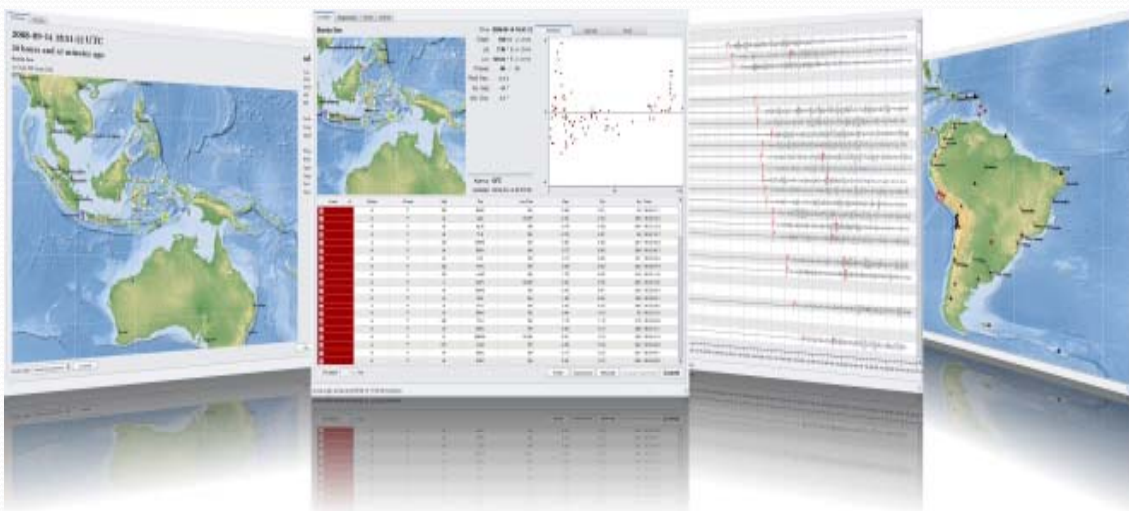


JOPEN System



- Real-time Seismic Data Acquisition
- Seismic Data Record
- Real-time Communication
- Real-time Automatic Data Processing based on Earthquake Data Quality
- Control as well as the Detection of the Earthquake parameter and Epicenter.

SeisComP System

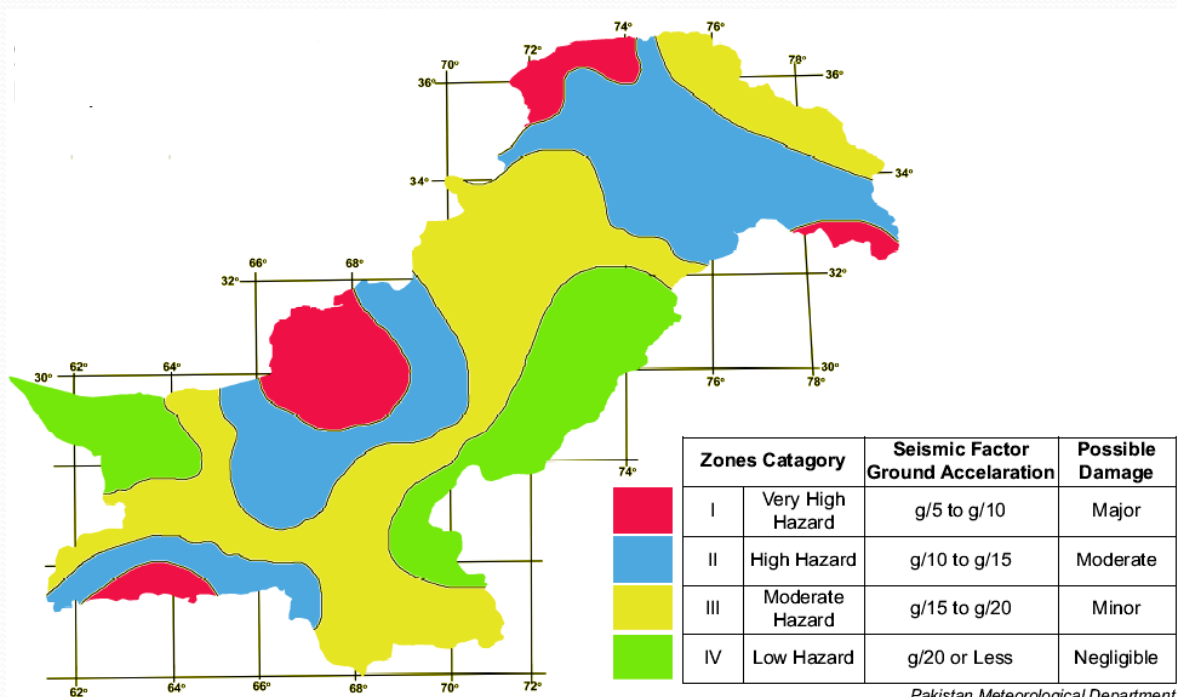


Real-time processing and analyzing system **SeisComP**, which has been developed within the **GITEWS** (German Indonesian Tsunami Early Warning System) project by GeoForschungs Zentrum (GFZ) Potsdam initially.

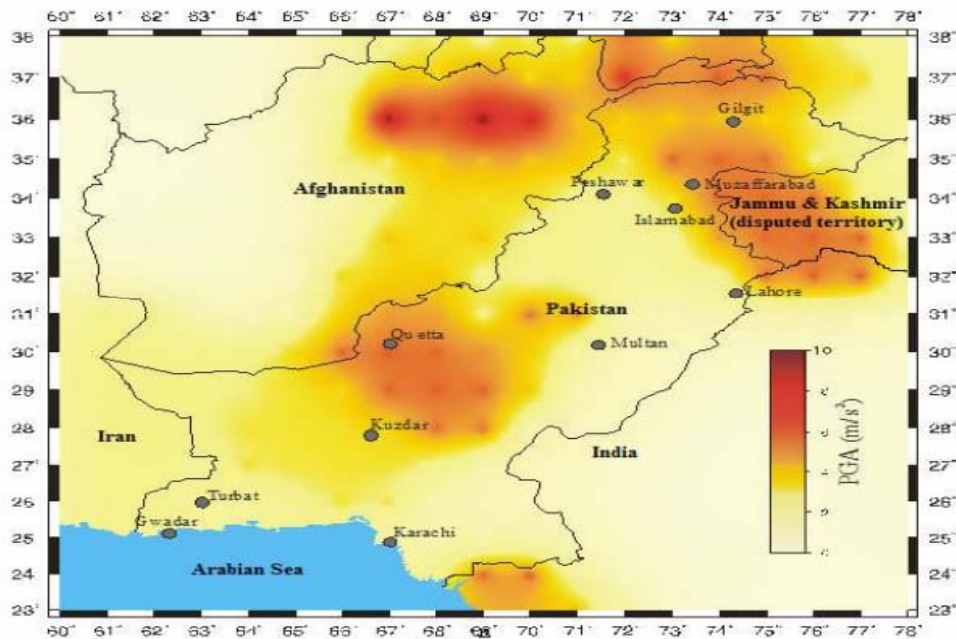
Research Activities

- Seismic Hazard Analysis and Zonation of Pakistan and Azad Jammu & Kashmir
- Seismotectonic Analysis of Ziarat Earthquake October 29, 2008.
- Probabilistic Seismic Hazard Assessment of Quetta
- Seismic Hazard Analysis of Islamabad and Rawalpindi Cities
- Earthquake Risk Assessment of Quetta

Seismic Zones of Pakistan



Seismic Hazard Map of Pakistan



Seismic Hazard Map of Pakistan prepared for PGA for 500 years return period

Main Gaps and Challenges in DRM

- Low Level of Risk Awareness Knowledge
- Development not “Risk Conscious” and DRR not yet Effectively Integrated
- Insufficient DRR Capacity at all Levels of Society
- Weakness of Existing Early Warning Systems (EWS)
- Risk and Vulnerability was not given Priority
- Poor Communication Infrastructure
- Lack of Capacities for Risk Analysis and Risk Reduction
- Lacks of Application of Building Codes for Construction of Housing and Infrastructure in Hazard Prone Areas
- Lacks of an Affective System for Emergency Response
- Resource Constraints and Competing Demands



My Responsibilities in Pakistan Meteorological Department (PMD)

- **Detection and Dissemination of Earthquake Data**
- **Earthquake Catalogue Preparation**
- **Participate in Research Activities related to Seismology**