



Disaster Preparedness, Response and Management

**By
Pakistan Medical Association**



Introduction:

Pakistan today stands at the frontline of climate change. Global warming has intensified the frequency and severity of disasters—floods, heatwaves, droughts, glacial melting, cyclones, and unpredictable monsoon patterns. These threats demand a strong, coordinated, and science-based disaster preparedness and management system.



Pakistan's Vulnerability to Global Warming:

- Pakistan ranks among the top climate-vulnerable countries in the world.
- Rapid temperature rise is accelerating glacial melt in the north, increasing risks of **GLOF (Glacial Lake Outburst Floods)**.
- Coastal areas such as Karachi and Badin face rising sea levels and stronger cyclones.
- Rural and urban communities suffer from extreme heatwaves, prolonged droughts, and water scarcity.
- Unplanned population growth and poor infrastructure further weaken resilience.



Major Climate-Related Disasters in Recent Years

- **2010, 2011, 2012 & 2022 floods:** unprecedented devastation, affecting millions of people and causing massive infrastructure loss.
- **Heatwaves** in Karachi and southern Pakistan resulting in thousands of deaths.
- **Droughts** in Tharparkar and Balochistan causing food insecurity and malnutrition.
- **Cyclones** such as Biparjoy and Tauktae threatening coastal regions.
- **Frequent landslides**, glacial bursts, and riverbank erosion in northern areas.
- These events highlight the urgent need for an effective disaster management system.



Understanding Disaster Preparedness:

Disaster preparedness involves **planning, training, risk assessment, infrastructure resilience, and community awareness** before a disaster occurs.

Key Components:

- **Early Warning Systems:** Timely alerts for floods, cyclones, heatwaves, and GLOFs.
- **Risk Mapping:** Identifying vulnerable districts, hazard zones, and population patterns.
- **Infrastructure Strengthening:** Flood-resistant housing, safe schools, embankments, and improved drainage.
- **Community Training:** Local volunteers, school drills, first aid training, and disaster response education.
- **Stockpiling of Supplies:** Food, water, medicines, tents, and emergency kits.



Disaster Response

Disaster response refers to **immediate actions during and after a disaster** to save lives and reduce losses.

Pakistan's response system includes:

- **NDMA, PDMA, and District Disaster Management Authorities** working on coordination and rapid deployment.
- Rescue forces such as **Army, Navy, Air Force, Rescue 1122, Edhi, Al-Khidmat**, and local NGOs.
- Establishment of **relief camps**, temporary shelters, and medical facilities.
- **Search and rescue operations**, evacuation plans, and distribution of relief goods.
- **Media and digital platforms** used to spread warnings and safety instructions.

Challenges include slow communication in rural areas, limited resources, and poor access due to damaged roads.



Disaster Management and Long-Term Strategies

Long-term disaster management focuses on **building resilience**, reducing future risks, and integrating climate adaptation into national planning.

Key strategies for Pakistan:

a. Climate-Resilient Infrastructure

- Building dams, reservoirs, and improved irrigation systems.
- Storm-water drains in cities to prevent urban flooding.
- Strengthening embankments and river channels.

b. Land Use and Urban Planning

Preventing construction in floodplains.

Developing climate-resilient housing units.

Creating green belts to reduce heat island effects.



c. Environmental Protection

- Forest restoration, mangrove protection, and large-scale plantation drives.
- Controlling industrial pollution and improving waste management.

d. Education & Capacity Building

- Introducing disaster and climate education in schools and communities.
- Training local governments and emergency teams.

e. Technology and Research

- Using satellite data for monitoring weather patterns.
- Predictive models for floods, heatwaves, and droughts.
- Investing in renewable energy to reduce climate stress.



The Role of Government and Institutions

NDMA's National Disaster Management Plan focuses on risk reduction and emergency response.

- Coordination with global bodies such as **UNDRR, WHO, FAO, and UNDP.**
- Strengthening local government capacity for community-level planning.
- Enforcement of building codes and environmental regulations.
- Strengthening coordination with local and international NGOs.

However, gaps remain in implementation due to political instability, limited budgets, and weak governance.



Community-Based Disaster Preparedness

Communities are the first to face disasters and the first to respond.

Important actions:

- Forming **village-level Disaster Committees**.
- Training in first aid, early evacuation, and safe shelter identification.
- Public awareness campaigns about heatwave safety, flood protection, and emergency kits.
- Involving women, youth, and local leaders in planning and decision-making.



Challenges in Pakistan's Disaster Management

- Weak coordination between federal, provincial, and district authorities.
- Insufficient and weak early warning systems, especially in remote areas.
- Lack of trained staff and modern equipment.
- Financial constraints and dependence on foreign aid.
- Implementation of environmental laws.
- Lacks public awareness and limited community participation.



Recommendations for Improvement

- Strengthen and modernize early warning systems in Pakistan.
- Improve communication networks for quick information flow.
- Proper use of funding by NDMA and PDMAs.
- Develop climate-resilient cities and infrastructure.
- Promote environmental conservation, reforestation, and sustainable water management.
- Engage local communities through training and awareness programs.
- Integrate disaster management into educational institutes.
- Encourage public-private partnerships for disaster preparedness.



Conclusion

Global warming is no longer a distant threat—its impacts are visible in Pakistan every year.

Effective disaster preparedness, rapid response, and long-term management are essential to protect lives, livelihoods, and national development.

A resilient Pakistan requires **strong institutions, informed communities, climate-proof infrastructure, and a unified national commitment** to address climate-induced disasters.

Thank You