- **Disaster Management in Pakistan: Challenges and way forward -**

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iv) **case study:**

a) Floods in pakistan 2022, 2025

v) Way forward to cope-up these Challenges:

a) Promoting climate resilient infrastructure and agriculture.

b) Technological Advancement

i) Installation of AI based early warning system.

ii) GIS and satellite monitoring system.

c) Implementation of National climate change policy

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e) proper trained faculty.

f) National and International cooperation

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H) Increased water storing capacity.

v(i) conclusion.

"Disasters are never natural; they are the outcome of vulnerability and neglect"

— UNDRR —

Disasters, Whether natural or manmade, have become a recurrent phenomena challenging the national security of pakistan aswell as, the socio-economic fabric of the country. From earthquakes to floods, droughts and many others, Pakistan is devasting targeted by the climate change - Despite of strong mechanism of NDMA at both National and provincial level the results are inadequate. Disaster Management authorities facing multidimensional challenges including corruption, water mismanagement, lack of advanced machinaries, and cooperation with low budget allocation - In order to cope-up from these challenges policy reforms, sustainable developement, technological advancement and

proper funds are necessary.

Because of our strategic location, many authorities like NDMA and PDMA are untackled to control the loss. Being lower riparian, excess rainfall causes outflow in indus and many all the different rivers of punjab and leads towards agriculture losses and infrastructural damages. **According to the National Economic Survey of Pakistan 2022-2023** estimates that about **4.4 million** acres of **crops** were damaged, and roughly **1 million animals** died.

Morever, the major challenge to Disaster management authorities is untrained faculty and low budget allocation. The faculty of disaster management always required assistance from pakistan army and from police as well - The least budget allocation causes the less acess towards advance

machinary and technology. like for the current fiscal year (FY 2025-2026), Pakistan's government allocated funds 1% of federal budget for disaster- As this low budget allocation contribute towards the worst performance of the Management authorities- However, due to untrained staff many loss such as human loss as well as economic loss is being faced- According to the Islamabad institute of strategic studies, more then 3 million people become homeless in the 2022 floods, as well as 1500 plus deaths are recorded. The infrastructural loss is also end about 150 bridges are roads are destroyed.

The case study of 2022 floods shown about economic loss of 30 billion. Similarly, the floods of 2025 led to more extreme circumstances then 2022-

Mainly the punjab province, brings contributed about more GDP from the remaining provinces due its fertile soil and indus presence. In the present circumstances, most of agriculture sectors is hitted by devastating floods. Mainly rice, rabi crops, cotton and wheat crops. on one side it causes agriculture decline and on the other food insecurity. **According to the latest report of ISSRA,** it is expected agriculture decline upto **0.2–0.3%.** from the previous year. Most propably, the **rice exports** is **declined by 5.8%.** this year. Meanwhile, the total economic loss is **$2.9billion in 2025** with agriculture loss of about 402million, infrastructural loss of 300million and household 92million. **(The Nations).**

As for as punjab is mainly concern, one of the major reasons that increase intensity of

destruction is rapid urbanization- Most probably punjab is affected by flash and urban floods ever year - so, this rapid urbanization enclosed the route of water flow in many areas result in burst off- one of the major incident of 2025 is the Parkview city is a perfect example-

Humanity's mastery over nature has turned into its mismanagement.

— Rachel carson —

The increasing global temperature causes the intensity of disasters to extreme level - This increase in temperature is because of global warming result in glacier outburst contributed in unmanged floods- Pakistan also blessed

with glaciers. The climate change mostly these disasters are not natural but manmade. Day by Day increase in the emission of GHG's gases will contributed for disasters in the future. **According to the world risk report**, Pakistan is being **14th** most top countries that vulnerably hitted by climate change although its **contribution** towards **GHG's** emission is only **1%**. The most contributed countries in GHG's is USA, China and many more mostly western block but the repercussions are faced by the Global South. The glacial outburst due to this problem increasing very rapidly, and due to technological misavailability, our authorities are not merely updated. **According to the**

international commission of ice and snow, the ice loss in india and china is 25%, UK is 22% and in pakistan more then 80% of the glacial melting is observed and it is a emerging as a threat to national security of pakistan.

Besides of increasing the climate threat, the lack of advanced machineries results in increasing economic losses and increases the risk of floods vulnerabilities mainly human life loss - like in the floods of 2025, the death roll approximate in punjab is a 322 deaths, 90 deaths in Sindh, Gilgit-Baltistan 31, Balochistan 38, KPK approximate 509 deaths, the highest among all the regions. (NDMA).

As a human, we cannot control the disaster but contribute towards controlling measure and prevention technacalities to manage the losses due to disasters. The use of climate resilient infrastructure and climate resilient Agriculture play an important role in reducing economic losses.

Engineering resilience is the most probable first line of defense against nature's offense.

— World Bank —

In today's era, an advanced infrastructure is promoted everywhere. The water table is decreased because water is not absorbed by the soil due to full concrete infrastructure - Mostly in developed countries, as well as developing countries it will cause water scarity and also increased

risk of conflicts among different countries. So, Initiative must be taken off by the government like **increasing gaps of natural grounds** to absorbed more and more water by **China**.

In the current era of technology, Lack of technological equippments and machinaries is a curse. Most developed countries used different technology as well as AI based tools to tackled disasters. The use of early warning system also help us to locate the presence of and intensity of disasters. Therefore, cooperation with the neighboring countries like China has to be taken for the future generation.

Moreover, the **installation of satellite monitoring System** and GIS System also contributed towards the sustainable promotion and

advancement - like; on **October2025**, Pakistan launched its remote sensing satellite with the collaboration of china that are used for disaster monitoring named as **Hyperspectral satellite (HS-1) - (CISS Pakistan)**

In as much as with the advancement in technology, it is essential to promote awareness as well as strong implementation of climate change policy. In pakistan most of the issues remains unresolved due to less implementation of policies - In addition to that, people awareness about disasters is essential - like in concern the incident of a family in Swat, in which 29 member of the people one died due to sudden rush outflow of water - This seems to be more alarming about to how much extent people

are awared- In addition to that, pakistan has to increase its storing capacity of water by promoting Dam projects and hydro power projects. on one hands, theseprojects are helpful in storing water for future and on the other hand, the energy demand is full and compelete by these projects.

Nature punishes not by wrath, but by reflection of human ignorance.

- Environmental Maxim -

Hence, it can be inferred that the challenges seems to low budget, corruption and lack of technology with the addition of untrainef faculty. Pakistan faced a lot of economic loss in 2022 and 2023 also - In order to cope-up, institutional reforms, strong satellite monitoring, sustainable agriculture and infrastructure and proper funds are needed.