



# Dealing with Disaster: Learning from the 2010 Floods

October 11, 2022

# Purpose

- In April 2011, the National Disaster Management Authority (NDMA) produced a nine page summary report of the lessons learnt from the 2010 floods, titled, “Pakistan 2010 Flood Relief – Learning from Experience: Observations and Opportunities”. This was followed by a full lessons learned report titled “Pakistan 2010 Flood Relief: Learning From Experience”.
- The 2022 floods have wrought unspoken devastation across the country, with initial estimates of the damage being much worse than the effects of the 2010 floods.
- Public discourse around the level of preparation for this calamity varies: some quarters allege a complete lack of preparation, others claim adequate preparations were in place.
- This document summarises the lessons learnt from the 2010 floods, the steps taken that reflect those lessons, and the implementation-gaps that remained in the twelve years between Pakistan’s 2010 floods and the 2022 floods.



# Executive Summary

An in depth analysis of NDMA's response to the 2010 flood led to a series of recommendations covering the legal, institutional, policy, and recovery domains.

## Legal and institutional Recommendations

- Establishing strategic planning networks
- Strengthening legal foundations
- Increasing the administrative and warehousing capacity of NDMA, PDMAs, and DDMAAs
- Mainstreaming disaster risk reduction in planning and budgeting

## Policy Recommendations

- Creating mechanisms for response coordination
- Ensuring local procurement by donors
- Increasing cooperation between the government and humanitarian community
- Capacity-building for civilian disaster response personnel
- Strengthening early warning systems
- Mainstreaming gender
- Improving disaster reporting and communication.

# Executive Summary

## Recovery Phase Recommendations – Critical Lessons from 2010

- Initiating clusters with standardised plans, guidelines, and reporting for every sector
- Ensuring multi-cluster needs assessment
- Establishing early warning systems for disease outbreaks
- Initiating nutrition and agriculture interventions to tackle food insecurity and malnutrition
- Instituting cash for work programs
- Creating owner-led housing solutions
- Creating space for humanitarian actors to work
- Providing women, children and marginalised communities with special assistance.

**Despite the 2022 floods being of greater magnitude than before, lessons from the 2010 floods allowed the government to take actions that mitigated the expected loss and damages to infrastructure and human life. However, a more comprehensive response to the recommendations could have resulted in much greater protection.**

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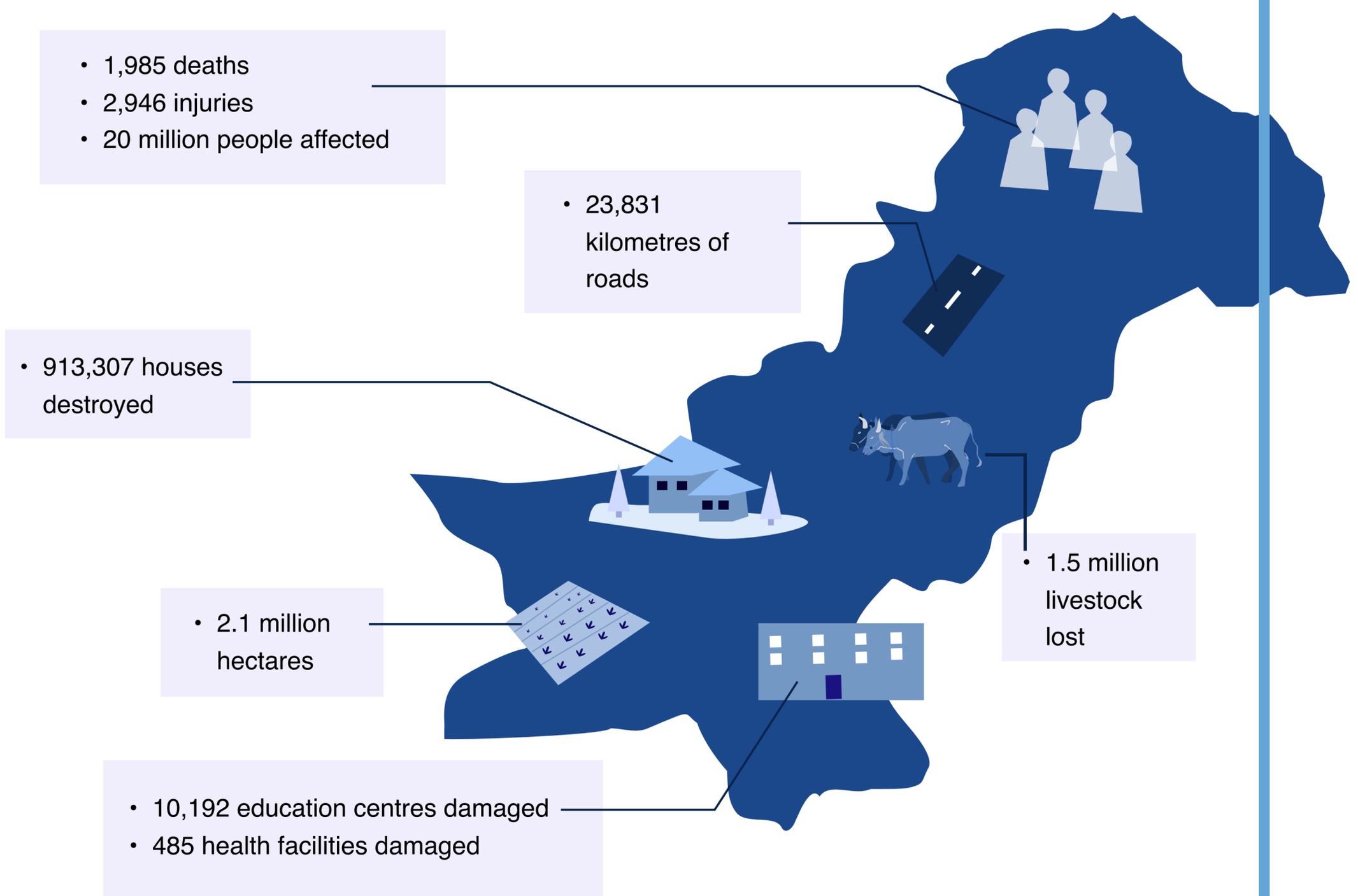
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# 1. The 2010 Floods and Their Legacy

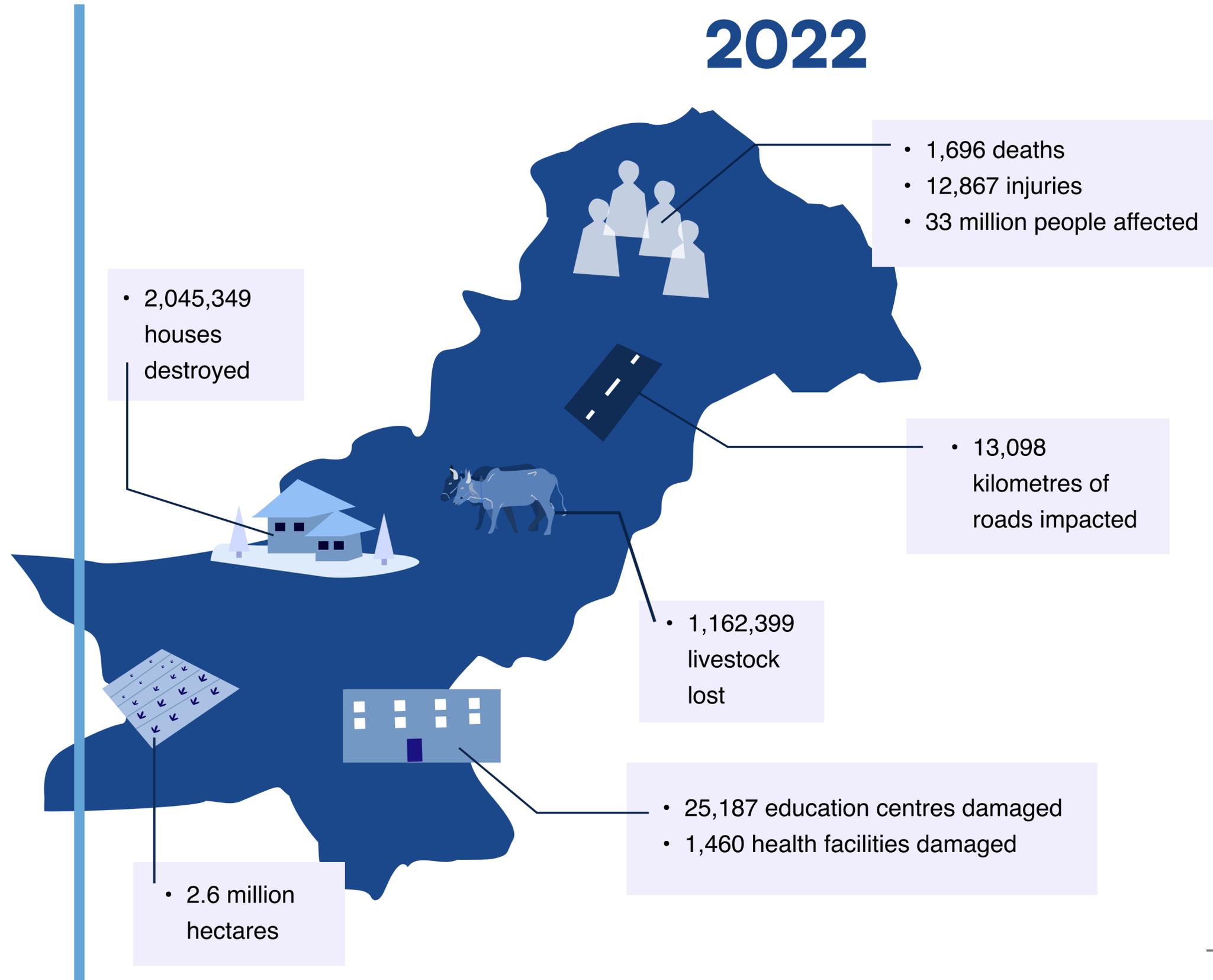
# 2010

# 2022



2010

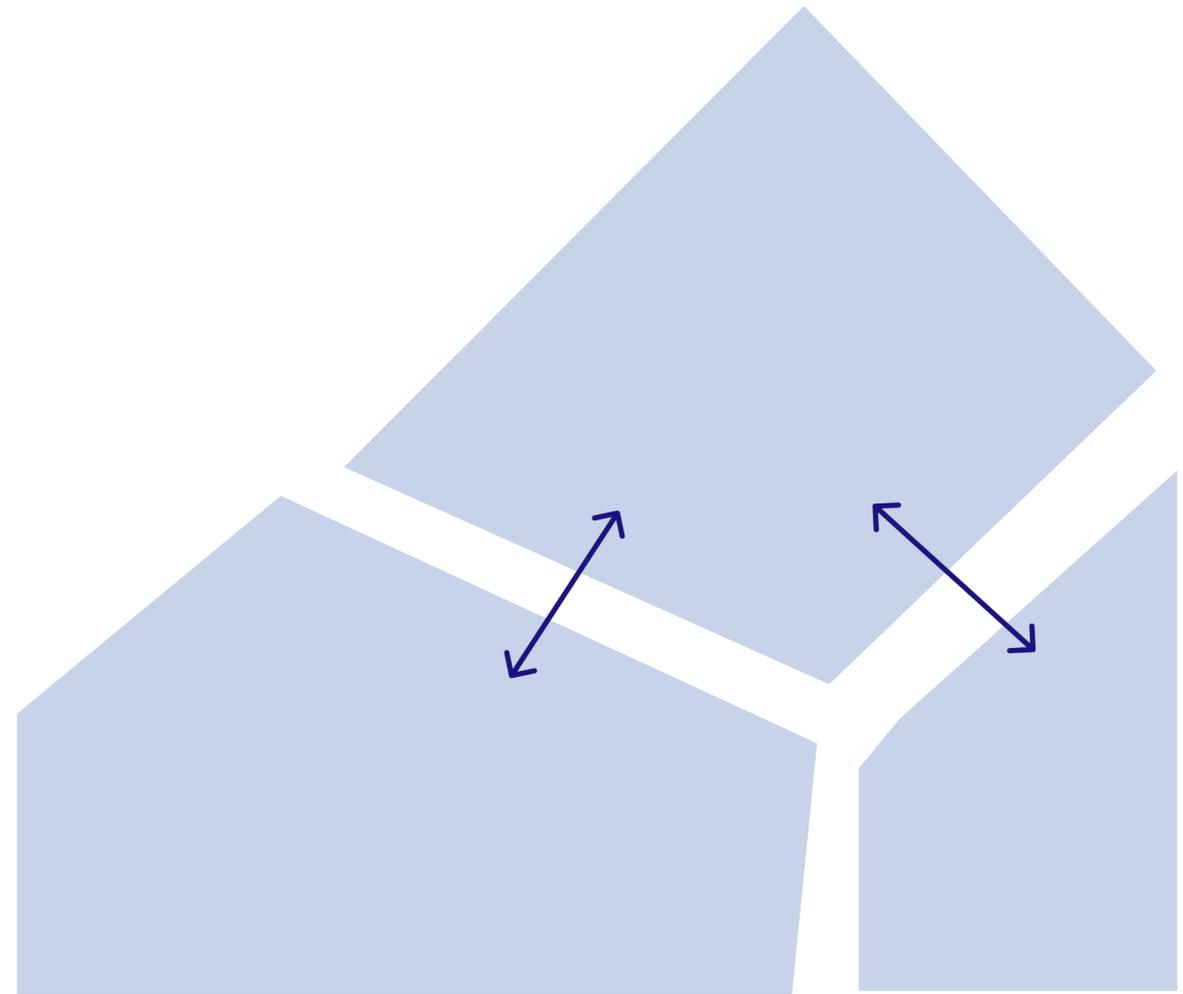
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# NDMA's 2010 Lessons Learned Report

This report identified recommendations for the improvement of disaster management and response in these critical areas:

- Capacity
- Coordination
- Strategic Direction for Disaster Management
- Parallel Decision Making (overlaps)
- Cluster Approach
- Civil-Military Coordination
- Cash Transfers
- Media



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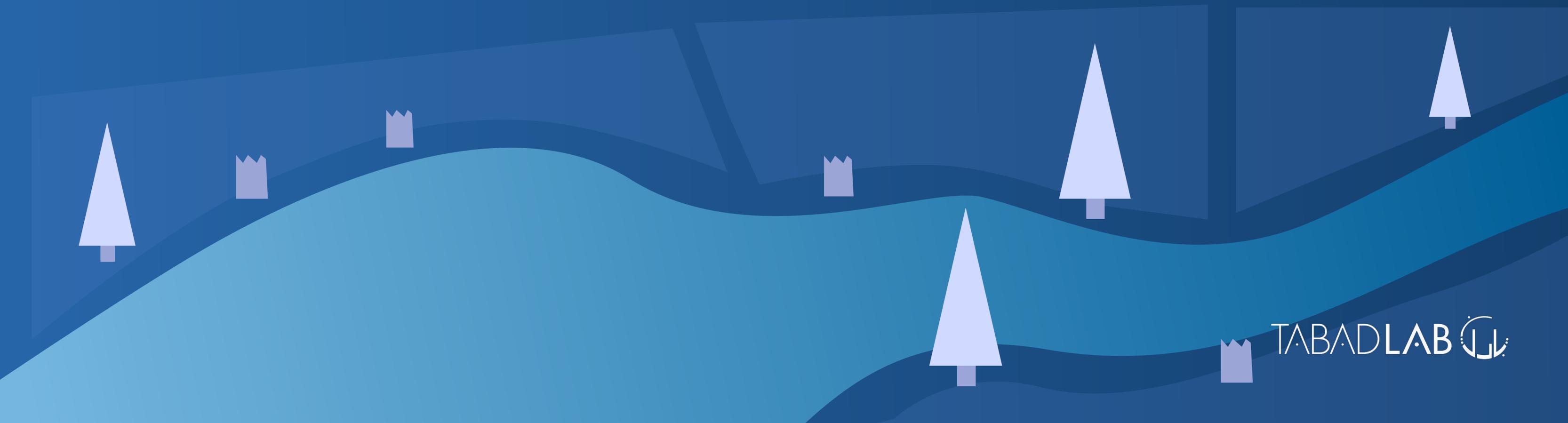
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## 2. The Fate of Lessons Learned



## **2.1 Structural Issues and the Big Picture**

# Strategic Planning

Ensuring plans and networks are in place to reduce risk of, prepare for, and respond to disasters

## Recommendations

- Contingency plans established at all levels of the government
- Creation of strategic planning network comprising all key stakeholders
- Incident command system operationalised for future disasters
- Permanent threat-specific warehousing established in different regions
- Risk assessment conducted at the national and local level
- Damage and loss database and climate change-focused research prioritised



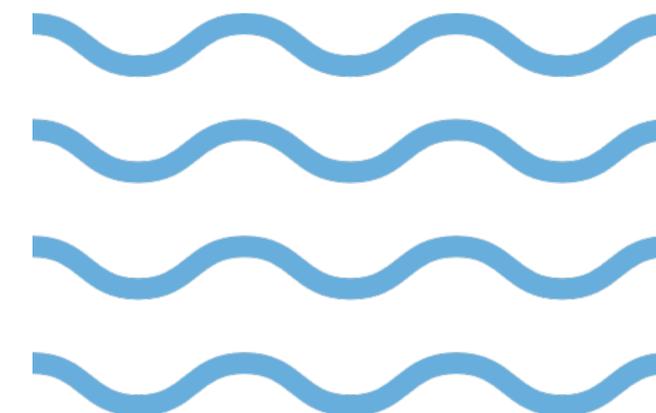
## Follow up Actions

- A National Disaster Risk Management Fund was established
- NDMA and the respective PDMA set up strategic warehouses stocked with essential non-food items to be used during emergencies
- Contingency planning now takes place at PDMA level (however, follow up responses are inadequate)
- Provincial emergency operations centers were established



## Contradictory Actions and Challenges

- The strategic warehouses do not have the capacity to deal with large scale disasters such as 2022 Floods
- There is an absence of a strategic planning network/coherent roadmap for coordinated disaster management
- No damage and loss database has been established



# Institutional Framework for Disaster Management

Creating robust legal and institutional foundations for preventing and responding to disasters

## Recommendations

- Review of NDMA Act 2010 for improved legal coherence and to align with modern disaster management acts
- Clarity on mandates, roles, and responsibilities for all state actors involved in disaster planning and response
- Promotion and use of the DRR in development planning at the macro and micro level, and then integrated into post-disaster interventions



## Follow up Actions

- NDMA, which was earlier without a parent ministry, was merged into Ministry of Climate Change along with PMD



## Contradictory Actions and Challenges

- None of the recommended updates were made to the NDMA Act
- NDMA and PDMA's lack sufficient staff and equipment capacities to manage disasters
- DDMA's continue to be non-functional in all districts without any dedicated staff, secretariat, or resources
- No clear lines of communication or mechanisms of information management exist between NDMA's, PDMA's, and DDMA's across the country
- Budgets for capacity building of disaster management authorities remain stagnant



# Systemic Disaster Risk Reduction

Reducing risks to communities at at levels of development planning

## Recommendations

- Donor-funded programmes focused on reducing risk to communities
- District Capacity Enhancement
- Multi-Hazard Risk Assessment
- Resilience training for communities
- Development of comprehensive multi-hazard early warning systems
- Mainstreaming of DRR efforts in provincial P&D departments and line departments
- GAP analysis and revamping of local response capacities
- Safer school and hospital initiatives
- 1% of development budgets dedicated to disaster risk reduction



## Follow up actions

- National Disaster Risk Management Fund (NDMRF), which funds government and non-government disaster risk reduction projects across the country, were established through government and donor funding
- Between 2016-2021, 3,556 officials were trained by NDMA in areas like Multisector Initial Rapid Assessment, Early Recovery Need Assessment, and Disaster Risk Reduction



## Contradictory Actions and Challenges

- A significant proportion of NDMRF funds remain unutilised – only USD 28 million of USD 96 million has been disbursed according to the NDMRF website



# Gender and Child

Ensuring women, children and other marginalised groups are prioritised in preparedness and response

## Recommendations

- Adherence by clusters and stakeholders, during disaster preparation and response, to principles of gender equality by mainstreaming gender and acknowledging the differentiated needs, concerns, priorities and capacities, as well as the contributions of women
- Mandatory reporting of disaggregated data along gender and child/adult lines by all organisations working in humanitarian response



## Follow up Actions

- In December 2017, NDMA and UNFPA signed an MOU to increase cooperation for gender mainstreaming in humanitarian crises, and addressing issues of gender-based violence and protection of women during pre and post disaster phases
- In 2017, the phased development of a National Disaster Management Information System, with a database for disaggregated data of vulnerable groups, was initiated



## Contradictory Actions and Challenges

- There are currently 650,000 pregnant women in need of care with no concrete plans to cater to their needs



## **2.2 Coordination, Coherence and Stakeholder Engagement**

# Intra-Government Coordination

Ensuring seamless and effective cooperation among government institutions in emergencies

## Recommendations

- Closer coordination between NDMA and line departments/ministries
- Empowerment of PDMAs through resource allocation, personnel training, warehousing, and their establishment as focal points for humanitarian coordination
- Provision of dedicated personnel and equipment for DDMAAs
- Strengthening integrated disaster preparedness and response capacity from the local to the national level



## Follow up Actions

- A National Flood Response Coordination Center was set up in August to respond to 2022 floods



## Contradictory Actions and Challenges

- No secondment of personnel to NDMA or PDMAs has taken place yet
- The government has not allocated the financial resources required by the PDMAs and DDMAAs to maintain emergency stockpiles
- A new oversight body was operationalised to respond to the 2022 floods instead of the legally mandated NDMC
- Insufficient linkages and coordination between PDMAs, elected officials, and other government departments hampered evacuation and relief efforts in Sindh despite contingency planning and early warnings.



# Civil-Military Cooperation

**Making effective use of military rescue resources and minimising overlap between the roles of civil and military stakeholders**

## Recommendations

- Regular civil-military/multi-agency training courses for military, humanitarian, police, and relevant Government agencies
- A 'road-map' to inform all stakeholders of the expectations and operational parameters in place for relief efforts by NDMA
- Dedicated personnel and equipment for DDMA's
- An enhanced role for NDMA in coordinating the flow of information between civil and military responders
- A Joint Aviation Coordination Cell should be immediately formed in any future disaster and the NDMA should have a dedicated air rescue team on its disposal



## Follow up Actions

- The recently formed national flood coordination response committee has representation from federal, provincial civilian stakeholders as well as military stakeholders



## Contradictory Actions and Challenges

- NDMA chairmen have mostly been from the military, and the bulk of disaster response is still managed by the military, indicating a clear lack of confidence in civil administration
- There remains a gap in information sharing between the military and humanitarian community, leading to duplication in distribution of relief goods
- The NDMA is not playing a prominent information sharing role in the response to the 2022 floods
- While air rescue efforts and international relief flight coordination has taken place, no joint aviation coordination cell was established for the 2022 floods (as was the practice in 2005 and 2010)



# Role of the Humanitarian Community

**Creating closer cooperation for relief and recovery between the Pakistan government and the humanitarian community**

## Recommendations

- Ensure all humanitarian actors are working in the sectors and geographic areas identified and prioritised by the GoP through NDMA
- Enhance capacities of local NGOs and institutionalise the efforts of local partners to enable a self reliant and sustainable future humanitarian response
- Improve UN cluster system's information management capacity to efficiently plan the response through information sharing



## Follow up Actions



## Contradictory Actions and Challenges

- Pakistan expelled several INGOs in 2017 and 2018, despite the NDMA identifying them as the second largest humanitarian actor (after the UN) in the 2010 floods
- Funding opportunities and institutional approval procedures for local NGOs have been tightened in recent years, hampering their capacity to respond in 2022



# Donor Relations

Creating transparent and streamlined mechanisms to effectively utilise donor support

## Recommendations

- Establish NDMA as the first point of contact for foreign and local donor organisations to decrease overlap, ensure incorporation of GOP's wishes and compliance with decision making timelines, and direct aid to areas prioritised by GOP
- Develop emergency SOPs for Pakistan embassies and high commissions overseas
- Increase efforts to effectively engage with philanthropists and the business community to encourage more even relief distribution



## Follow up Actions



## Contradictory Actions and Challenges

- The EAD has been disempowered with regard to its responsibility to coordinate with donors
- As a result of donor fatigue in the international community, and large levels of recent borrowing from bilateral donors for economic stabilisation, inflow of funds have been limited compared to 2010



## 2.3 Getting Help to Where it is Needed



# Procurement

## Transparent and timely procurement procedures for relief and recovery

### Recommendations

- Encourage international donors to purchase relief goods within Pakistan to save logistical costs of transport, strengthen the local economy, and expedite the delivery of relief goods to affectees
- Institute special procurement procedures in the relief and recovery phases to ensure speedy provision of assistance and rehabilitation



### Follow up Actions

- The Watan card in 2010 gave people the autonomy to make their own buying decisions and injected money into the local economy
- Cash disbursements in 2022 have also been made quickly which will support local procurement at the individual level
- Warehouses have been established across provinces



### Contradictory Actions and Challenges

- The data on utilisation of warehouses across the country is not publicly available
- No special procurement procedures have been instituted for the 2022 floods so far



# Logistics and Distribution

Ensuring help can reach those who need it

## Recommendations

- Improve communication channels through the creation of online information sharing forums, as well as the utilisation of supplementary means of communication
- Conduct meetings in Urdu or other local languages to help overcome verbal communication challenges



## Follow up Actions

- NDMA arranged capacity building of 7272 government officials and civilians over 162 courses in relief provision and coordination of federal emergency response in case of a national disaster
- Warehouses have been established across provinces



## Contradictory Actions and Challenges

- It is claimed that SOPs for logistics and distribution exist but they are not public information



# Clusters

Ensuring effective coordination between humanitarian and government stakeholders in disaster response

## Recommendations

- Reorganise clusters to function in line with NDMA and PDMA organisational structures
- Special efforts by cluster chairs to reach out towards local organisations
- Review of the number of clusters deployed during a disaster to better prioritise resources
- Encourage bilingualism in cluster communication



## Follow up Actions



## Contradictory Actions and Challenges

- Clusters were disbanded by the end of the early recovery phase in 2011 and they have not been activated for the 2022 floods as of yet



# Cash Transfers

Ensuring life-saving purchasing power for those who need it

## Recommendations

- Target vulnerable groups
- Ensure clear contractual arrangements with NADRA for proper delineation of roles and responsibilities for all parties
- Ensure accessibility of a sufficient number of ATM machines, particularly for vulnerable groups
- Decentralise and streamline grievance redressal systems



## Follow up actions

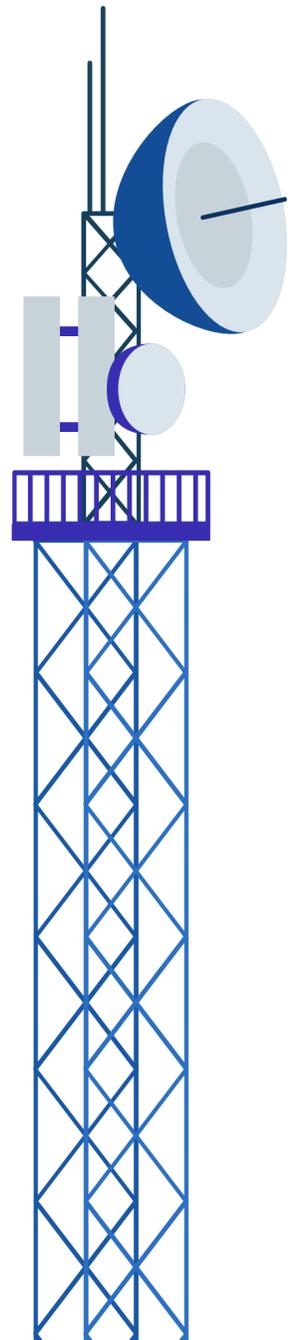
- Watan Cards paved the way for the use of cash transfers for social protection under BISP and the creation of the National Socio-Economic Registry (NSER)
- Through BISP, Pakistan has the capacity to quickly create a trusted fund as a long term response to climate-induced disasters
- The government has been relatively quick to announce instant cash disbursements during 2022 floods
- The government has distributed a total of PKR 59.77 billion to 2.39 million BISP beneficiaries as emergency flood relief cash assistance (PKR 25,000 per household)



## Contradictory Actions and Challenges

- No grievance redressal system has been established for 2022 floods as of yet





## **2.4 Signalling, Messaging, and Narrative**

# Forecasting and Early Warning Systems

Creating the capacity to predict high-risk events and forewarn the public

## Recommendations

- Enhance flood forecasting and warning capability
- Utilisation of all means of communication – including radio, television, newspapers, mosques, community centres and social media – to convey early warnings to populations at risk
- Institute a communications plan to keep the general public abreast of current developments



## Follow up Actions

- In June 2022, the NDMA, the Meteorological Department, and the Flood Control System issued an early warning about higher than usual rainfall, glacial melts, and the likelihood of super floods
- PDMA claims to have established the Provincial Emergency Operation Centre, but the online Telemetry/ Early Warning System is not in place.



## Contradictory Actions and Challenges

- NDMA officials are not publicly visible with provision of information on the disaster situation in 2022
- So far, no communications plan has been instituted and/or implemented
- The PDMA has yet to establish Venerable Remote Station Units where hydro-meteorological data can be measured via online sensors that are connected to the centralised data centre



# Disaster Reporting, Media and Social Media

## Ensuring effective and informed disaster reporting

### Recommendations

- A permanent media liaison for disaster reporting
- Utilise means like SMS, Facebook, and Twitter to spread information and mobilise support in emergencies
- Workshops and briefings to sensitise media – locally and nationally – to the challenges of humanitarian response and encourage sensitive and systematic reporting



### Follow up Actions

- Social media played a major role in providing information on floods this year
- NDMA has organised orientation workshops with media representatives to create greater public awareness, soften the effects of natural disasters, and help forewarn people about impending calamities

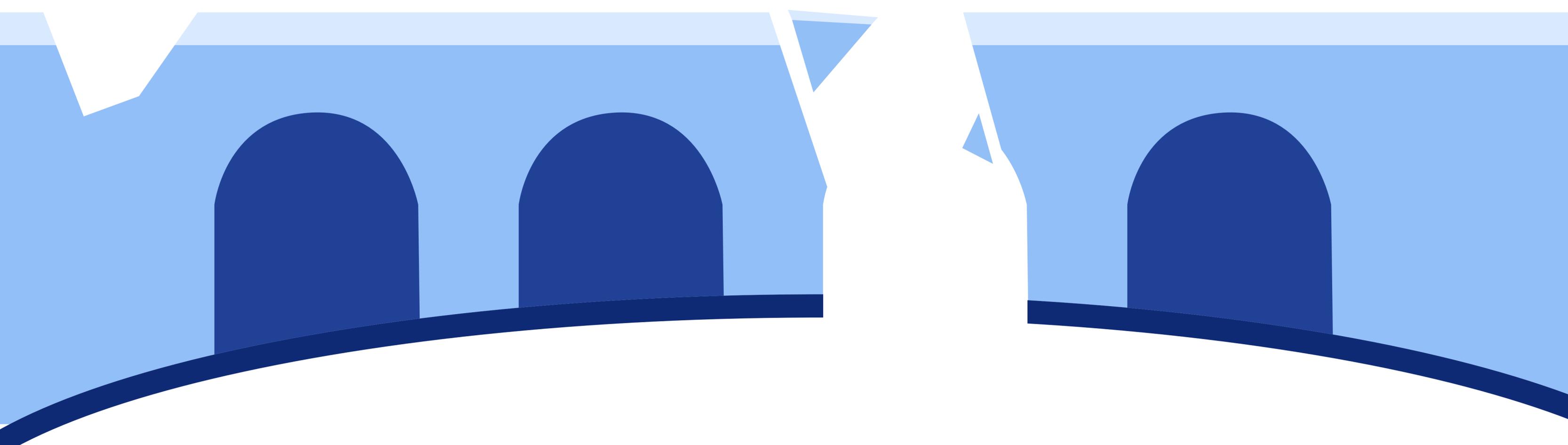


### Contradictory Actions and Challenges

- NDMA is not proactive in managing information and providing figures on disaster situations
- In 2022, the media has deprioritised flood reporting for coverage of ongoing political events
- NDMA and PDMA situation reports are not standardised and lack clarity on indicators and priorities



## 2.5 Reconstruction



# Infrastructure Reconstruction

## Reconstructing infrastructure to ensure disaster resilience

### Recommendations

- Urgently raise and strengthen bunds
- Improve hydraulic structures and prepare escape channels to safeguard them
- Redesign and construct permanent bridges to flood-resistant standards, particularly in KP
- Strengthen the structural and non-structural resilience of key infrastructure and lifelines in Pakistan

### Follow up Actions

- According to the Flood Risk Assessment Report 2015, about 156,000 sq km (18% of the country) remain at risk to riverine flooding, indicating that as many as 53,000 educational facilities, 10,500 health facilities, and 13,700 bridges are at risk

### Contradictory Actions and Challenges

- As per the situation reports, school buildings were among the first to collapse with the gushing flood waters
- There has been no recognition of the damaging effects of the flood on the right bank of Indus, where flooding did not occur previously



# Land use and Riverbed Constructions

## Ending commercial and other risky encroachments in floodplains

### Recommendations

- Strengthen legislation related to bunds, illegal embankments, and encroachments into floodplains
- Immediate stop to deforestation and implementation of a sustainable logging regime



### Follow up Actions

- Some ad-hoc anti-encroachment operations have taken place at the local level – particularly in Khyber Pakhtunkhwa, where the problem of commercial riverbed construction is most acute – but with little success



### Contradictory Actions and Challenges

- Despite efforts by local officials, commercial encroachments have increased across the Indus and even in the lakes – these settlements dramatically transform the ecology of lakes and lead to increased vulnerability
- Logging continues despite the government's repeated statements that it has been completely controlled



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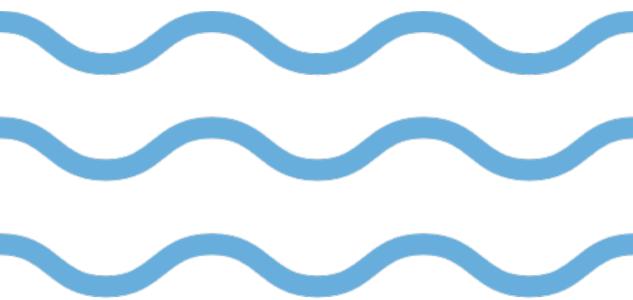
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## 3. Planning for Recovery

# Planning for Recovery

- As the floods recede, Pakistan will have to plan effectively for recovery and reconstruction. Lessons and actions from the 2010 floods recovery can provide the overall guiding framework for 2022
- Systems for recovery coordination and implementation must be established, with multistakeholder thematic forums, standards and guidelines, special approvals procedures, and monitoring and reporting
- Key sectors that have to be prioritised to save lives and enable recovery include health, education, nutrition, agriculture and food security, and housing/shelter
- Ensuring thematic, multi-cluster need assessments and robust real-time information systems to inform recovery planning
- Enabling the role and capacity of civil society organisations in the recovery phase will be critical
- Ensure community-led decision-making on recovery priorities, planning and implementation
- Policymakers must recognise the gendered dimensions and vulnerabilities of the disaster, prioritise gender-disaggregated data collection, and ensure women-headed households and other marginalised groups receive targeted assistance



# Planning for Recovery

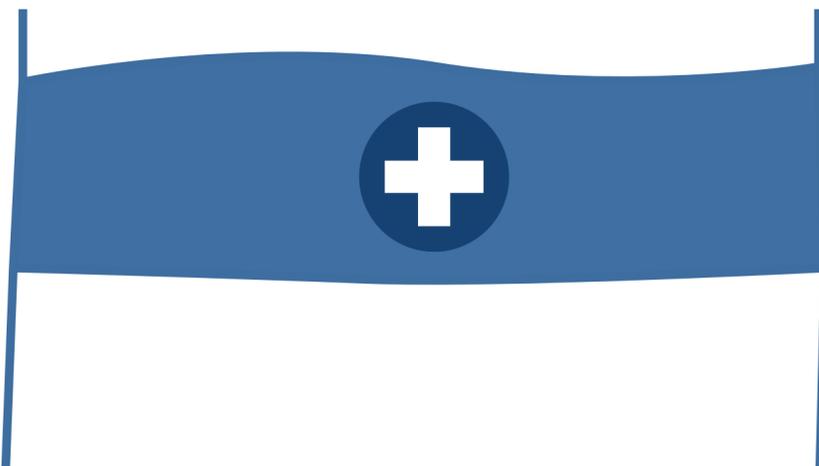
## 3.1 Recovery Systems

- Initiate cluster system for thematically targeted and coordinated response to shelter, health, food and agriculture, nutrition, water and sanitation, education and other needs.
- Organise clusters in line with relevant ministries, departments, and tiers of government. and include grassroots civil society organizations on the ground
- Develop uniform standards and guidelines for recovery for each sector
- Ensure application of standard systems of reporting and monitoring
- Institute special procurement and approvals procedures for the recovery phase to ensure speed of delivery
- Create decision-making authorities and agencies at district levels to ensure flow of relief and recovery supply delivery
- Institute mechanisms for engaging affected communities in needs assessment, planning, and implementation of recovery and rehabilitation
- Ensure multi-cluster assessments of needs, rather than different sectors operating in silos

# Planning for Recovery

## 3.2 Health

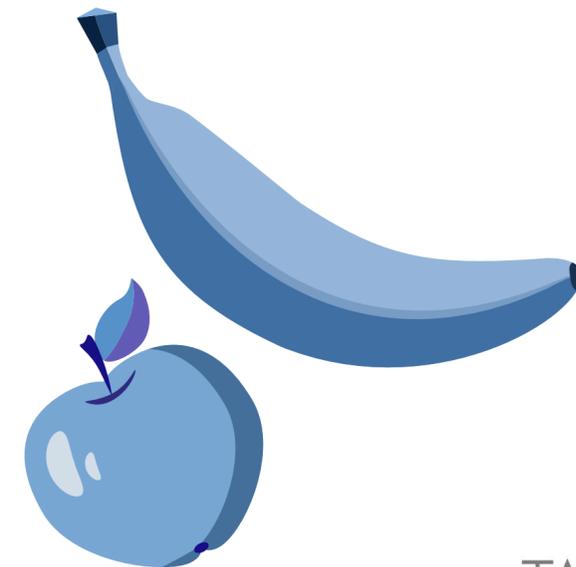
- Establish temporary health camps in affected areas to deal with post-disaster health hazards and provide vaccination
- Provide water purification kits and oral rehydration salts in all camps and affected areas for diarrhoeal diseases
- Establish health clusters at national and provincial levels, and relief hubs in hard-hit districts, with representation of medical professional associations and health organisations
- Ensure comprehensive health needs assessments, with information on health and medicinal needs, including reproductive health and health of vulnerable groups
- Institute a Disease Early Warning System for communicable diseases with alerts to identify outbreaks
- Deploy a Health Resource Availability Mapping System (HeRAMS) to map out all available public, private, and non-government health resources across affected districts and the rest of the country



# Planning for Recovery

## 3.3 Nutrition

- Conduct a Flood Affected Nutrition Survey to provide nutrition planning data
- Develop and locally produce specialised nutrition products to treat malnourished affectees
- Use school feeding programs for children and provide take-home rations for families
- Implement a Community-based Management of Acute Malnutrition (CMAM) model to address acute malnutrition
- Institute supplementary feeding programs (SFPs), outpatient therapeutic programs (OTPs), and stabilisation centres (SCs) for malnutrition, targeting children and pregnant women in particular
- Establish a Nutrition Information System to profile response implementation and expansion



# Planning for Recovery

## 3.4 Agriculture and Food Security

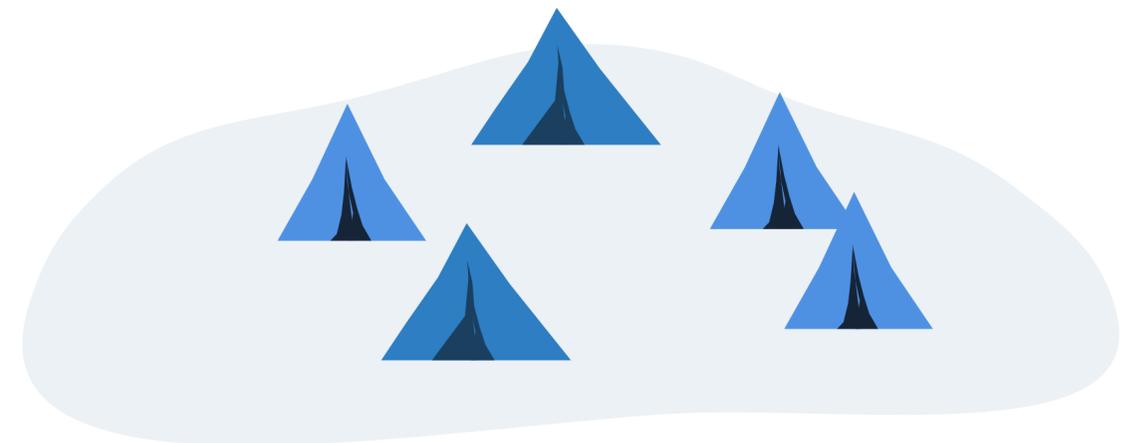
- Engage in timely de-watering and drainage in close consultation with communities to make land available for agriculture
- Develop and deploy an agricultural relief package for sowing activities in the rabi season
- Provide affected households with agricultural inputs – seeds and crop/vegetable packages (wheat, sunflower and vegetables for rabi season and rice and cotton for kharif season) as well as DAP and other fertilisers.
- Provide affected households with livestock support – including large and small ruminants, feed and fodder seeds, de-wormers, and animal health supplements
- Rehabilitate local agriculture infrastructure (canals, roads, land & other infrastructure) through cash for work programs



# Planning for Recovery

## 3.5 Shelter and Housing

- Develop owner-led housing solutions using local materials and labour
- Distribute cash grants for housing reconstruction, conditioned on hazard-free locations, using the Watan Card model
- Conduct a housing and shelter survey and gap analysis in the affected areas
- Target and prioritise economically-vulnerable and women-headed households, and households with large numbers of women and children
- Take regulatory action to avoid price hikes for construction inputs



# Planning for Recovery

## 3.6 Civil Society and Humanitarian Mobilisation

- The exodus of INGOs in recent years has limited the availability of resources and capacity in Pakistan to respond and recover from the crisis, due to
  - A loss of experience and skills relevant to the current crisis
  - The shortage of operational funds for local grassroots organizations
- Pakistan has legitimate security concerns but mechanisms need to be worked out to ensure the availability of humanitarian capacity in the recovery period
- INGOs and humanitarian organisations should be engaged in relief and recovery response, with the state assuming full responsibility for delivering rehabilitation and reconstruction needs



# Planning for Recovery

## 3.7 Women, Children and Marginalised Communities

- Prioritise women, women-headed households, and other marginalised communities as recipients and planners of aid and cash transfers
- Establish child protection centers in all affected areas
- Establish women's desks in NDMA, PDMA and DDMA
- Employ gender checklists in monitoring and reporting across all sectorial clusters
- Ensure nomination of gender focal points in all sectorial clusters
- Ensure all data collected for needs and planning is disaggregated by gender



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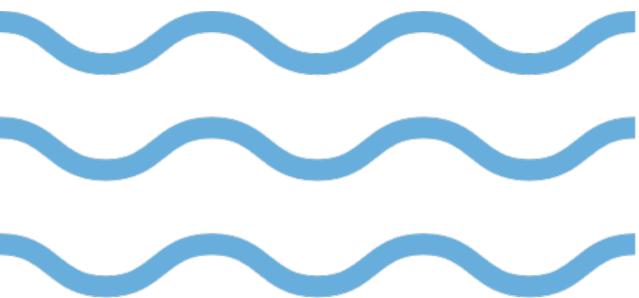
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# 4. Beyond Recovery: What Pakistan Needs to Do...



# Beyond Recovery: What Pakistan Needs to Do...

- While recovery from the floods is the immediate priority, stakeholders in Pakistan must plan for the long-term in a way that ensures our climate-vulnerable region and its people can be adequately protected from future disasters
- Pakistan's institutional infrastructure for disaster management must be adequately equipped, resourced, financially strengthened, legally defined and empowered, and better coordinated
- Disaster management must be localised with functional representative local governments interfacing between the state and communities for preparedness and risk reduction
- Land use must be transformed, keeping in mind the structural determinants of high-risk land use – like landlessness and displacement
- Water and environmental planning must be transformed in cognisance of the reality of climate change and increased likelihood of extreme weather patterns



# Beyond Recovery: What Pakistan Needs to Do...

## 4.1 Organise, Empower, and Equip Disaster Management Infrastructure

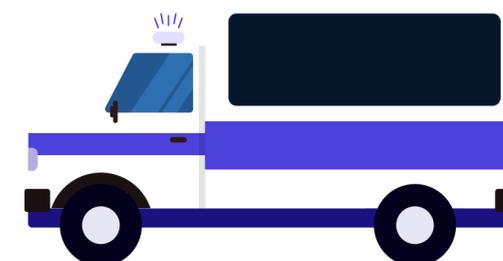
- Utilise existing disaster management planning and oversight capacity and infrastructure, instead of establishing new institutions every disaster
- Establish DDMA and equip them with dedicated staff and secretariat resources at the district level (with NDMA-identified high risk districts as a priority). These should be:
  - headed by dedicated EDOs, with provisions for DCs to step in during disasters
  - responsible for district-level multi-hazard risk assessment, risk reduction activities, coordination of rescue and relief actors, and district information management
- Establish clear lines of communication and information sharing between NDMAs, PDMAs, and DDMA, including integrated emergency operations centers in time of disaster
- Equip PDMAs to increase early warning coverage and technical capacity, warehousing capacity and stockpiles, and de-watering and pumping equipment
- Equip NDMA with staff and resources for national information management, inter-provincial relief coordination, and standards-setting
- Establish liaisons between PDMAs and irrigation departments for the maintenance and repair of flood embankments



# Beyond Recovery: What Pakistan Needs to Do...

## 4.2 Define Roles and Responsibilities for Relief, Recovery and Reconstruction

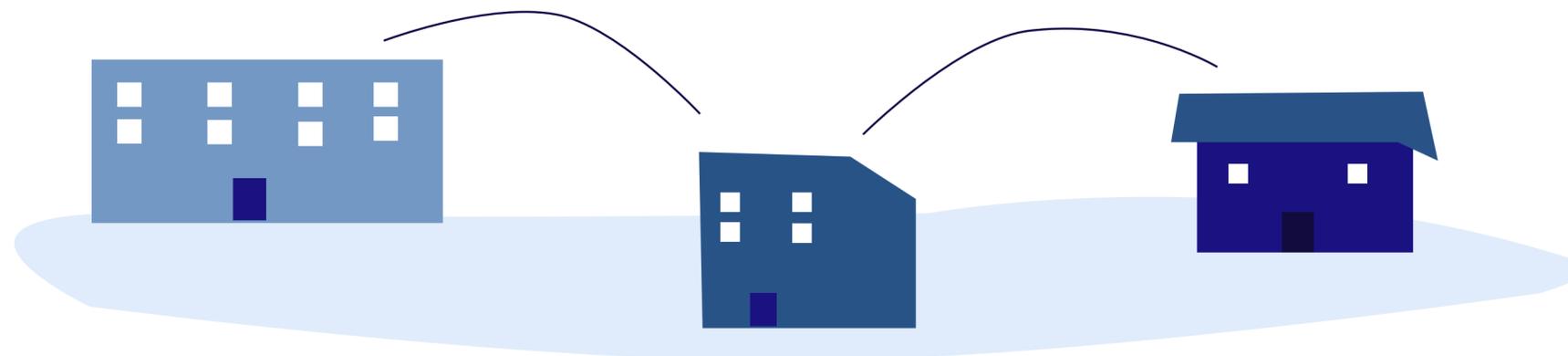
- Make use of existing capacity, resources, and institutional learning, rather than creating new institutions for every national emergency
- Enforce NDMA's legal mandate to act as the lead coordinating agency, and ensure that the NDMC functions as the oversight body for the rescue, relief and recovery phases
- Ensure that recovery and reconstruction is led by civilian and development actors, while acknowledging the military's essential role in rescue and relief
- Build manpower and capacity of civilian rescue and relief actors, and create coordination mechanisms between civil defence, rescue services, and disaster management apparatus
- Ensure that development institutions assume full responsibility for the reconstruction phase, while humanitarian actors remain essential in the relief and recovery phases



# Beyond Recovery: What Pakistan Needs to Do...

## 4.3 Localise Disaster Preparedness and Response

- The district level is the first and the most appropriate level for preparing for, and responding to, environmental disasters
- The continued absence of elected local government institutions is one of the most persistent obstacles to effective flood response
- Mobilise elected local government officials in all affected districts to interface between the state and affected communities
- Create mechanisms to engage affected communities in damage needs assessment and recovery planning and implementation in all sectors
- Revitalise civil defence departments and link them with DDMA's for rescue and relief work in accordance with local hazards
- Integrate Rescue 1122 into disaster response and preparedness infrastructure



# Beyond Recovery: What Pakistan Needs to Do...

## 4.4 Transform Land Use

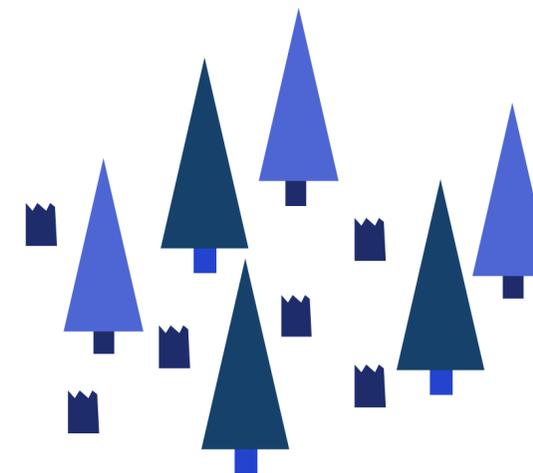
- Use the recovery phase to capitalise on renewed legal and administrative drive that ends real estate investments in floodplains, and commercial use of common land and kaccha areas
- Home constructions in kaccha riverine areas are driven by landlessness, poverty, and displacement from mega-projects.  
To address this:
  - Develop and implement a meaningful resettlement policy in consultation with communities
  - Use the opportunity to grant land titles to the landless and provide housing and sources of agricultural income in low-risk areas
- Engage in community-led vulnerability-mapping exercises for river plain communities, while still utilising existing vulnerability assessment indices by irrigation or revenue departments



# Beyond Recovery: What Pakistan Needs to Do...

## 4.5 Adapting Environment and Water management for the Climate Crisis

- Adapt water infrastructure management to restore the natural pathways of the Indus
- Restore natural flood defenses through reforestation and mangrove plantation, and adapt dam management to return some wetlands to the river
- Take steps to partially restore the hill torrent irrigation system in lower riparian areas to prevent hill torrents, which were the major cause of the the 2022 floods
- Consider and implement necessary changes in the LBOD's design and capacity to accommodate floodwater and divert its disposal towards the Rann of Katch – the World Bank Inspection Panel has acknowledged community concerns about the design of LBOD repeatedly causing disastrous flooding in its surrounding areas (especially Badin, Nawabshah, Mirpurkhas and Sanghar).
- De-silt the main flood channels and construct and strengthen dikes/bunds to withstand at least a million cusecs of flow between Guddu, Sukkur, and downstream



# Beyond Recovery: What Pakistan Needs to Do...

## 4.6 Revamp Communication and Messaging

- Establish clear information pathways between NDMA, PDMA, and DDMA
- Utilise social media for warning, response, and relief coordination
- Ensure regular public messaging from NDMA via a designated spokesperson
- Improve NDMA and PDMA capacity for information management, and establish public information portals



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## **Dealing with Disaster: Learning from the 2010 Floods**

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