

Topic: Disaster management in Pakistan: Challenges and Way forward

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Outline:

Ⓐ Introduction

Ⓑ Challenges of disaster management in Pakistan:

- (i) Outdated technology and weak early warning systems
- (ii) Poor infrastructure and planning
- (iii) Lack of trained rescue teams
- (iv) Unplanned settlements near riverbeds
- (v) Government negligence and weak coordination
- (vi) Slow evacuation processes and relief processes

Ⓒ Way forward of disaster management in Pakistan

- (i) Adoption of modern technology and GIS-based monitoring
- (ii) Establishment of efficient rescue and response teams
- (iii) Strengthening institutional coordination
- (iv) Climate resilient infrastructure development
- (v) Community awareness and preparedness programs
- (vi) Restriction on construction near riverbeds and flood-prone areas

Ⓓ Conclusion

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From the devastating 2005 earthquake to the 2022 floods, Pakistan's landscape has repeatedly witnessed the fury of nature, exposing the fragility of its disaster management and preparedness of response mechanisms. Ranked among the top-ten most disaster prone countries by the Global Climate Risk index. The concept of disaster management is not restricted to the economic sense only. It includes all aspects including social, political, economical, and technological aspects. There are several challenges of disaster management in Pakistan like the outdated technology and weak early warning systems. Moreover, poor infrastructure and planning and unplanned settlements near riverbeds are also the challenges faced by disaster management in Pakistan. In the similar fashion, to counter these challenges, there are several way forward of disaster management in Pakistan like adoption of modern technology and GIS-based monitoring. Furthermore, investing in establishment of efficient rescue and response teams and climate resilient

infrastructure can prove to be a game changer in the case of Pakistan. Therefore, the recurring devastation caused by natural disasters in Pakistan is not merely the result of nature's fury but a consequence of weak disaster management mechanisms that demand urgent technological, institutional, and structural reforms.

The major challenge of disaster management in Pakistan is outdated technology and weak early warning systems. This includes inefficient meteorological equipment, lack of real-time data sharing, and poor forecasting systems. This situation not only leads to delayed or inaccurate weather predictions but also unable to predict flash floods or cloudburst in time. This situation results in human loss and damages to infrastructure. According to the World Bank's "Pakistan Floods 2022 Post-disaster needs assessment", Pakistan's early warning systems failed to provide timely alerts to millions of people in flood-affected areas, primarily due to obsolete forecasting tools and limited digital connectivity. As a result, over 33 million

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people were affected and \$30 billion in damages occurred. Therefore, the major hindrance of disaster management in Pakistan is outdated technology and weak early warning systems.

Another challenges of disaster management in Pakistan is poor infrastructure and planning. This includes weak and non-resilient physical infrastructure, absence of urban planning and zoning regulations, and poor drainage system. This situation not only fails to meet seismic resilient standards but also leads to urban flooding during heavy rains. This situation results in human loss and infrastructural loss. According to World Bank's PDNA report (2023), nearly 90% of damaged structure were build without disaster-resilient standards. Therefore, the major challenge of disaster management in Pakistan is poor infrastructure and planning.

Lack of trained rescue teams is another major challenged of disaster management in Pakistan. This includes limited specialized equipments, insufficient professional training and

skills, and absence of national-level rescue training academy. This situation not only leads to delays and mishandling during critical rescue operations but also lack advanced technical training in search and rescue. This situation results in slow evacuation processes and can also result in human loss. A report from September 2025, Pakistan still lacks widespread emergency training programmes for citizens and local rescue teams. In particular, many lives were lost during the 2022 floods. Therefore, the major hindrance in disaster management in Pakistan is lack of trained and equipped rescue teams.

Another major challenge faced by disaster management in Pakistan is unplanned settlements near riverbeds. This includes encroachments on floodplains and riverbanks, lack of urban planning, and fault in government systems. This situation not only narrows the riverbeds but also results in environmental degradation. This situation results in increased human loss and pressure on rescue teams.

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during critical situations. According to Ravi development authority press statement reported that no NOC had ever been issued for housing societies on the bed of river Ravi, and the authority decided to clear all habitations built within 1km of the riverbed after the 2025 flood. Therefore, another major hindrance of disaster management in Pakistan is unplanned settlements near riverbeds.

Government negligence and weak coordination is another major challenge of disaster management in Pakistan. This includes absence of effective institutional coordination, poor implementation of management plans, and lack of preparedness. This situation not only creates unclear decision-making during emergencies but also worsens the disaster impacts. This situation results in no unified chain of command and also in poor implementation of plans. A report states that successive governments haven't learned any lessons despite the 2010 recommendations by the NDMA that the disaster management capacity of the state remained limited at multiple

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levels of government. This shows the long standing institutional weakness and failure to implement past lessons. Therefore, the major hindrance of disaster management in Pakistan is government negligence and weak coordination.

The last major challenge of disaster management in Pakistan is slow evacuation and relief processes. This includes delayed early warning dissemination, bureaucratic delays, and insufficient transportation and logistics. This situation not only creates inadequate shelters and relief camps but also lacks rapid response. This situation results in increased human loss due to no relief supplies and also no clean water supplies and medical facilities. According to UN OCHA and the NOMA report (2022) over 33 million people were affected because evacuation orders reached late and only 12% of vulnerable communities were informed^{ed} in time. Therefore, another major hindrance of disaster management in Pakistan is slow evacuation and relief processes.

There is no doubt in the seriousness of challenges faced by disaster management

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in Pakistan. However, there is need for practical and viable solutions for the betterment of this sector.

The first major wayforward of disaster management in Pakistan is adoption of modern technology and GIS-based monitoring. This includes use of GIS and ^{risk} ~~map~~ mapping, establishment of real-time monitoring systems, and use of AI-based alerts. This situation not only help identify vulnerable zones but also enables better preparedness and early warning. This situation results in improved response time and minimizing human loss. The NDMA, in collaboration with SUPARCO, has developed GIS-based Flood hazard maps for Sindh, Punjab, and KP. These systems use satellite imagery and hydrological data to forecast flood intensity and identify high risk zones. Therefore, the major approach of disaster management in Pakistan is adoption of modern technology and GIS-based monitoring.

Establishment of efficient rescue and response teams is another approach for disaster management in Pakistan. This includes

formation of specialized and well trained units, regular training and simulation drills, and improved equipment. This situation results in minimizing human loss and professionally trained disaster response teams. Rescue teams 1122, established under the Punjab emergency service act 2006, has become Pakistan's leading disaster response agency and operates in 36 districts of Punjab and handled over 13 million emergencies since inception. Therefore, another way forward of disaster management in Pakistan is establishment of efficient rescue and response teams.

Another way forwards of disaster management in Pakistan is the strengthening of institutional coordination. This includes clarifying roles between NDMA, PDMA, and DDMA's and an establishment of an integrated disaster response framework.

This situation not only creates a single operational command system but also minimizes the duplication and confusion. This situation results in low human loss and improved inter-agency coordination. PDMA's in Punjab, KP, and Sindh have set up disaster

coordination cells connecting district governments, rescue 1122, and police departments. These cells ensure 24/7 communication and logistics support during emergencies. Therefore, another approach to disaster management in Pakistan is strengthening of institutional coordination.

Climate resilient infrastructure development is another way forward of disaster management in Pakistan. This includes upgradation of drainage systems, retrofitting and strengthening existing buildings, and development of earthquake resilient houses. This situation not only ensures safety during calamities but also ensures that infrastructure projects undergo climate assessment before construction. This situation results in less human loss and infrastructure loss. The World Bank approved \$300 M in 2022 for KP rural accessibility project which will upgrade rural roads with climate smart designs in vulnerable districts of KP. Therefore, another approach for disaster management in Pakistan is climate resilient infrastructure development.

Community awareness and preparedness programs is another approach for disaster management

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in Pakistan. This includes public education and awareness campaign, integration of disaster education in schools, and CBDRM programs.

This situation not only tells what to do before, during, and after disasters but also enhances self-reliance in emergencies. This

situation results in low human loss and local volunteers that help in such situations.

The NDMA has implemented CBDRM programs in flood and earthquake prone areas, focusing on training local communities in first aid.

These initiatives have led to quicker response times during disasters. Therefore, another way forward for disaster management in Pakistan is community awareness and preparedness programs.

The last way-forward of disaster management in Pakistan is restrictions on construction near riverbeds and flood-prone areas. This includes legal zoning and land-use regulations, prohibition of encroachments and informal settlements, and restrictions on high risk structures. This situation not only allow natural water flow and reduce flood risk

but also prevents catastrophic flood losses. This situation results in less human loss and allows smooth flow of rivers. The NDMA and PDMA have repeatedly highlighted that illegal settlements along riverbanks and flood plains. Therefore, the last way forward of disaster management in Pakistan is illegal construction near riverbeds.

In a nutshell there are number of pathways that can ensure the prosperity of Pakistan. But some challenges like unplanned settlements near riverbanks still pose a serious threat to disaster management. Moreover, government negligence and weak coordination and slow evacuation and relief process are also some challenges of disaster management in Pakistan. But with challenges, come solutions like strengthening of institutional coordination. In the similar fashion, community awareness and preparedness programs, restriction on construction near riverbeds, and climate resilient infrastructure development can help Pakistan in less damage. There is no doubt in the relevance of these way forwards.

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However, the love ^{sense} ~~letter~~ and lie in the
fact that, these are implemented in true
letter and spirit. Only then, the dream
which can ^{be} seen by everyone can be
turned into reality.