

Disaster Management in Pakistan: Challenges and Way Forward

Outline

1. Introduction
2. Brief history of disasters in Pakistan
3. What are the challenges for disaster management in Pakistan?

a. Pakistan is one of the most climate-affected countries in the world

Case study: Climate Risk Index report: Pakistan is among top 10 countries, which are prone to climate change, despite ^{less than} 1% contribution in global emissions

b. Weak early warning systems increase vulnerability of damage in disaster-prone areas.

c. Poor institutional cooperation leads to ineffective management ^{of disasters} in Pakistan.

d. Inadequate training programs produce inefficient workforce for disaster management in Pakistan.

Case study: Pakistani government takes military support during each disaster, especially floods.

e. Lack of oversight and accountability increase illegal encroachments in the river-beds of the country.

f. Absence of systemic planning for management

despite frequent disasters keeps the country in damages.
Case in points: (i) China's planning to mitigate effects of floods and torrential rains.
(ii) Japan constructed a Tsunami wall and planted millions of trees to control Tsunami in the country.

4. Way forward to improve disaster management in Pakistan

- a. Improving early warning systems can reduce damages to humans and livestock in Pakistan
- b. Enhancing collaborations betw among climate-related institutions at federal, provincial and local level
- c. Disaster management authorities must improve training programs to produce efficient workforce
- d. The higher authorities must strengthen accountability to control deforestation in the country
- e. The government should invest in climate-resistant infrastructure to mitigate future devastations in Pakistan

5. Conclusion

What if the flood comes tomorrow? Where people will be moved? What measures will government take in emergency? What proactive measures have disaster management authorities taken? These all questions reflect the current situation of disaster management in Pakistan. In the end of eighteenth century, steam engine was invented in Europe, which initiated ~~begin~~ the era of industrial revolution. The first and second revolution transformed the world from ancient traditional societies to today's technological world. However, industrialization also released large amount of Green House Gases (GHGs) that disrupted ozone layer, a protective layer in the stratosphere. These global emissions were raised due to excessive burning of fossil fuels. Subsequently, they have given rise to the phenomenon of climate change. Owing to climate change, the world is facing frequent incidents of disasters. ~~With~~ Some countries are at higher risks than other, and one of them is Pakistan. Disaster management in Pakistan faces challenges, such as weak early warning systems, poor institutional cooperation, and inadequate

training programs of the workforce. Additionally, weak accountability leads to increasing encroachment along riverbeds that ~~the~~ raises vulnerable population in Pakistan. The country lacks a systemic, proactive, and efficient planning programs to manage disasters effectively. To improve disaster management in Pakistan, there must be early warning systems, institutional collaborations, adequate training programs, and oversight of illegal encroachments. As the country faces frequent disasters, there must be comprehensive policy and flood-resistant infrastructure to mitigate huge impacts and ensure effective disaster management in Pakistan.

Before moving towards challenges, a brief history of disasters in Pakistan is presented. Pakistan is one of the most vulnerable countries in South Asia. The country faces huge floods, torrential rains, erratic climate patterns like heatwaves, droughts, famine, and extreme temperatures. ~~Due~~ These climate changes impact both social life and economic situation of the country. Pakistan faced major earthquakes in 2005 and 2015 that took lives of hundreds

of people and simultaneously damaged ~~in~~ huge infrastructures. In 2010, the country faced huge floods that sub-merged vast areas, displaced millions, and produced unprecedented losses. Again in 2022, Pakistan faced devastating floods. According to United Nations' report, 2022 flood caused almost \$33 billion losses, approx. 30 million people displaced, 1700 people died, many bridges and roads were broken, and other infrastructural damages like schools, homes, and offices. Then in 2025, Islamabad again became prone to huge floods. Punjab and Sindh came under high alerts. Thousands of people, livestock displaced and died. Additionally, there are infrastructural losses, agricultural damages, and rise in socio-economic crisis of the fragile economy of Pakistan.

First and foremost challenge the country faces is its presence in the list of ^{one of the} most - climate affected countries.

According to climate risk Index report, Pakistan is among the top 10 countries which are impacted by climate change despite less than 1% contribution in global emissions. Additionally, fragile economy ~~of~~ and weak governance make the

disaster management a challenge for the government. Pakistan is a developing country with debt-driven economy, and agrarian society. Almost 70% of Pakistan's population depend upon agricultural productivity for food, employment, and sustenance. Majority of them also rely on livestock and fisheries. Therefore, disasters, such as floods, torrential rains, and droughts can easily impact productivity of crops. Hence, these factors pose challenge for the administrative authorities to mitigate climate damages across the country.

Moreover, Pakistan's disaster management system lacks has weak early warning system. Most of the people in alienated areas remain unaware about disaster risks. Across the country, there are settlements along riverbeds that must be evacuated before floods. However, communities remain unaware and face huge floods in the form of urban flooding. The local authorities are weak because they fail in timely evacuation of the people from risky areas. Additionally, during flood-seasons, the disaster

management institutions fail to provide adequate food and clean water facilities to the affected people. Health and sanitation measures are also ignored. The displaced people live in the cycle of poverty and socio-economic crisis. Hundreds of people displaced in previous floods still lack facilities of education, basic healthcare, and employment. Therefore, weak early warning systems increase vulnerabilities of damages due to disasters, & thereby creating a challenge for disaster management in Pakistan.

In addition to this, poor institutional capacity and lack of cooperation among the administrative institutions are another challenges for disaster management in the country. The weather forecasting institutes, disaster management institutes, and regulatory institutions work independently without collaborations. In Pakistan, National Disaster Management Authority (NDMA) and Provincial Disaster Management Authority (PDMA) are working at federal and provincial level. However, they lack institutional cooperation for effective management during floods. Local authorities face resource constraints

and autonomy challenges. Therefore, public service delivery is largely hampered, and management becomes ineffective. Furthermore, lack of political will and widespread corruption in these institutions hinders the reforms in disaster management authorities. ~~Here~~ Hence, weak institutions are another challenge in managing disasters in Pakistan.

Inefficient workforce and lack of adequate training programs also impact efficient management of disasters in Pakistan. Whenever the country faces flooding, majority people get stuck in risky areas due to weak early warning system. To worsen this, the workforce lacks skills as well as resources to evacuate people from submerged areas. For evacuation and ration distribution, the government calls for help from army personnel. During each disaster, this dilemma is repeated. In the name of disaster management, evacuation is carried out by the ^{help of} military. Therefore, weak workforce in Pakistan's disaster management institutions is another challenge for effective working during the disasters.

Moving forward, lack of accountability and corruption produce chances for illegal activities, such as deforestation, by timber mafias and illegal encroachments on natural waterways. Weak oversight and absence of political will increase ~~than~~ corruption. To exploit this, timber mafias carry out deforestation in northern areas, which normally serve as natural ^{barriers} ~~obstacles~~ for huge floods. When these are cut in large amount, it enhances severity of floods in the country. Moreover, poor accountability increases illegal encroachments on riverbeds, which are one of the causes of flash flooding and urban flooding. Being one of the most disaster-prone countries, these illicit activities pose a challenge for disaster management in Pakistan.

Apart from this, the country lacks a systemic policy to cope with frequent disasters in Pakistan. There is absence of proactive approach that includes targeting vulnerable areas, evacuations, training programs, public awareness, resilient infrastructure, and control of deforestation. Pakistan only ~~focus~~ on pursues policy of

2
emergency ^{rescue and} relief. Absence of comprehensive policy increases after-losses both for livelihood and economy. Here, China's resilient policies are case in point. China has built flood-resistant cities with natural water reservoirs, porous pavements, efficient drainage systems, green infrastructures, and ~~for~~ rain-water harvesting mechanisms. This reflects a comprehensive, resilient program to mitigate impacts of huge floods and minimize damages. Contrarily, Pakistan ^{despite} being a worst-hit country, lacks such kind of management, which keeps it in vicious cycle of frequent damage disasters and their consequences. Therefore, lack of efficient policies is another challenge in disaster management in Pakistan.

For the effective disaster management, there must be vigilant early warning system for timely evacuation of people. Especially, for the risky areas, there must be involvement of local communities, including informed citizens to keep people aware about impending disaster. Additionally, there must be arrangement of safe places, such as schools, colleges to move people

in emergency situations. Pakistan, being a developing country, faces resources constraints. However, early warning can be easily delivered through coordination of institutes from higher to local levels. They can inform people during ~~can~~ daily community engagements, such as mosques. Additionally, through satellite imagery the government can easily detect natural waterways. Encroachments on these ways should be gradually removed, and these areas must be kept on high alert during disasters. In this way, ^{the government} Pakistan can easily manage disasters in the country.

Moreover, the disaster management institutions must work in collaboration at all levels to enhance their capacity, especially during floods. For instance, local institutions, provincial and national disaster management authorities, weather forecasting institutes, and agricultural institutes all should be in communication. This will improve public service delivery as well. In addition to this, local institutes must have adequate resources and autonomy to respond effectively in emergency situations. Owing

to climate change, cloudburst and flash flooding have become common in Pakistan. For such incidents, emergency responses can prove lifesaving. Hence, strengthening institutional capacity can improve disaster management in Pakistan.

Furthermore, disaster management authorities must invest in training programs to produce efficient workforce. They must be trained for both pro-active management and emergency relief operations. Disasters require swift responses to save lives of people. For such purpose, there must be traditional and technological training. Japan has introduced automated drone system to detect people which are stuck in floods to evacuate them. Pakistan should also use artificial intelligence (AI) to cope with the challenges during floods. Therefore, the staff must be trained for swift response that work without aid of military. This will not only enhance trust of people in the institutions but also provide efficient disaster management system in Pakistan.

As the government must strengthen accountability and transparency to control corruption and illicit activities in the country. Widespread corruption and nepotism provide chances to the business elites, corrupt mafias, and timber mafias that exploit natural resources of Pakistan. There must be oversight on the forestry to control deforestation. Additionally, the government should enhance strengthen regulations to prevent further encroachments in risky areas. To reverse the climate change impacts, there should be reforestation campaigns as well. In this way, disaster management can become effective in Pakistan.

Lastly, the state should adopt a strategic, comprehensive policy and build climate-resilient infrastructure to mitigate impacts of disasters in the future. This includes construction of small and large dams in the country. Dams will not only store huge amount of water but also produce hydro-power electricity. There should be natural reservoirs in cities and rain-water

harvesting systems to utilize^{the} water during droughts and heatwaves. Likewise, the government should build green infrastructure, green rooftops, and increase plantation across cities to mitigate heatwaves and control huge floods. Modernized drainage systems and permeable pavements can also reduce ~~huge~~ large floods in the country. For the heatwaves, there must be cooling areas in cities at different places that help in survival. Such kind of ~~the~~ strategic planning requires political will and transparent institutions. Hence, leaders of Pakistan must work^{to} formulate strategic policies for the country. In this way, the country can successfully adapt itself against impending future disasters.

To sum up, disaster management in Pakistan is a complex phenomenon that faces myriads of challenges. The country is already one of the most disaster-prone ~~countries~~ states in the world. This challenges disaster management authorities to formulate a long-term plan. Other challenges are lack of institutional capacity, weak workforce, poor accountability, and fragile political will for the strategic reforms in the

institutions. Lack of leadership interests and huge corruption lead the country towards short term policies that focus on evacuations mechanisms and relief and rescue operations. To improve disaster management in Pakistan, the disaster related institutions must work in coordination to enhance their capacity. There must be training programs, increased accountability and transparency to reduce chances of corruption. Additionally, timber mafias and business elites must be held accountable for their illegal personnel businesses that cost hundreds of lives in each disaster. As Pakistan is among the top countries affected by disaster, the country needs a strategic plan through technological use, resilient infrastructure, and comprehensive policies to adapt successfully in this dilemma. This will reduce fear of floods and leads the country towards prosperity in near future.