

DISASTER MANAGEMENT IN PAKISTAN: CHALLENGES AND WAYFORWARD

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- According to National Disaster Management Authority (NDMA)

III - Challenges in Disaster Management System of Pakistan

1. Institutional weakness

- i - Lack of strong coordination among NDMA, PDMA's and local government
- ii - Lack of clear roles and response

2. Inadequate Preparedness

- i - Insufficient early warning system
- ii - Lack of community-based training programs

3- Financial Constraints and Limited resources

- i - Limited budget allocation
- ii - Dependence on foreign aid for relief

4- Limited Use of technology

- i - Lack of technical infrastructure
- ii - Absence of high risk zoning and hazard mapping

5- Weak data monitoring and accountability

- i - Lack of accurate data availability
- ii - Limited sharing of data from government agencies

6- Lack of public awareness

- i - Absence of trained local volunteers
- ii - Limited incorporation of disaster management in school curriculum

7- Political and bureaucratic hurdles

- i - Politicization of disaster management
- ii - Political instability leads to weak policy implementation

IV. Wayforward to Minimize Disaster Management Challenges

1. Institutional reforms

- i - Clear operational authority and strengthening coordination among institutions

- ii - Building staff capacity and
Creating special task force

2- Formulating a proactive approach

- i - Risk-zoing and hazard mapping
- ii - Strict national building codes

3- Public awareness and education

- i - Incorporating disaster management
in school curriculum
- ii - Using media and social media
platforms

4- Technological advancement

- i - Using real-time flood forecasting
and GIS mapping
- ii - Case study of Japan

5- Early warning system and effective evacuation mechanism

- i - Use of advanced sensors to
• detect p-waves
- ii - Community-based evacuation system

6- Strong financial mechanism

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- i - Effective rescue and relief
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of NDMA act 2010.

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1970, the deadliest year in the history of Bangladesh when a catastrophic Bhola cyclone caused massive destruction and death of nearly half a million lives. However, a similar cyclone in 2018 resulted in death of only 20 people. The difference lies in the efficiency of its disaster management framework. Bangladesh learnt the crucial lesson and worked strategically to formulate a robust and sustainable disaster management system which helped it to shift from a disaster-prone country to a global model of disaster management. Unfortunately, Pakistan, being a disaster-prone country continues to face several disasters annually due to its vulnerable geographic location and deteriorating climatic condition. Historically, Pakistan witnessed multiple natural hazards such as the deadliest earthquakes of 2005 and massive floods of 2010, 2022, and 2025. To mitigate the impacts of these hazards, Pakistan needs an efficient disaster management system. However, the country is still struggling to cope with the destructive events because of numerous challenges in the way of its disaster management; including, institutional weakness, inadequate preparedness,

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financial constraints, limited use of technology and lack of public awareness. These challenges can be overcome through institutional reforms, strong financial mechanism, public awareness and use of advanced technology. A proactive approach can help Pakistan to transform from a disaster-prone country into a global model of disaster management.

Before going deep into the challenges faced by Pakistan in its disaster management, it is important first to explain what basically a disaster is and what an efficient disaster management is all about? According to NDMA act of 2010, disaster means a catastrophe or a calamity in an affected area, arising from natural or man-made causes or by accident, which results in substantial loss of life or human suffering or damage to, and destruction of, property. The same act defines disaster management as the management of disaster in a complete spectrum. Complete disaster management consists of four phases including mitigation, preparedness, response, and recovery. Aim of these phases is to lessen the impacts of disaster, to enhance the ability of communities and government

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to respond to hazardous situation, making an effective emergency response plan and finally returning to normal through rehabilitation and reconstruction. The Essay will now explain the major challenges of disaster management in Pakistan.

To begin with the challenges, first come the institutional weakness which is the foremost factor responsible for weak disaster management. NDMA and PDMA's, which are the sole authorities at federal and provincial level, lack strong coordination among themselves. Although creation of National disaster management act of 2010 was a milestone in the history of Pakistan's disaster management, its weak policy implementation and unclear roles and responsibilities during disastrous situation resulted in inefficient disaster management system. The 2022 post-disaster needs Assessment noted that Pakistan's disaster plans remain insufficiently operationalized, with limited ability to translate national-level framework into effective provincial and local action - a gap that undermines coordination between NDMA and PDMA's. The lack of coordination, consequently, leads to inefficient disaster management. Therefore, institutional weakness is a challenge in the way of disaster

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management in Pakistan.

Along with institutional weakness, inadequate preparedness also serves as a serious challenge for disaster management in Pakistan. There is insufficient preparedness both at the governmental level and community level. At the governmental level there are insufficient early warning systems to help people evacuate at the earliest to prevent huge loss of lives. At the community level absence of community-based training programs further weaken the emergency response. The Swat river drowning incident of 27 June, 2025 is a clear example. A tourist family of 18 people were swept away by sudden flash flood due to heavy rainfall. It was reported that the victims waited for nearly three hours at the middle of the river hoping for help. Hundreds of people were witnessing the incident but none of them was trained enough to conduct even a basic rescue operation. If even a single person was trained under the community-based training program, the tourist could have been rescued. Unfortunately, there are no such training programs in Pakistan which ultimately lead to higher casualty rate during disaster. Therefore, inadequate preparedness is a serious obstacle to effective disaster management in Pakistan.

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Furthermore, financial constraints significantly hinder effective disaster management in Pakistan. A strong economy and adequate resources are essential to cope with disastrous situation, yet Pakistan's limited fiscal capacity weakens effective disaster management. In Pakistan, budget allocation for climate-induced disaster management remains low and economic losses due to disasters are comparatively very high. According to IPRI report, costs of environmental degradation due to climate-induced disasters in Pakistan amount to 6 pc of its GDP, whereas spending is only 1 pc on disaster related needs. This gap forces Pakistan to rely heavily on external assistance which are either delayed or partially fulfilled. For instance, only a fraction of pledged aid was materialized after floods of 2022. Therefore, it can be concluded that disaster management in Pakistan is struggling due to financial constraints and limited resources.

In addition, limited use of advanced technology also creates major hurdles to efficient disaster management in Pakistan. Technological advancement is essential for developing

resilient infrastructure, conducting hazard mapping and identifying high-risk zones. However, lack of technical infrastructure makes Pakistan highly vulnerable to large-scale destruction and building collapses. For instance, the 2005 earthquake of 7.6 magnitude caused massive destruction and structural failure with 3.5 million people impacted. In contrast, Japan's 2011 earthquake, despite being much stronger with 9.0 magnitude caused relatively minimal structural collapses. This comparison clearly depicts the importance of technological advancement for disaster management. Unfortunately, Pakistan lacks such technological infrastructures due to which it faces huge hurdles in its preparedness and disaster management.

Moreover, disaster management in Pakistan is hindered by weak data monitoring and accountability system. Accurate and credible data is essential for disaster preparedness, early warnings and response. This data includes satellite imagery, hazard assessment and planning by using algorithms and machine-learning tools. Although Pakistan's

Space agency SUPARCO operates its own satellite, access to this data remains limited to only a few government bodies, restricting broader use for disaster planning. NDMA itself acknowledged the fact that monitoring and evaluation mechanism, standardized methodology and well-defined criteria for policy revision are lacking. As a result, limited data availability reduces the accuracy of disaster-risk analysis, early warning systems, and hazard mapping. Therefore, weak data governance remains a major challenge for effective disaster management in Pakistan.

Meanwhile, the lack of public awareness remains a major challenge for disaster management in Pakistan. For a disaster-prone country like Pakistan, mass literacy about disaster-related safety measures and emergency response is essential to minimize losses. In Pakistan, unfortunately, public awareness programs are limited and there is limited incorporation of disaster management in school curriculum. Karachi heatwave of 2015 is a real example of disaster losses due to

low public awareness. The heatwave claimed more than 1,200 lives, largely because people were unaware of heatstroke prevention and response. They did not know basic life-saving steps and continued outdoor activities because there was timely public messages, school-level education and community-based preparedness. Therefore, the incident clearly demonstrates that inadequate public awareness significantly worsens disaster outcomes in Pakistan.

Finally, political and bureaucratic hurdles pose a major challenge to effective disaster management in Pakistan. Political instability weakens policy continuity and undermines the implementation of existing disaster-related laws and building codes. Moreover, disaster management often becomes politicized, as competing authorities prioritise point scoring over coordinated action. Similarly, bureaucratic inefficiencies — such as slow decision-making, overlapping mandates and lack of coordination between federal, provincial and local authorities — further aggravate the situation. According to NDMA's own analysis, disaster management responsibilities in Pakistan are split among multiple departments — including

environment, local government, tourism, police, and provincial disaster authorities - without clear coordination. This fragmented structure leads to responsibility dilution and frequent blame-shifting after disasters. Therefore, political interference and bureaucratic hurdles significantly hinder Pakistan's ability to manage disasters effectively.

The essay has previously discussed various challenges of disaster management in Pakistan. This essay would further shed light on suggest practical measures to overcome the challenges of disaster management in Pakistan.

To begin with the practical steps required to address the challenges of disaster management in Pakistan, institutional reforms remain the foremost recommendation. Disaster management institutions, including; NDMA, PDMA's, and local bodies, should be granted clear operational authority along with adequate financial and administrative autonomy. Moreover, capacity building of staff at district and tehsil level is essential to ensure timely response and effective coordination during emergencies. In addition, the formation of specialized emergency task forces, trained in rescue, evacuation, and relief operations, can significantly

enhance disaster management. Above all, decentralization of power and strict implementation of disaster-related policies would strengthen institutional efficiency, improve coordination, and ultimately enhance Pakistan's overall disaster preparedness and management.

Another crucial recommendation for effective disaster management in Pakistan is adoption of a proactive approach instead of relying on traditional reactive approach strategy. Proactive disaster management emphasizes preparedness before the occurrence of hazards in order to minimize loss of life and property. This includes risk zoning and hazard mapping of vulnerable areas so that unplanned settlements in disaster-prone regions can be restricted. Moreover, strict enforcement of national building codes is essential to prevent structural collapse and large scale destruction during earthquakes, floods, and other natural hazards. Early preparedness not only reduces damages but also enhances national resilience. Therefore, shifting from a reactive to a proactive approach is indispensable for strengthening disaster management in Pakistan.

In addition to

adopting a proactive approach, public awareness and disaster-related education constitute a key recommendation for effective disaster management in Pakistan. The masses should be provided with adequate awareness about disaster preparedness, adaptation, mitigation, and emergency response through public awareness campaigns, community seminars and government alerts to minimize losses of life and property. Moreover, incorporation of disaster-related education in school curriculum is crucial for long-term disaster resilience and ensuring informed emergency response from an early age. In this regard, electronic, print, and social media platforms can play a vital role in disseminating timely warnings and safety guidelines, facilitating prompt evacuations and reducing damages. Therefore, strengthening public awareness and education is indispensable for an effective and resilient disaster-management framework in Pakistan.

Furthermore, technological advancement is undoubtedly a crucial recommendation for efficient disaster management in Pakistan. Technologically advanced countries, despite witnessing frequent disasters, remain less vulnerable to disaster-related destructions as compared to technologically backward countries. Japan is the fair example in this

regard. Despite facing frequent earthquakes, tsunamis, landslides, volcanic eruption, floods and typhoons, Japan suffers far fewer casualties than expected because of its high preparedness and technical infrastructure. Pakistan also needs technically advanced infrastructure to withstand hazards, and use of real-time flood forecasting and GIS mapping for long-term resilience and better preparedness. Hence, Pakistan can overcome most of the challenges related to disaster management through technological advancement.

Moreover, early warning systems and effective evacuation mechanisms are essential to minimize loss of life during disasters in Pakistan. Timely warnings through SMS alerts, public announcements, and mosque loudspeakers can enable people to evacuate vulnerable areas before disaster strike. Many hazards, such as floods and earthquakes, can be detected in advance; for instance, modern sensors are capable of identifying primary waves (P-waves) before destructive seismic waves reach populated areas. Early detection, coupled with timely dissemination of warnings, can significantly reduce casualties. Furthermore, community-based evacuation plans should be institutionalized to ensure swift and

organized movement of people to safe locations. Hence, strengthening early warning systems and evacuation strategies plays a vital role in improving disaster management and reducing human losses in Pakistan.

Additionally, strengthening financial mechanism is a crucial step for improving disaster management in Pakistan. Adequate budgetary allocation is essential for disaster preparedness, technological investment, and effective emergency response. However, Pakistan's public expenditure on disaster management remains limited: in the 2025-2026 federal budget, only about 1% of total federal budget was allocated for disaster-related activities, which is insufficient given the country's vulnerability to natural hazards and high economic cost. To address this gap, Pakistan should engage international bodies to access loss and damage funds promised in COP climate negotiations and increase domestic budgetary commitment. Furthermore, publishing an annual financial report on disaster expenditures can enhance transparency and institutional accountability. Therefore, establishing a strong and well-funded financial mechanism is essential to counter the challenges faced by disaster management in Pakistan.

Finally, good governance and strong policy implementation are indispensable for effective disaster management.

in Pakistan. Sound governance ensures coordinated rescue and relief operation, timely emergency response, and improved disaster preparedness. However, despite the presence of multiple laws and institutional frameworks, Pakistan suffers from weak implementation and poor enforcement. For instance, the National Disaster Management Act of 2010 marked a major institutional milestone by establishing NDMA and PDMA's, yet ineffective coordination, political interference, and limited administrative capacity have undermined its practical effectiveness. As a result, disaster response often remains delayed, fragmented, and inefficient. Therefore, strengthening governance mechanism and implementation are essential to improving disaster management in Pakistan.

In a nutshell, disaster management in Pakistan remains weak due to multiple challenges, including institutional weakness, inadequate preparedness, lack of public awareness, financial constraints, and a weak data-monitoring and accountability system. However, robust and practical measures, in the form of institutional reforms, adoption of advanced technology,

improved governance, and enhanced public awareness, are needed to strengthen disaster management in Pakistan. If a country like Bangladesh, which is younger than Pakistan, can transform itself into a global leader in disaster risk reduction; if a country like Indonesia, despite lying on the Pacific ring of fire, can overcome the challenges of disaster management; and if a country like Cuba, despite being a lower-income country, can successfully tackle disaster-management challenges, so can Pakistan. Because clouds, no matter how dark, always have a silver lining.