

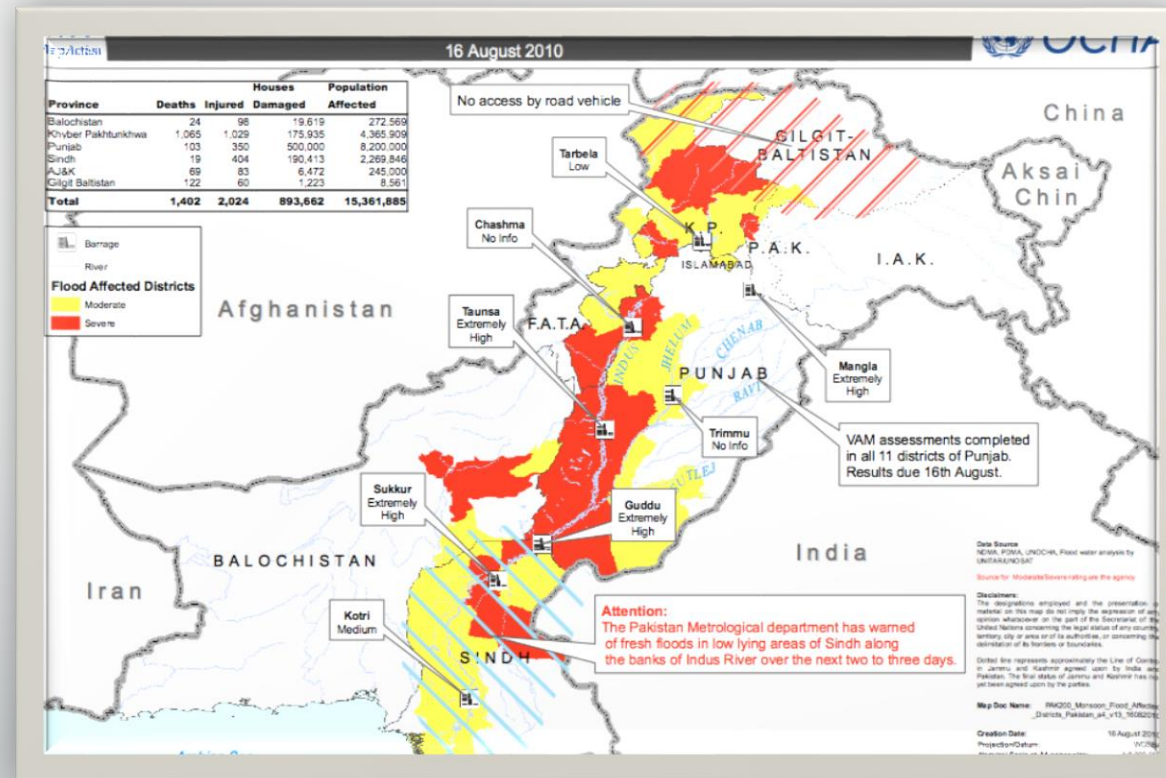


Disaster Risk Management in Pakistan

Proactive, systematic and integrated flood risk management.

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What <risk> is it about?



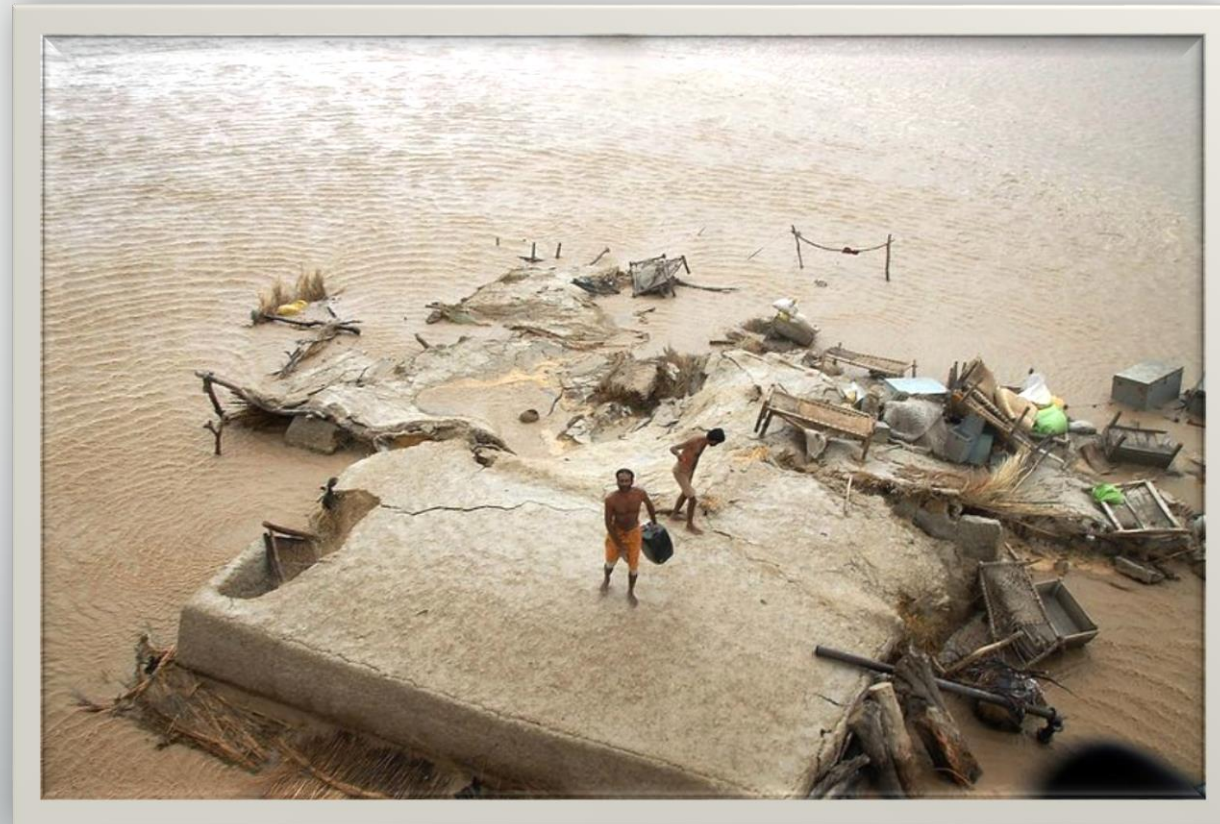
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- Pakistan has vastly varied topography, with Northern alps covered with glaciers and Southern Plains bordering the Arabian Sea.
- There are five big rivers flowing through the country from north to south namely the mighty Indus and its tributaries i.e. Jhelum, Chenab, Ravi and Sutlej.
- There is a well marked monsoon season from July to mid-September in which most of the country receives rainfall.
- Riverine flooding is common in the low lying areas along the rivers during monsoon season while flash flooding is also experienced in hilly and semi-hilly areas.
- Owing to climatic changes occurring across the globe, flash floods demonstrate ever increasing damage potential country wide.
- Traditionally, main focus has been on riverine flood management through construction of levees, bunds and spurs, to protect towns and precious lands along the main river courses.

Did it happened before?



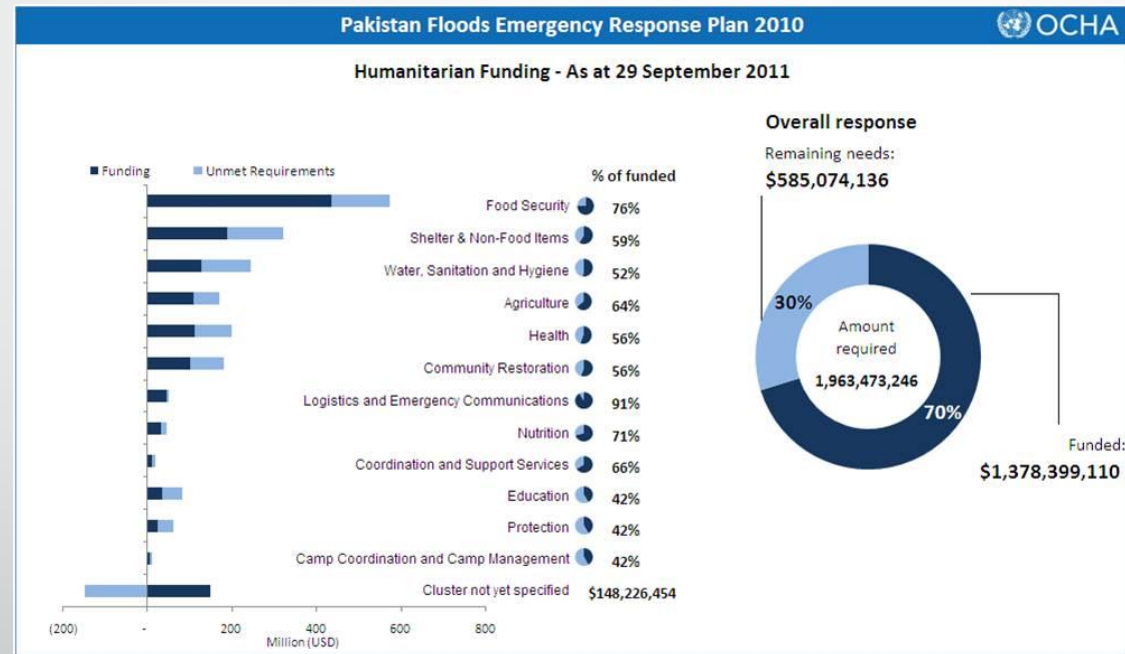
Did it happened before?

- Pakistan has suffered from the worst flood of its history in monsoon season of 2010 and 2013.
- As per DNA report of ADB / World Bank, the Floods affected an area of about 160,000 km² (one fifth of the country), claiming about 1,985 lives, damaging around 1.5 million houses, wiping out cropped area of more than 17 million acres and population of about 20 million have been displaced.
- The major portion of life damage in 2010 floods is attributed to flash floods.
- There is immense need for identification of flash flood prone areas and effective planning for flood damage mitigation in these areas.

What was approach to mitigate?



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- The recent floods in Pakistan have exposed both strengths and weaknesses of the Pakistani disaster risk management (DRM) system.
- Relatively better emergency response capacities exist at the national level: the system can draw on the services of the army, para-military and civil defence forces, as well as local emergency response institutions.
- However, at sub-national level these capacities are fairly limited. In general, disaster risk reduction as opposed to disaster response preparedness is in its nascent phase in the country.

How to manage this <risk> in better way?



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The floods really kicked off with a burst of rain on 28-29 July 2010, and according to Webster's reanalysis, that rainfall was predictable with good skill 7 days in advance (21 July).

Lead author, Peter Webster, and his coauthors from the Georgia Institute of Technology, draw the following conclusion from their analysis:

"We conclude that if these extended quantitative precipitation forecasts had been available in Pakistan, the high risk of flooding could have been foreseen. If these rainfall forecasts had been coupled to a hydrological model then the high risk of extensive and prolonged flooding could have anticipated and actions taken to mitigate their impact."

How to manage this <risk> in better way?

Webster and colleagues argue that if that forecast was available in Pakistan, lives would have been saved and the immensity of the disaster reduced. But, C. Christine Fair, writing on the Foreign Policy magazine website suggests that the flood was forecast in Pakistan.

In the middle of July, the PMD began tracking a storm brewing in the Bay of Bengal. This eastern weather system developed interactively with a western weather system to produce the massive rains and the subsequent super flood of 2010. On July 24, the PMD issued a flood warning to the provincial government of Khyber-Pakhtunkhwa (KPK). Despite these increasingly severe warnings, KPK's citizenry did not believe them. ... The PMD kept issuing warnings to KPK as the rains began to fall. However, as fate would have it, on July 28, ... a passenger jet coming to Islamabad from Karachi crashed ... With the media beset upon this tragic spectacle, the PMD's warnings went unheeded as the rain began to fall.

How to manage this <risk> in better way?

Flooding frequency and intensity have increased in Pakistan in the last 30-40 years compared to earlier in the 20th century. Webster and coauthors state, "This recent increase is consistent with the increase in intensity of the global monsoon accompanying the last three decades of general global warming." The flood warnings were ignored, in part, because the statistics of monsoon rain patterns are changing. Human memory and historical records are not good guidance if the weather system is changing. In situations like this one, the past is not the key to the present.

How to manage this <risk> in better way?

There are lots of things that should have been improved to lessen the magnitude of the Pakistani flood disaster – reservoir management should have been altered; emergency relief supplies should have been distributed more equitably, broadly, and consistently; international assistance should have been much more generous.

- but the two big lessons for hazard mitigation coming out of the Pakistan floods seem to be:
 - “find a system for making sure that warnings are issued and that they actually make it to people in harm’s way” and
 - “don’t assume the climate of living memory is a very good indicator of the weather of the present and future.”

How to manage this <risk> in better way?

Housing

- Despite this high cost, even concrete houses may provide limited mitigation during larger floods where water levels reach 8-10 feet in villages, as common during the 2010 floods.
- In such floods, families even with concrete houses will probably be unable to avoid relocation, though the house itself may survive, reducing repair and maintenance costs after the floods.
- Given these limitations, housing can obviously be provided to a small number of families only. Hence there is a greater need to situate such projects strategically in areas where they can enhance resilience most.

How to manage this <risk> in better way?

Livelihoods activities

- These include agriculture, livestock, fisheries, small business, cash-for work, vocational activities etc. The per-family costs thus vary considerably although many such projects cost between \$250-500 per family.
- By increasing people's incomes, livelihoods activities allow them to obtain a variety of avoidance and mitigation services, e.g., latrines, concrete houses and savings to facilitate relocation during floods.
- Thus, livelihoods activities are multi-purpose and also have multiplier effects on assets and incomes, unlike construction interventions.

How to manage this <risk> in better way?

Water and Sanitation

- In the Pakistani context, water and sanitation interventions in the early recovery and development phases usually consist of hand pump installation and latrine and washing area construction which are used by multiple families in practice even if agencies allocate them to individual families.
- On average, these types of intervention cost around \$500 although there is considerable variation based on design and geographical area.
- Clearly, where there is acute shortage of clean water or the sanitation situation is very poor due to high population density and there is clear documented evidence of high public health problems, the livelihoods option would be unsuitable as mortality and morbidity problems could be high in the intervening period.
- However, where the water and sanitation status is not so poor and the main purpose of water and sanitation activities is providing convenience, dignity and privacy, livelihoods support in conjunction with hygiene promotion may be a better choice to address these water and sanitation concerns.

How to manage this <risk> in better way?

CBDRM and health, nutrition and hygiene promotional activities

- These are very low-cost activities on a per-family basis since they target whole communities and generally consist of low-cost inputs.
- The focus of such activities is mainly on avoidance, i.e., avoiding the floods and public health epidemics, within communities.
- Due to their low cost, and high avoidance benefits, such activities would seem useful for almost all contexts.
- However, there is a need to integrate nutrition promotional activities along with hygiene promotion given their complementary status and the low nutritional levels in many parts of Pakistan.

How to manage this <risk> in better way?

Mitigation schemes

- Disaster Risk Management programmes generally include micro-mitigation schemes within villages. However, it would be useful for agencies to also evaluate the potential of medium-sized mitigation schemes which may benefit thousands of families across several villages.

How to manage this <risk> in better way?

Mitigation schemes

Sector	Cost per family	Focus	Type of resilience
Housing	High	Family-level	Mitigation
Water and sanitation	Medium	Groups of families	Avoidance
Livelihoods	Medium	Family or groups of families	Multi-purpose
CBDRM and promotional activities	Low	Whole community	Avoidance
Mitigation	Variable	Villages or groups of villages	Mitigation

Conclusion

Pakistan's disastrous flooding is increasing year by year. Through study of patterns and environmental factors it is possible to predict possible upcoming flood. But better risk identification, mitigation techniques & awareness need to be employed.

Risk management goals in this perspective can be achieved through resilience & prosperity among effected masses strategically through development of knowledge, protection through housing, insurance and coping techniques.

I have emphasized need for the public policy recommendations to be implemented in a proactive, systematic, and integrated way in order to optimize their efficiency.

<Credit>

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