

DISASTER MANAGEMENT IN PAKISTAN: CHALLENGES AND WAY FORWARD

OUTLINE

A) INTRODUCTION:

Thesis Statement:

Pakistan is facing the unpredictable monsoons, unchecked construction on flood plains and river beds along with other challenges which can be curbed through various ways including early warning systems, real-time monitoring and investment in waste management.

B) CHALLENGES TO DISASTER MANAGEMENT IN PAKISTAN:

- a) Unpredictable Monsoons in Pakistan
- b) Unchecked Construction on (Flood Plains and Rivers beds) Disaster Prime areas

c) Lack of ability to Monitor Weather Threats

d) Challenge of Persisting Deforestation

e) Sustainable Infrastructure Lapse in disaster
Prone Areas in Pakistan

f) Reception of little Funds Despite the
Disaster vulnerable Country

g) Retreating Glaciers make the Northern
Areas of Pakistan disaster prone

h) Lack of Awareness among Masses: A major challenge to effective Disaster Management

C) WAY FORWARD FOR DISASTER MANAGEMENT IN PAKISTAN:

a) Introduction of Early Warning Systems
to Predict the Incoming disasters

(Case in Study : Brazil's early warning system)

b) Investment in Waste Management and
Drainage system

c) Disaster Resilient Infrastructure in flood
Prone Regions

Germany : A Case study

d) Strict law Enforcement against Construction on River beds

e) Real time Monitoring of Glacial Lakes and Rainfall Patterns

f) Disaster Awareness Campaigns at Grassroot Levels

5) CONCLUSION

THE ESSAY

According to a report by Intergovernmental Panel on Climate Change, Pakistan is one of the top-most countries vulnerable to climatic disasters. Despite this unfortunate fact, the disaster management in Pakistan remains ineffective. Pakistan is struggling to deal with the disasters through effective mitigation and adaptation techniques. Due to its limited expertise in disaster management, it is periodically being struck with the disasters — more intense than the previous ones every-time. Moreover, the unpredictable monsoon patterns make the situation worse by intensifying every year. Additionally, the unchecked construction on the flood plains and riverine beds pose a serious challenge to the disaster management in Pakistan. In the similar fashion, lack of ability to monitor weather threats and persisting deforestation across the country add fuel to the fire. Furthermore, political scoring through minimum disaster response

also hampers the effective ways for tackling the disasters. However, there are ways to improve the disaster management in Pakistan. Introducing early warning systems and real time monitoring of the glacial lakes and rainfall patterns can decrease the vulnerability to disasters. ~~The~~ In addition, strict law enforcement can also improve the effectiveness of disaster management in Pakistan. Therefore, Pakistan is facing the unpredictable monsoons, unchecked and illegal construction on flood plains along with the other challenges which can be tackled through various ways including ^{early} warning systems, real-time monitoring and investment in waste management and drainage systems.

Unpredictable monsoons are one of the foremost challenge to disaster management in Pakistan. It has become more erratic since past few years. This ~~unusual~~ pattern has led to more frequent and heavy flooding. As per data shown by Pakistan Meteorological Department, monsoon has season has

seen an increase in intensity by 15-20% in the recent years thereby causing more than usual and severe flooding. Hence, Unpredictable monsoon patterns are one of the most prominent challenges to the disaster management in Pakistan.

The unchecked construction on the flood plains and riverine beds is also a challenge to the disaster management in Pakistan. These disaster prone areas not only lead to economic losses but also the life and property losses. This kind of situation was observed during the floods of 2022 where around 33 million people were affected and \$33 billion economic losses occur. The PM of Pakistan described the illegal construction as human blunder. Therefore, the unchecked and illegal constructions on the flood plains and river beds also pose a serious challenge to disaster management in Pakistan.

Another important challenge to the disaster tackling in Pakistan is its

inability to monitor the weather threats. The lagging in monitoring and observing meteorological data leaves many regions in Pakistan isolated from any weather prediction. This situation is due to the fact that there are more than 90 meteorological stations in Pakistan but only few of them have the full automation and full capability in accordance to the international standard observation network. Secondly, the lack of ability to monitor the weather threats is a significant challenge to the disaster management in Pakistan.

Moreover, the persisting deforestation in Pakistan also poses a serious challenge to disaster management in Pakistan. Deforestation significantly increases the climate change, thereby making the climatic disasters more frequent. Pakistan's forest cover is only 5% of its total land, significantly below the standard 12% and is continuously depleting. Additionally, its impact was evident in the recent disasters of 2025 — the landslides, sand floods

and cloudbursts. Thus, the persisting deforestation in Pakistan is also a severe challenge to disaster management.

Furthermore, the lack of sustainable infrastructure in disaster prone areas in Pakistan is also a major challenge to disaster management. Due to infrastructural lapse, disasters like floods and cloud burst, destroy the unsustainable infrastructures (either of dams or houses or river embankments) thereby causing huge economic and social losses. Such situation was observed during the floods of 2022 inundating nearly $\frac{1}{3}$ rd of the country and in 2025 most recently displacing millions. Therefore, the sustainable infrastructural lapse also poses a significant challenge to the disaster management in Pakistan.

Along with other challenges, the reception/grant of limited funds in the view of disaster ~~front~~ vulnerability also increase the challenges to disaster management.

in Pakistan. Despite being at the climate vulnerable position and bearing \$30bn losses during the biggest floods of Pakistan's history, Pakistan did not receive much ~~from~~ climate prime fund. The current minister for planning and developments revealed that despite bearing huge losses in 2022, Pakistan did not even receive the disaster response fund of \$1 billion. This disparity between the theoretical allocation and practical grant also plays a role of an obstacle in Pakistan's disaster management ability.

Additionally, the rapidly retreating glaciers also pose a big challenge to Pakistan's disaster management along with other risks. Because of the rapid melting, the glacial lakes are formed which leads to sudden glacial outburst floods thereby leaving very little time for disaster responsiveness. Moreover, Pakistan has more than 6000 glaciers and according to International ^{Center} Institute for Integrated Mountain Development, all

its glacial mass would be lost by 2100. Evidently, this rapid retreat of glaciers is a huge challenge to Pakistan's response to disaster management.

Subsequently, the lack of awareness among masses further undermines the disaster management ability of Pakistan. Particularly in rural flood prone areas of Punjab, Sindh and KP, most of the people, despite experiencing the disasters, considers the disaster management irrelevant and not beneficial in mitigating the disasters. This realist perspective among masses about the disasters further deepens the challenges to disaster management in Pakistan.

It is evident that the disaster management in Pakistan is facing significant and multifaceted challenges. However, there are way forward to minimize and counter their challenges in current times.

The Early Installation of early

Warning systems can prove to be first way out for the improvement in disaster management. It can predict the disasters earlier thereby ensuring the safety of citizens and protection from major economic losses. In this context, Brazil can be used as a motivation where the installation of early warning systems significantly reduced the disaster losses and improved the response. Therefore, installing early warning systems in disaster prone areas can help reduce the vulnerability and disaster management.

Investment in effective waste management and drainage systems is another factor which can improve the disaster management in Pakistan. The ineffective waste management and drainage clogs the natural pathways of floods thereby causing it to spread from riverine beds. However, the investment in techniques for recycling of waste from can help reduce the disaster vulnerability thereby enhancing the climate and disaster management in Pakistan.

Additionally, investing in disaster resilient infrastructure can also improve the disaster management in Pakistan. It can use the example of Germany where roads are built with such material that leaves gap between the pores. These pores can drain a large amount of water in underground drainage systems thereby saving the infrastructure from being destroyed unlike that in Pakistan. Introducing such systems in Pakistan may be costly in short term but their long term resilience make them perfect for adoption. Therefore, the investment in disaster resilient infrastructure can enhance the disaster management in Pakistan.

Along with other things, strict law enforcement is also mandatory to ensure effective tackling of disasters. This policy ^{implementation} gap can be overcome by imposing heavy fines and declaring strict punishments for those illegally encroaching the flood prone areas. Additionally, announcing incentives for those who report

such constructions will also improve the disaster management in Pakistan. Thus, strict law enforcement is another significant way forward for Pakistan.

Moreover, the real time monitoring of glacial lakes and rainfall patterns in flood prone areas will also be an effective step towards enhanced disaster management. The real time monitoring could be done through the remote sensing satellites. Pakistan has launched its first remote sensing satellite in collaboration with China ^{recently}. However, the response is awaited. But, the China's experience with such satellites provide a better outlook to disaster management. Therefore, real time monitoring can also enhance the disaster management of Pakistan.

Furthermore, disaster management awareness among the masses can make the response even better. This can be done by arranging disaster awareness campaigns and discussions at local levels. One of such example was seen in recent flood in Skardu when two shepherds saved the lives of many by informing them about the incoming disaster of flood. Therefore, raising awareness among masses can significantly improve the disaster management at local level.

In conclusion, the uncertain weather conditions, illegal encroachments in disaster prone areas along with many other challenges deter the effective disaster management in Pakistan which can be curbed through modern technical integration in monitoring ^{weather patterns} and disaster resilient waste management. The inability to monitor weather threats further exacerbates the management. Additionally, the persisting dilemma of deforestation adds up to the inefficient disaster handling practices. In addition, lack of sustainable infrastructure in disaster prone regions poses another significant challenge to disaster management in Pakistan. Moreover, the disparity between allocation and grant of climate and disaster funds deepens the vulnerability of the country to disasters. Furthermore, the rapid retreating glaciers and lack of awareness among masses at grass root levels increased the chain of disaster crisis. However, these challenges can be curtailed through various impactful and effective responses. There may be curbed by investing in climate and disaster resilient infras-

- free in disaster prone regions. Along with this, a strict enforcement of law to deter the encroachment in disaster sensitive areas can also reduce the disaster vulnerability. In the similar fashion, real-time monitoring of disasters and awareness campaigns at grass root levels can enhance the disaster management in Pakistan. Therefore, Pakistan can achieve a resilient disaster management through implementing these way forward. This will significantly improve the disaster management in Pakistan.