





(ISO 9001-2008 Certified; Provider of Aviation Meteorological Services)

# PMD: Services for National Development and International Safety

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Director General/Permanent Representative to WMO
Pakistan Meteorological Department
Islamabad.



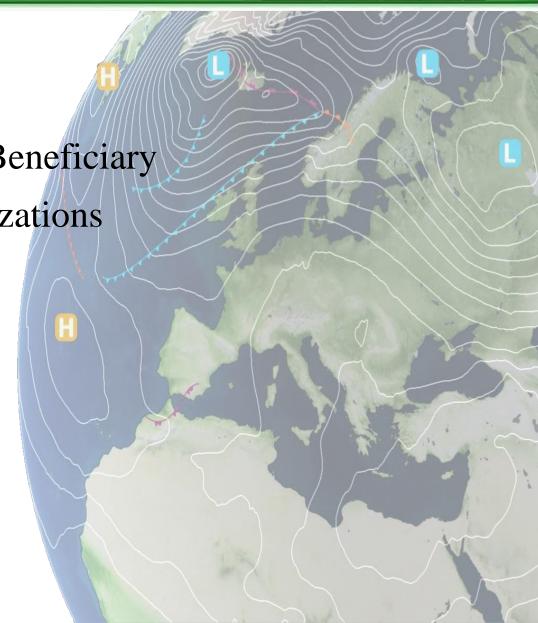






#### **Sequence of the Presentation**

- Mission Statement & Objectives
- PMD Services/ Dedicated EWS and Beneficiary
- PMD Services for Ministries / Organizations
- Maritime Services in METAREA IX
- Existing Met. Network
- Achievements (2022-23)
- Future Road Map
- Challenges









# Mission Statement & Objectives

"Provision of effective Meteorological, Hydro-meteorological and Geophysical Services for improved quality of life, property and environment by increasing safety on land, sea and air."

- To provide information on Weather, Climate and Geophysical phenomenon for public safety.
- To support in Disaster Risk Reduction activities, socioeconomic development based on Climatic Potential of the country.
- To monitor Climate Change and its impact, generate Future Projections and suggest Policy Options for Adaptation.







#### **PMD's Services**

- Meteorology
- Hydrology
- Drought
- Seismology
- Agro-meteorology
- Aviation Meteorology
- Marine Meteorology
- Glaciology (Glacier Monitoring)
- Climatology/Astronomy
- Research and Development

#### **Dedicated Multi-Hazards Early Warning Systems**

- Heavy Rain Warning System
- Flood Early Warning System
- Earthquake & Tsunami Early Warning System
- Cyclone Early Warning System
- Heat Wave & Marine Early Warning System
- GLOF Early Warning System
- Drought Monitoring & Early Warning System
- Fog, Smog, Dust/Thunderstorm, Visibility Warning

#### **Beneficiary Sectors**

- Aviation
- Water
- Energy

- Agriculture
- Tourism
- Religious





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# Ministry of National Food Security & Research

(Agro-meteorological Services, advisories about water availability during Rabi and Kharif Season, droughts, Advisories for farmers for pesticide spray and watering)

#### **Ministry of Climate Change**

(Seasonal Predictions, Climate Projections/Scenarios, Glacier Monitoring, Global Warming, Ozone Environment Research)

#### **Ministry of Tourism & Sports**

(Weather advisories for tourist, mountaineers, sport and festivals)

#### Ministry of Religious Affairs & Inter-Faith Harmony / Ruet-e-Hilal Committee

(astronomical information, new moon sighting, sunrise/sunset timings, lunar & solar eclipses)

#### **Aviation Division and MOD**

(Aviation Meteorological Services, route forecasts, air-field weather info, aviation hazard reporting)

# **PMD**

Ministry of Science & Technology, climatebased research, renewable energy resources, platform for academia (study for harnessing Wind Power Potential of different regions)

# NDMA, PMDAs, & Relief agencies/UN Agencies/ NGOs and INGOs

(weather Forecasts, warnings / alerts during floods, tropical cyclones, heatwaves, droughts, earthquake reports, tsunami Warnings etc.)

# Ministry of Water & Power, Federal Flood Commission, Dam Management Authorities

(Hydrological Services like river stream flows/flood Forecasts, Water Management Advisories)

#### National Highway & Motorway Police, Aviation Sector

(for safety on road and air navigation, advisories/warnings for fog, dust/thunderstorm etc.)

#### **Planning & Development Division**

(climate-based policy guidelines, drought and water management, town planning and industry, seismic studies)





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#### **Marine Meteorological Service (METAREA IX)**

- ❖ Pakistan is a Coordinator since 1976 of METAREA-IX (consists of 17 countries)
- PMD-Area of responsibilities under Global Maritime Distress & Safety System(GMDSS).
- Forecast is issued twice daily through INMARSAT Coastal Station Perth, Australia for the ships already in sea.
- Issues coastal warnings to Ports, all ships and concerned National Authorities
- Sea Bulletins for fisheries broadcast by Radio



Bahrain	Ethiopia	Jordan	Qatar	Sudan	Kuwait
Djibouti	Iran	Oman	Saudi Arabia	UAE	Uzbekistan
Egypt	Iraq	Pakistan	Somalia	Yemen	









#### Achievements (2022-2023)

- ➤ In 2022, Early Warnings for Six climate extremes events (snow blizzard, heatwave, GLOF, Flash Drought, Torrential Rainfall (Flash Floods) and Monsoon Instant Rainfall flood) were issued Timely that helped to save lives, properties of the community.
- ➤ World Meteorological Organization (WMO) in its press release appreciated PMD early warning for monsoon 2022, helped to minimize the damages.
- ➤ Biporjoy Cyclone (2023): 31 Advisories/Alerts were issued, due to anticipatory action, no causalities were reported. Disaster Management agencies, NGOs, INGOs and UN agencies appreciated
- ➤ Flooding in Sutlej River (2023): Timely Early warning of flood was issued and updates are being shared. No human loss is reported up till now.





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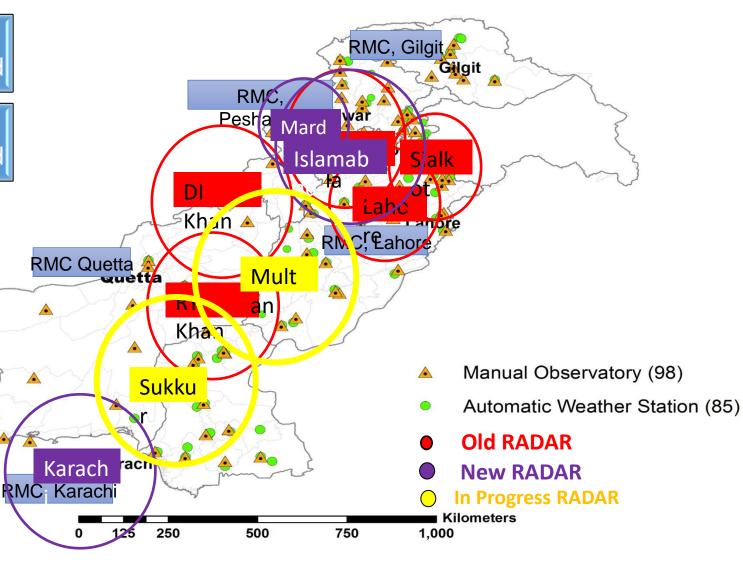


#### **Specialized Centers**

**Existing Met Network** 

NWFC Islamabad NAMC Islamabad NDMC Islamabad

FFD Lahore NTSMC Karachi R & D Div Islamabad



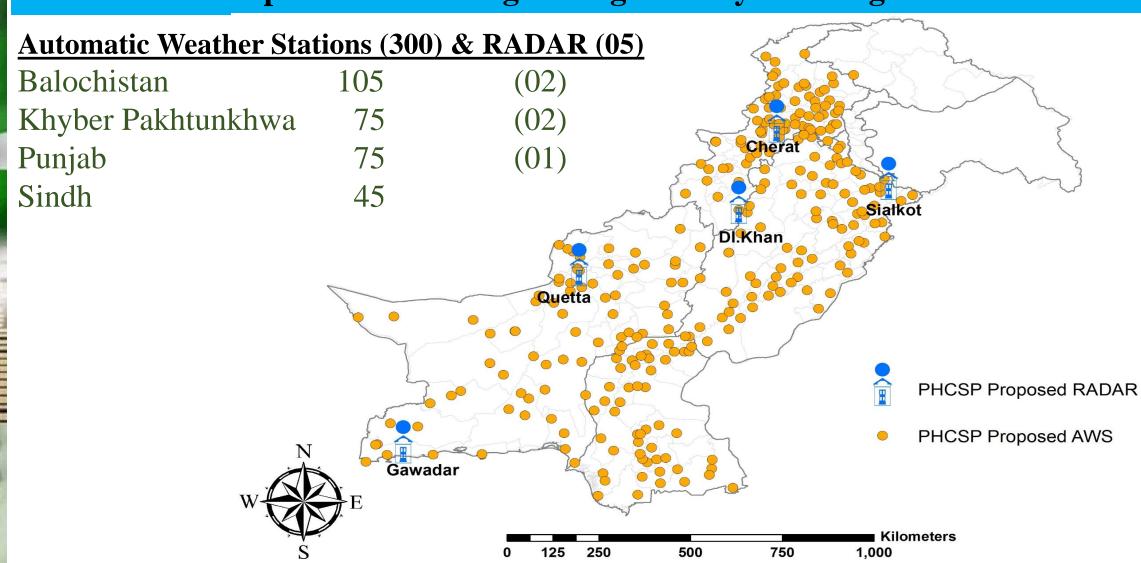






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#### Future Road Map: Plan for Strengthening of Early Warning Network of PMD











#### Research, Development, Innovation & Self Sustainability

❖ PMD Web Portal (Interface Developed – Test Ru
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- ☐ Digitization of PMD data
- ☐ Tailored Forecast at 47,000 Geographical locations in Pakistan (5KM resolution)
- ☐ Interface for Sale of PMD Products

#### **\* Kisaan Mobile Application (Features Locked - Under Development)**

- ☐ For timely weather information specifically for farmers, a Kisaan Mobile Application has been developed and would be launched soon.
- ☐ The application would enable the farmer to know about next rain, wind storm and similar weather conditions to take timely decision about irrigation, pesticide spray and fertilizers etc.
- **❖** Meteorological Act Legislation (Drafting Stage)
- **❖** Command Control & Communication Centre (Proposed)
- ☐ Integration of all PMD products
- ☐ AI enabled Decision Support System for Realtime Warning for all stakeholder









#### **Technical**

#### **Challenges**

- Regional Cooperation for early warning Climate Extreme events prediction
- Unwillingness to share IPR (Intellectual Property Right)
- Cultural and Linguistic Barrier/Trust building.
- Outdated Equipment and Infrastructure
- Transboundary real time data sharing
- Frequent Up-gradation not possible due to high cost
- Dissemination challenges & non-cooperation of private firms on free of cost services
- Lack of Synoptic, Upper atmosphere as well as Hydro-met Data network
- Customize the Early warning products and Developing EW protocols

#### **Administrative**

- Limited Career Growth/Progression resulting in High Turn Over
- Capacity Building in accordance with technology advancement







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# Thank You

