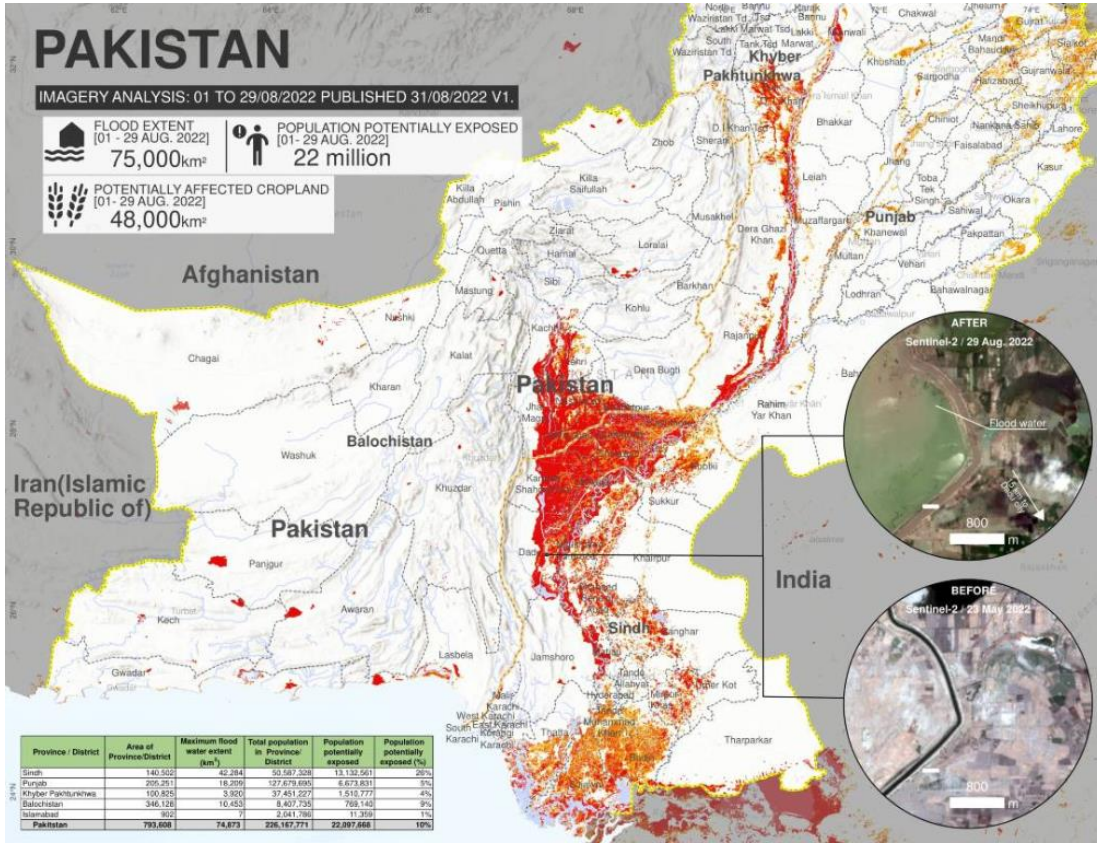
Build Back Better – Pakistan Flood Disaster 2022

Case Study

12 December 2024

2022 Flood Disaster

The 2022 flood event inundated nearly one third of the country, causing about **$15 billion in damages**, **$15 billion in losses**, and about **1,700 fatalities**. Reconstruction needs were estimated at **$17 billion**. The extreme rainfall was likely exacerbated by climate change – rainfall 500% to 700% higher than average in Sindh and Balochistan.



Coordinated support for PDNA preparation

Federal and Provincial Governments of Pakistan

Infrastructure

1. **Transport and Communications** (ADB - WB)
2. **Energy** (ADB – WB)
3. **WASH & Municipal Services and Community Infrastructure** (ADB – WB)

Productive

4. **Agriculture, Food, Livestock and Fisheries** (FAO – EU)
5. **Water Resources and Irrigation** (WB - ADB)
6. **Commerce/Private Sector and Industries** (WB)
7. **Finance and Markets** (WB)
8. **Tourism** (WB-UNESCO)

Social

9. **Housing** (WB – UNHABITAT &UNOPS)
10. **Education** (UNICEF - WB)
11. **Health** (WHO - WB)
12. **Cultural Heritage** (UNESCO - WB)

Cross-Cutting

13. **Governance** (UNDP - WB)
14. **Social Sustainability, Inclusion and Gender** (WB – UN Women)
15. **Social Protection and Jobs/Livelihoods** (WB - ILO)
16. **Environment and Climate Change** (UNEP – WB)
17. **Disaster Risk Reduction/Resilience** (UNDP – WB&ADB)

Impact Assessments

Human Impact Assessment
(UNDP – WB&UNICEF)

Macro-Economic Impact Assessment
(WB-UNDP)

Summary of Resilient Recovery Framework

		Cost by Time Horizon (US$ Million)			
		Immediate and short-term (up to one year)	Medium-term (up to three years)	Long-term (up to five to seven years)	Total Cost (US$ Million)
SRO1:	Enhance governance and the capaci				
SRO2:					
SRO3:					
SRO4:					
	Total	6,784.6	6,173.3	3,626.3	16,260

ADB's support to response, recovery and reconstruction

At the January 2023 Geneva Donor Conference, the ADB Management Confirmed Assistance $1.5 billion

$3 Million from Asia Pacific Disaster Resilience Fund (APDRF) for relief assistance

$80 Million Repurposed savings from ongoing projects in the energy and DRR sector

Emergency Flood Assistance Project	483 M
Sindh Secondary Education Improvement Project	$275 M
Khyber Pakhtunkhwa Food Security Support Project	$83 M
Sindh Emergency Housing Reconstruction Project	$400 M
Integrated Social Protection Development Program	$40 M
Khyber Pakhtunkhwa Rural Roads Improvement and Reconstruction Project	$165 M

EFAP - scoping and climate risk framework

Cross-sector reconstruction program covering three provinces and one federal agency

Sub-Sector	Province/Federal
Roads, bridges ($350m)	Sindh, Federal
Irrigation, drainage, flood management infrastructure ($115m)	Khyber Pakhtunkwa, Balochistan
Rural livelihoods and agriculture ($20m)	Balochistan

Two-stage climate risk framework provides flexibility for varying level of readiness

Stage 1 Climate risk and opportunity screening

- Provides essential information about sub-projects including hazard exposure and vulnerability

Stage 2 Climate Risk Assessment

- Analysis of **strategic options**
- **Iterative process** not an *a priori* ‘cli g’
- **Stress testing** or near final design on all projects

EFAP - general guidelines for BBB

Standard engineering considerations

- Consider **strategic options** "do nothing" option for maintaining and enhancing levels of climate resilience.
- **Sizing and capacity** of drainage systems and crossings
- **Bridge** spans, piers, deck levels
- **Slopes** of cuttings and embankments
- **Design for exceedance** considering flow paths, breach c…
- *Generally captured in **design standards** and **guidelines***

Integration with flood risk management

- **'Maintaining'** or '**enhancing'** flood resilience may include channel sizing, flood storage, bypass channels, bank protection, larger culverts/bridge structures and changing road levels.
- Consider **safe access, exit, refuge** where roads can have a key role during floods
- Consider other **strategic** and **property level flood resilience** measures along the road corridor.
- *Achieved by taking a **systems approach** and **collaboration** between projects.*

Climate adaptation

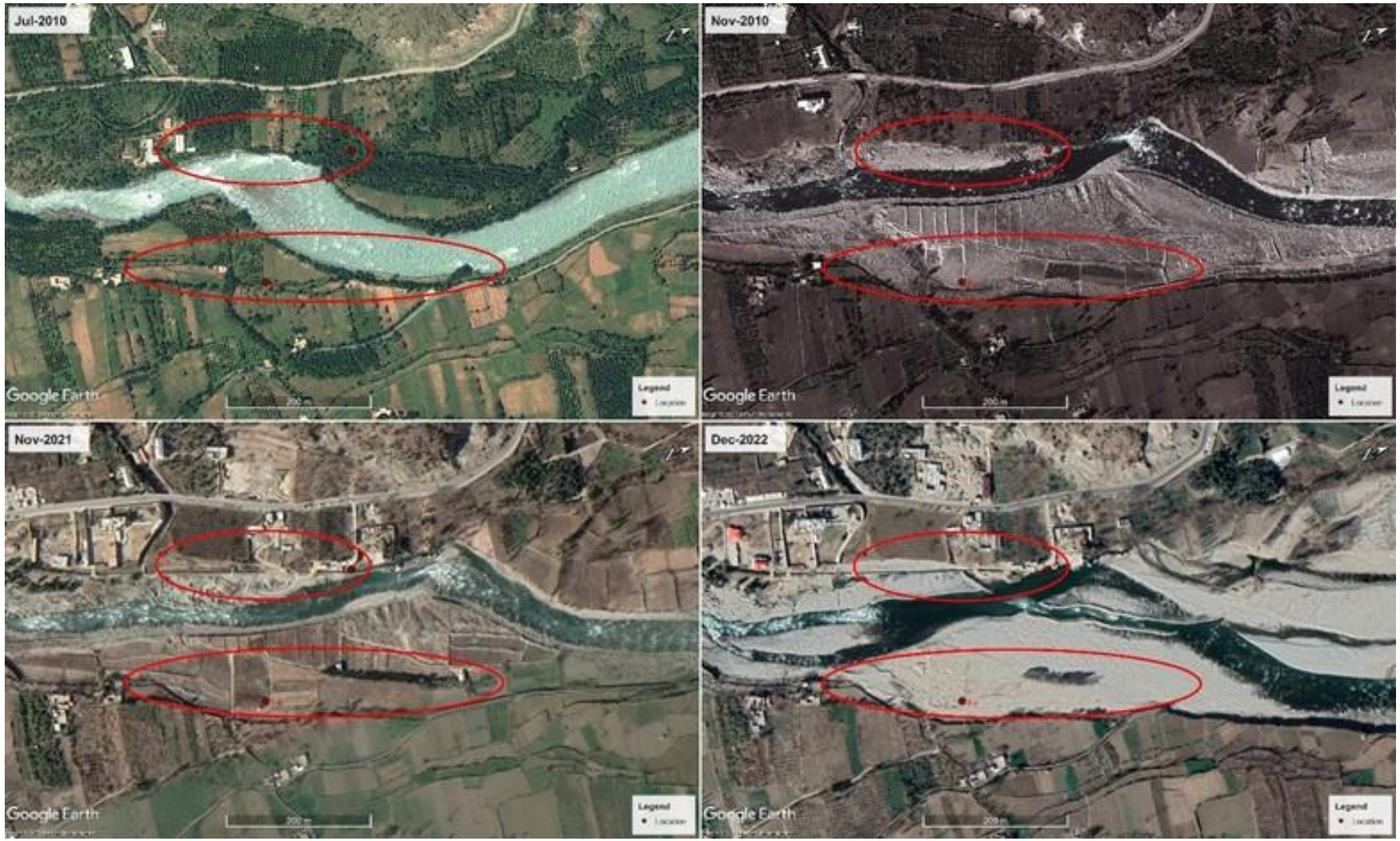
- Avoid **maladaptation** and **"lock-in"** that continue to place communities at risk.
- Providing **integrated resilient road systems** that continue to operate through extreme floods, providing **multiple benefits**.
- **Nature based solutions** particularly opportunities for flood storage to prevent flooding
- **Weather and climate services** Increasing resilience to flooding through improvements to weather, climate and early warning systems
- *Achieved by taking a **long term view** and considering links with **climate change***

EFAP – Example of Category I

Adjustment to existing protection. Raising of flood protection between 0.22m to 0.9m at various locations under SSP 2-4.5 scenario, and 0.3m to 2.5m under SSP 5-8.5 scenario

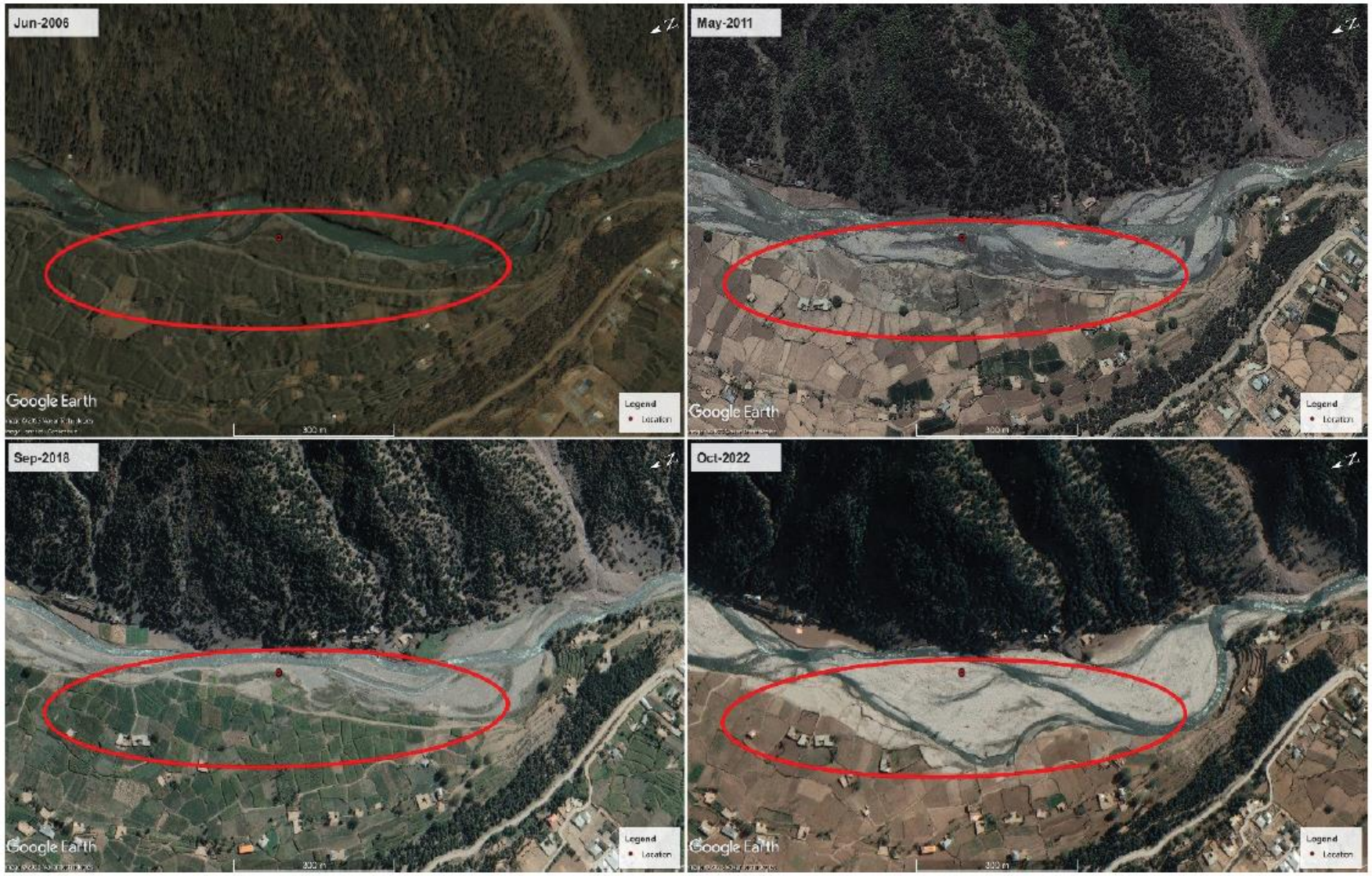
EFAP – Example of Category II

Additional design measures including relocation. Flood eroded agricultural lands in the flood plain.



EFAP – Example of Category III

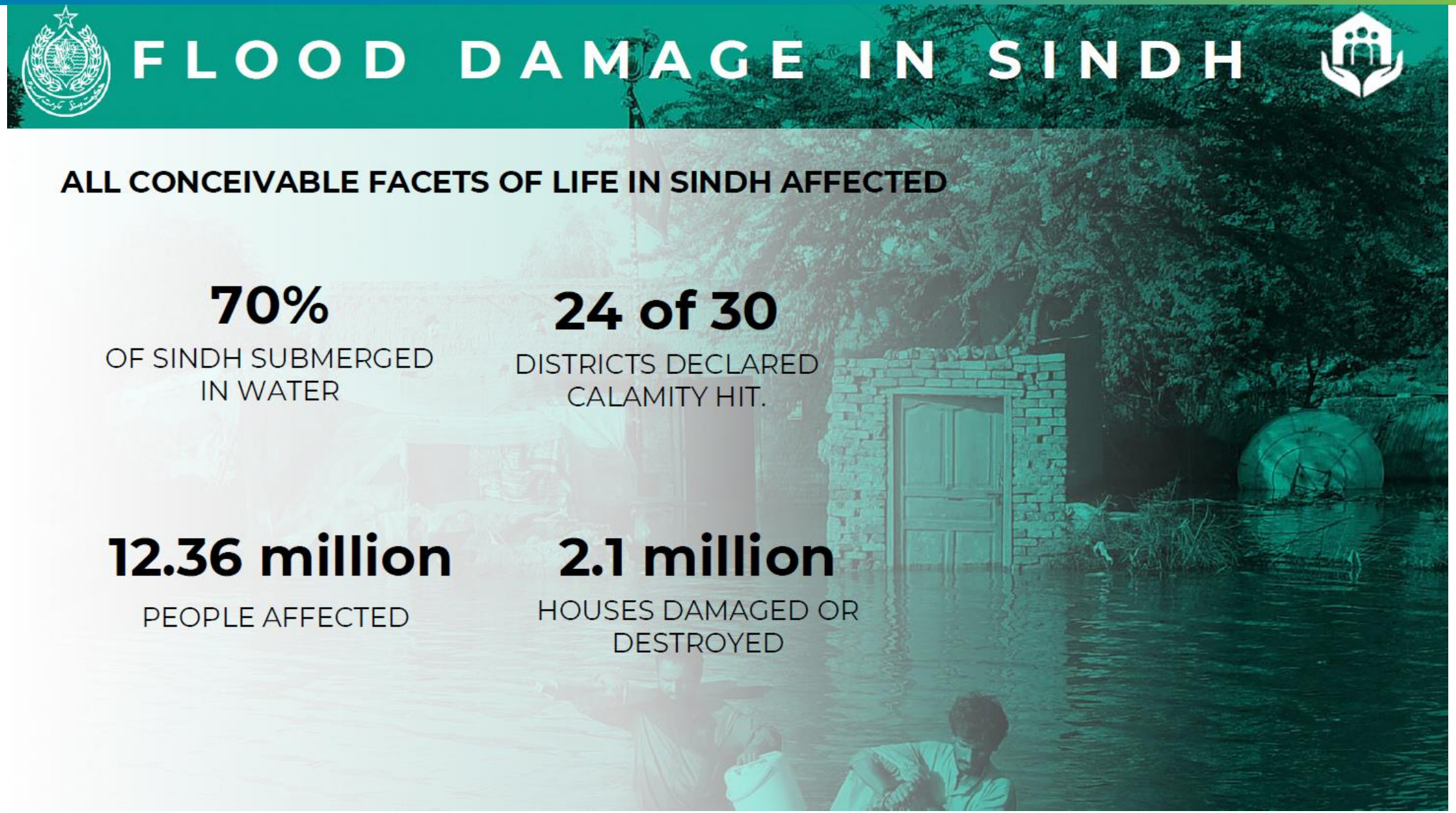
High risk of maladaptation. Residual risks too high to manage. Subproject dropped.



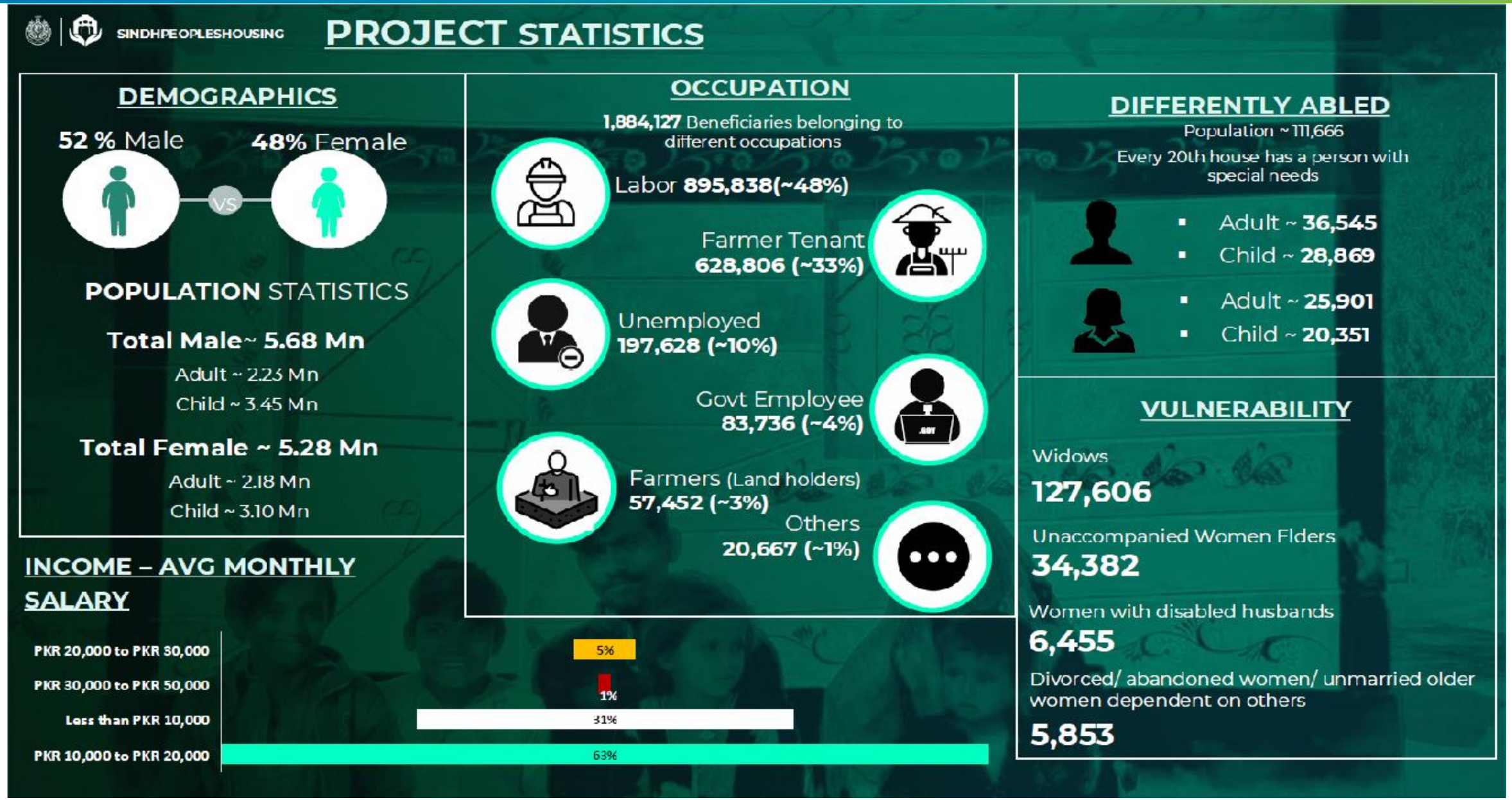
EFAP - Early findings and recommendations

- Speed of delivery requires rapid climate assessment -> start the work during project processing
- Capacity of consulting industry is weak -> continuous supervision needed
- Data constraints, geographic spread and competing demands -> informed decision needed while dealing with uncertainties and data collection.
- Long list of sub-projects is better -> provides flexibility in prioritization, shortlisting and design.
- Make use of GIS/RS, modeling tools for communication.

Sindh Emergency Housing Reconstruction Project



Sindh Emergency Housing Reconstruction Project



SPHF - Overview of Proposed ADB Project

Topic	Brief and Findings from Mission
Project Impact	**Resilient human settlement for all ensured***
Project Outcome	**Inclusive and resilient human settlement in Sindh improved**
Output	**(i) Flood-damaged houses and community infrastructure reconstructed with multi-hazard resilient, and environment-responsive designs** (i.e., reconstruction of housing, and essential community infrastructure (e.g., WASH / electricity) **(ii) Livelihoods recovery programs for flood-affected houses implemented** (e.g., targeted grant for agriculture, livestock or small enterprise related goods) **(iii) Community resilience improved** (e.g., skills development (building and construction), community-led climate resilient village planning/implementation/O&M, integrated GIS system for rural development)

* The project will contribute PAK CPS (2020- 24) Str Pillar 2 “Bu tion”

SPHF - Project Funding Amount

Modality and Sources	Amount (US$ M)
ADB	
Sovereign Emergency Assistance (Concessional Loan)*	**400.0**
TA (ADB administration)	**0.5**
Counterpart	
Government of Pakistan	**40.0** (or equivalent PRs for 2024/2025 budget)
Total Reconstruction of **Housing**: **$300M** (target 250,000 housing units**) **WASH** and **Settlement Improvement**: **$100M** (target at least 100,000 households***) ** The estimated cost includes project implementation cost (7-8% of the total cost)*	**440.5**

*1% interest for 40 years (10 years grace period)

** Based on 300,000 PKR cash grant per housing unit / please refer to slide 5

*** Please refer to slides 6 and 7

Sindh Emergency Housing Reconstruction Project

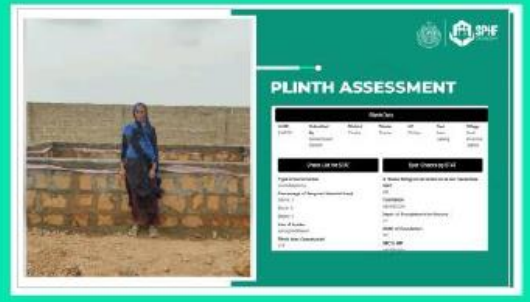
Sindh Emergency Housing Reconstruction Project

REAL TIME MIS PROCESS

Journey of **Noor Khatoon** from District **Thatta** from 1st installment till the final completion of the resilient house .

The Screening of beneficiary in SPHF MIS is a transparent process with tracking of each beneficiary form on real time basis.

DAV FORM

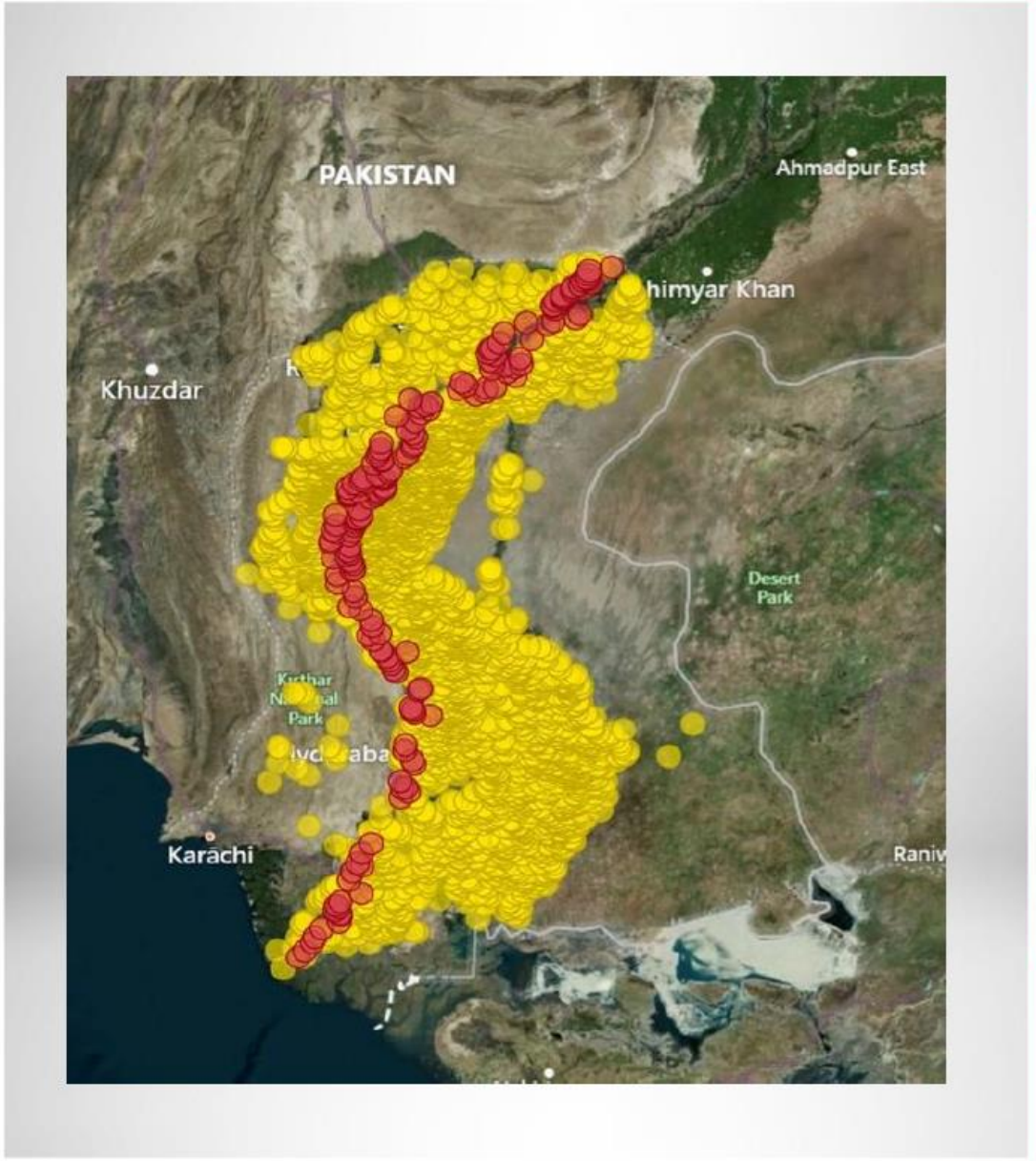


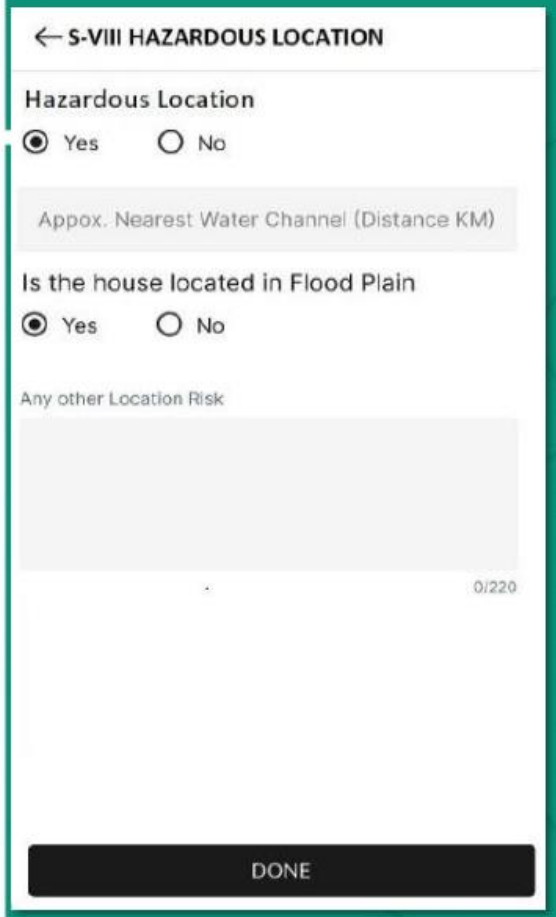
PLINTH FORM

LINTEL FORM

ROOF FORM

Sindh Emergency Housing Reconstruction Project





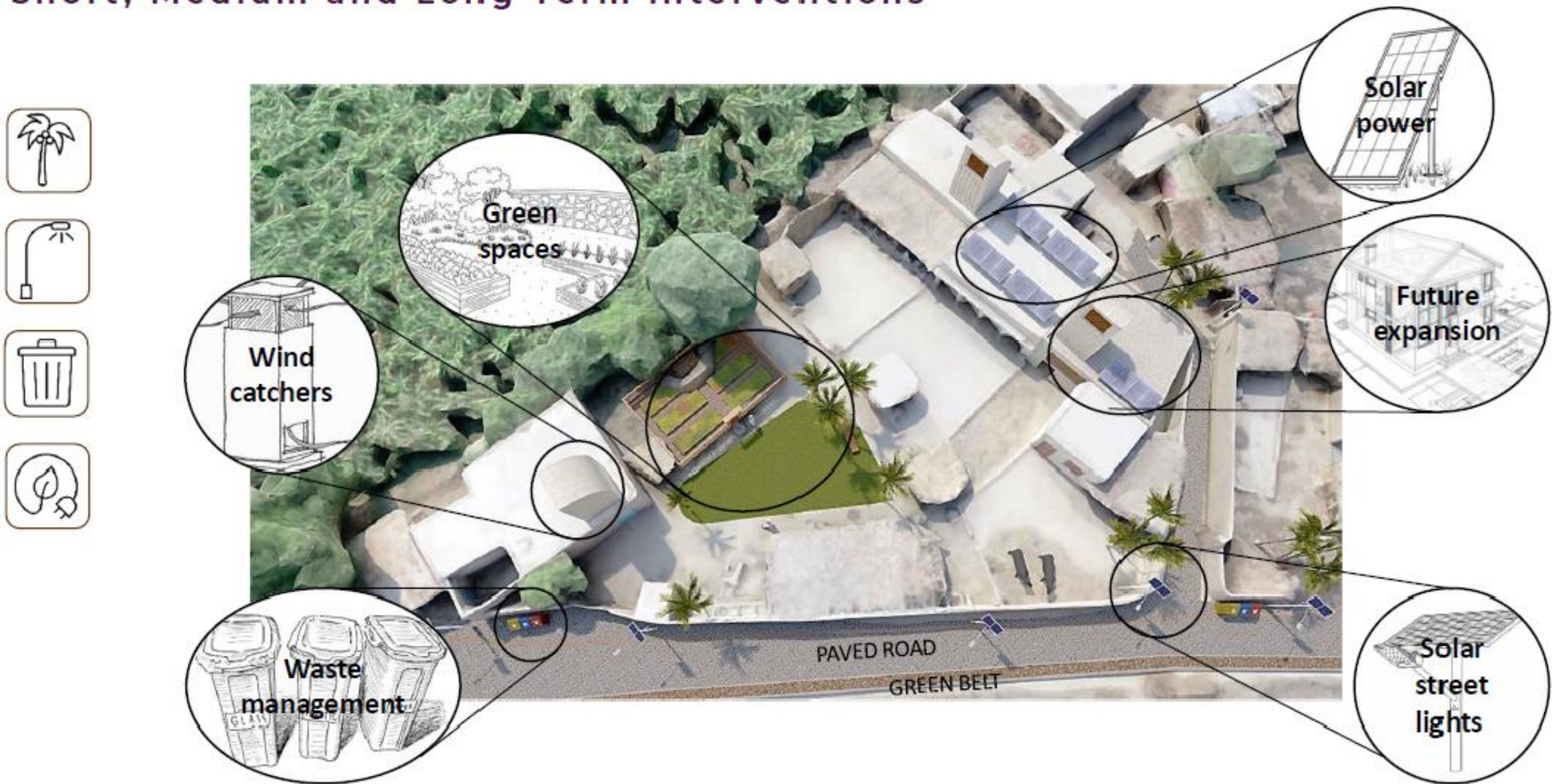
Screening of Environmental Sensitive Receptors

- Flood Affectees in hazardous areas
- Flood Affectees in non hazardous areas

Sindh Emergency Housing Reconstruction Project – Beyond Houses

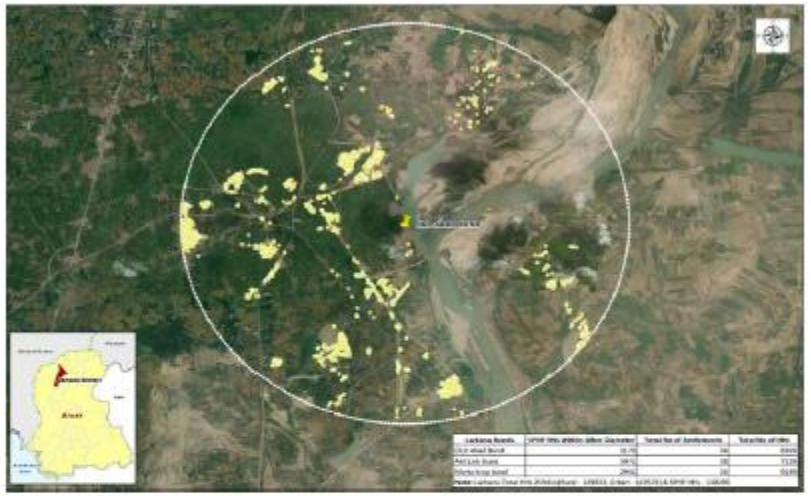
PROPOSED MICRO LEVEL INTERVENTIONS

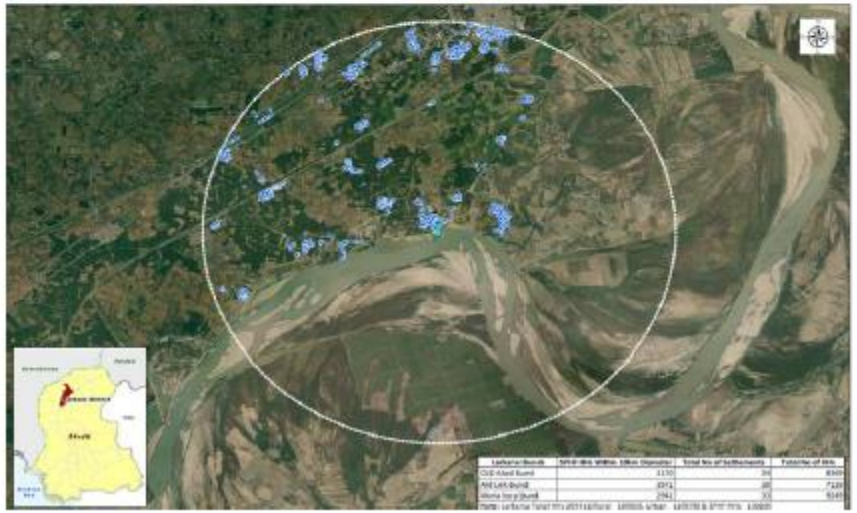
Short, Medium and Long Term interventions



Sindh Emergency Housing Reconstruction Project

Disaster Risk Mitigation Measures





SPHF - Challenges and Lessons

1. Data Challenges for BBB:

- Geographic extent of the disaster – a moving target
- Common understanding of definition and approaches in a multi-sector and multi-institutional team
- Cannibalization of development budget – political economy of disasters
- Triangulation of data – use of technology - limitations/cost

SPHF - Challenges and Lessons

2. Processing EAL for BBB:

- 16 Weeks processing.
- Limited resources to process
- Low level of project preparedness at entry.
- Counterpart government processing not in sync with ADB
- Damages/needs vs development deficit vs speed – **built back smarter**
- Comparative advantage - use of existing implementation arrangements
- Availability of contingent financing option
- Limited Space within existing headroom

SPHF - Challenges and Lessons

3. Implementation Challenges to BBB:

- Primary validation of data – scope changes –flexibility?
- 2/3 years implementation – best of both worlds
- All flexibilities of disaster policy pre-approval – everything applies after approval except procurement
- Much higher design standards due to built back better
- Fast tracking within ADB only applies to project team, not to support services and government counterparts

Sindh Secondary Education Improvement Project - Additional Financing

- 50% of public schools in Sindh were fully or partially damaged during 2022 flood (2.23 million students affected)
- UNICEF provided 997 temporary learning centers
- The children who do not study at TLCs, study at damaged schools which are unsafe

- ADB is providing support of $275 million for the reconstruction of around 1000 schools in 5 most flood-affected districts of Sindh
- Disaster and climate resilient construction - resilient materials and design which are robust and withstand climatic changes and improve energy efficiency

Re-orienting portfolio towards flood and climate resilience

Upstream

- **Climate change action plan** to inform new CPS preparation
- **Strategic adaptation planning** to inform project development (e.g. Swat and Hill Torrent flood risk management)
- **Sector-level** assessment for project development (e.g. HSD, Urban)

Midstream

- **Strategy/planning** (e.g. National Flood Protection Plan update)
- **Climate and disaster management PBL** – CDREP
- **Mainstreaming climate/disaster in PBLs** – e.g. DRM, PPP, Insurance

Downstream

- **Broadening Type 2 projects** – KP Rural Roads, DREAMS (urban)
- **Type 2b projects** – Sindh Coastal Resilience Project, Swat Flood Risk Management Project
- **Linking climate and air quality co-benefits** – Punjab Agriculture Mechanisation project

Thank you