

Regional Workshop on “Training Needs and Gaps Assessment on Adaptation and Resilience to a Changing Climate in South Asia”

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How Indigenous Knowledge and Modern Technology Work Towards Resilience in the Water Sector: Scopes for Irrigation in Flood-prone areas

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Outline

- Background; how knowledge and irrigation technology relates
- An example from Bangladesh
 - Southwest area integrated water resources planning and management project (SW) by BWDB, ADB, Dutch Embassy. WASH action research by EPRC (Bilqis-P.I)

Background

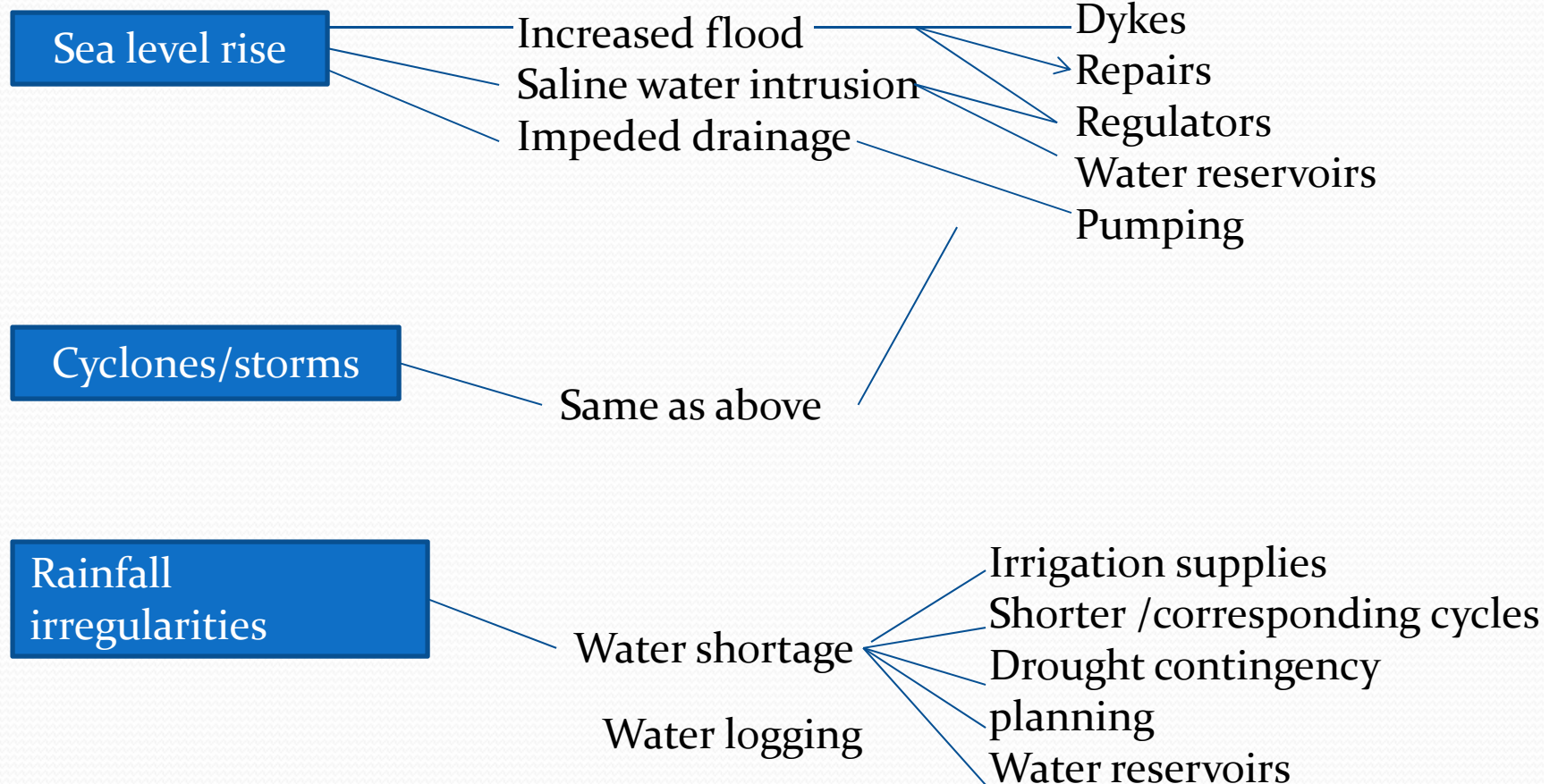
- **Knowledge system** "a set of actors, networks or organizations expected to work synergic ally to improve the correspondence between knowledge and environment, and/or the control, provided through technology use, in a given domain of human activity".
- **Indigenous knowledge system**; includes local actors, needs, experiences, available opportunities/means/technology and collective actions in a given context.
- **Community Based Adaptation** (CBA) is a bottom-up and 'place-based' approach to adaptation. CBA begins by identifying areas and communities that are most vulnerable to climate risk, and then uses the best available science on climate induced impacts to engage with vulnerable groups (Huq & Reid, 2007).
- At present, the NAPA process (see above) is predicated on identifying local vulnerability and building on local coping capacities. CBA is being discussed.....
- **Irrigation**: About 39 percent of cropland is irrigated, and irrigated agriculture accounts for 60-80 percent of food production in South Asia.

Climate related challenges to irrigation

Threat

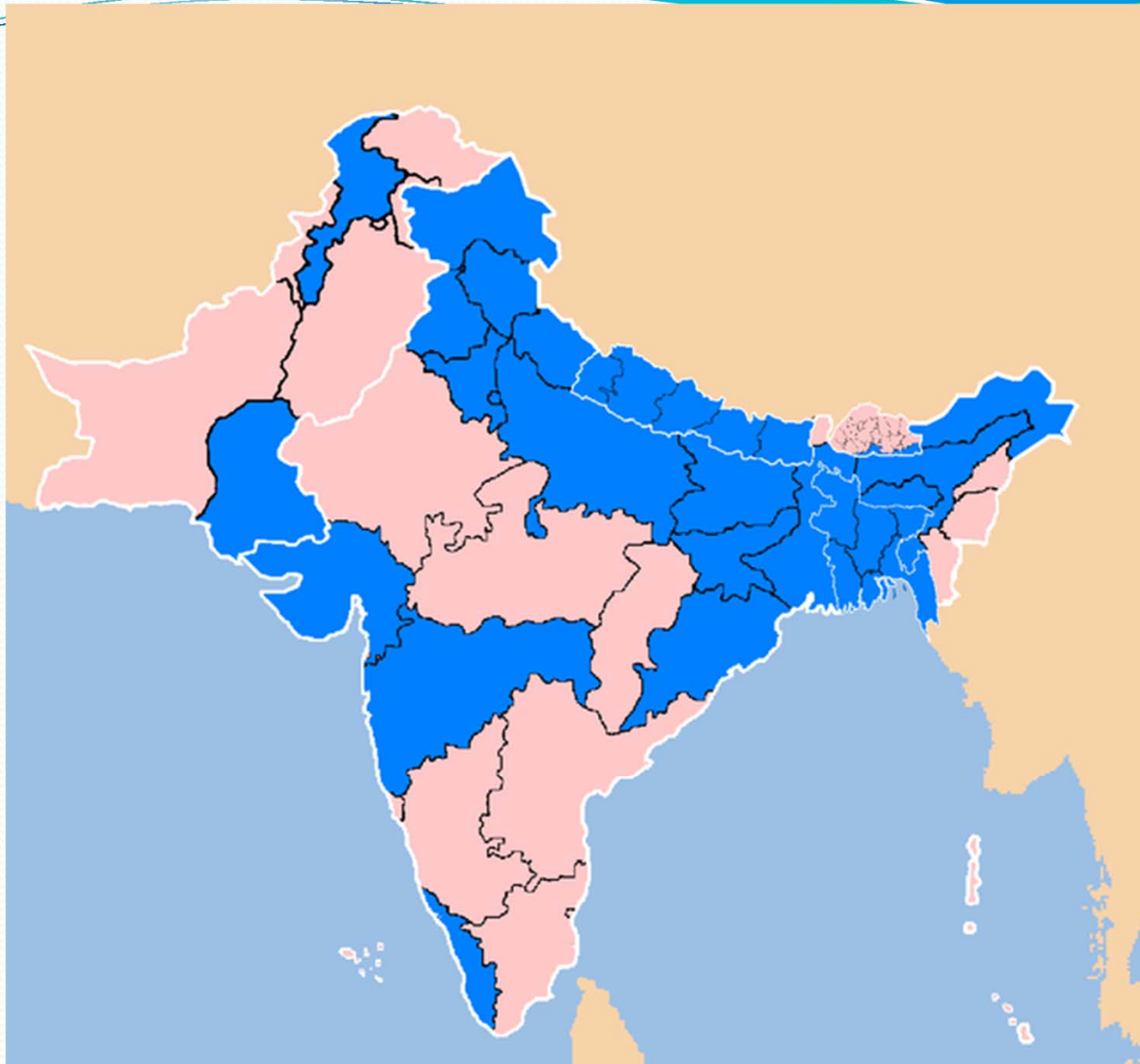
Risks

Responses



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UNOSAT 
satellite solutions for
www.unosat.org



South Asia subdivisions affected by flooding between 3 July and 15 August 2007 (marked in blue). http://en.wikipedia.org/wiki/2007_South_Asian_floods



Background (contd.)

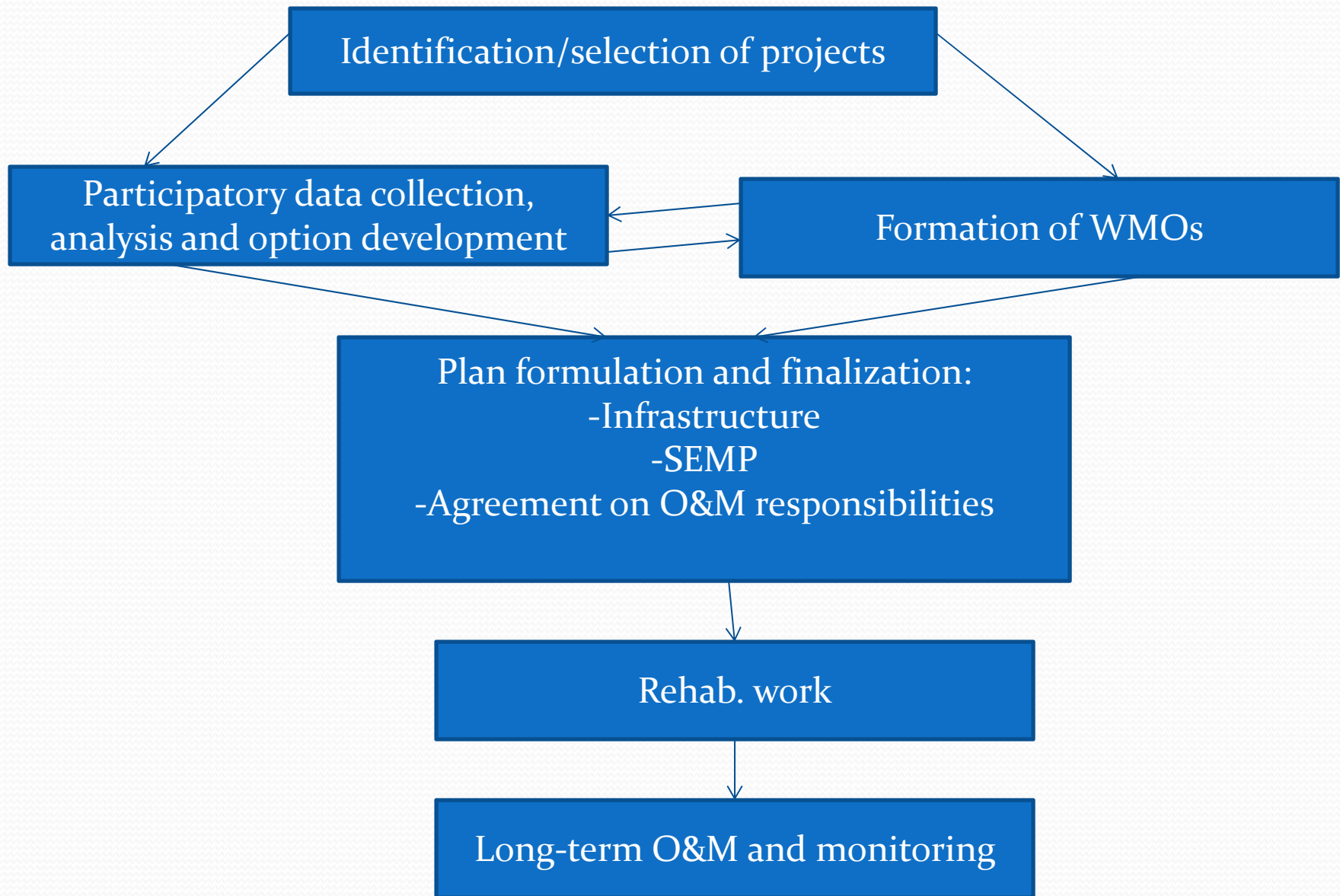
- Rice has been grown in India and the Far East for nearly 5000 years.
- Dykes/dams for WS, irrigation and FC have been built since Indus civilization. The ancient technologies were often managed/performed based on local needs/seasons by the communities under Zamindars, Kings (G.Trunk Road) local leaders.
- Modern FCD/I systems; majority underperforming in Asia.
Main problems: lack of O&M , wrong design (inadequate flow capacity of structures, suitable design but poor construction quality, etc.), institutional weaknesses, lack of user participation, poor assessment, poor services, poor integration of water demand, etc.



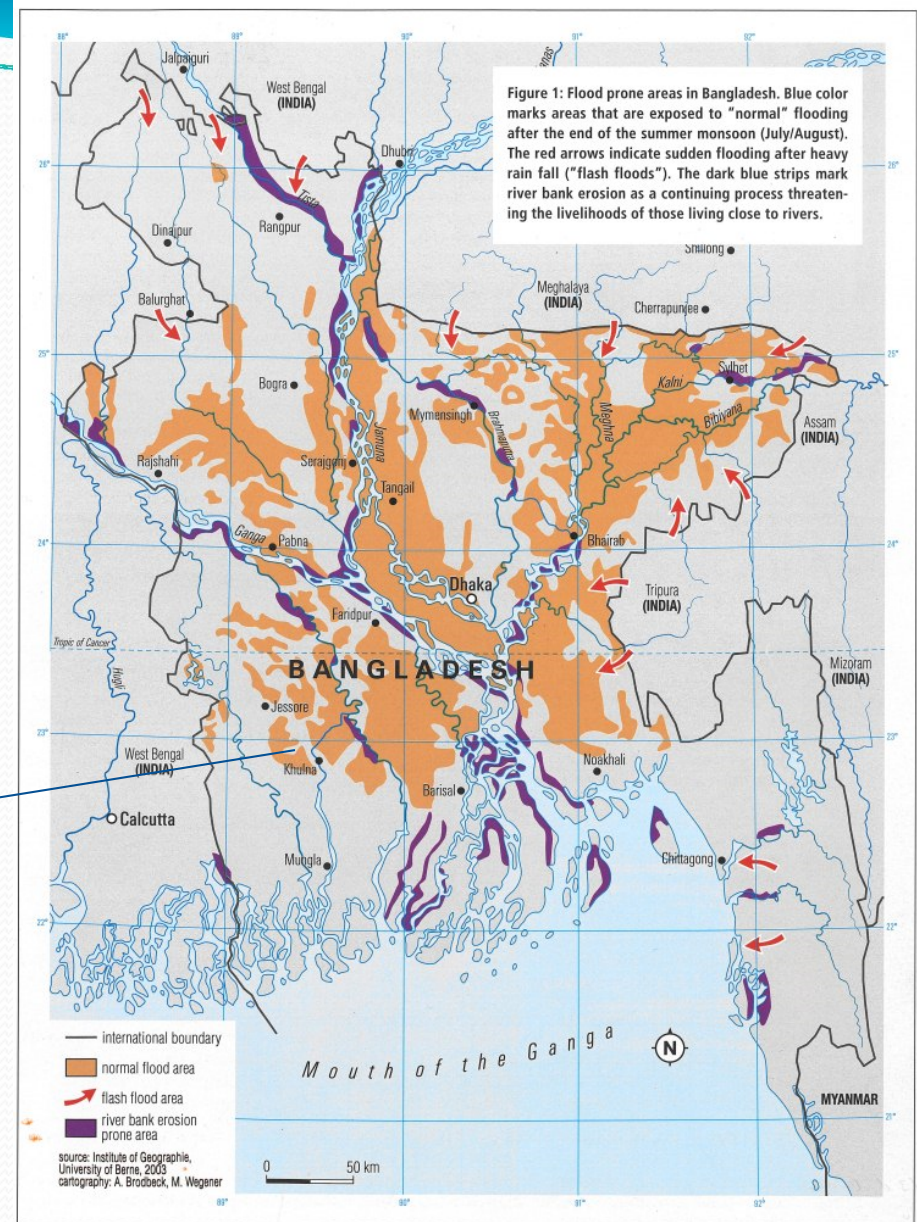
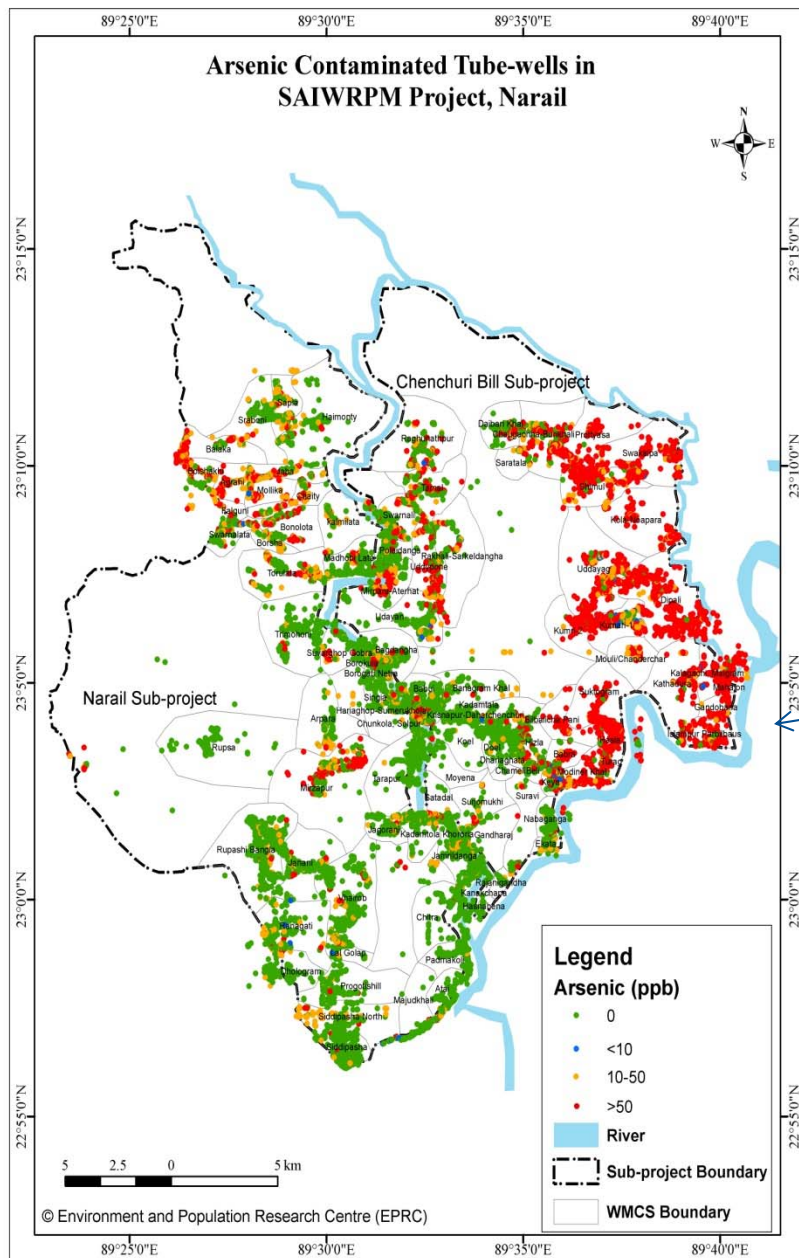
Bangladesh

- It is one of the most climate vulnerable countries
- Almost universally involved in irrigation based rice production for food security.
- One-third of the most densely populated country is coastal; the climate further complicated both quantity and quality related challenges
- Modern FCD/I incorporating community based approaches
- GPWM's institutional framework is made up of a three-tiered WMO: a WMG, WMA and WMF
- WMOs will be responsible for planning, implementing, operating as well as maintaining local water schemes in a sustainable way and, depending on the type of scheme, will contribute towards the capital and operating costs of the scheme as decided by the government or on a voluntary basis acting in their own interest.

The participatory planning and implementation process



The SW project

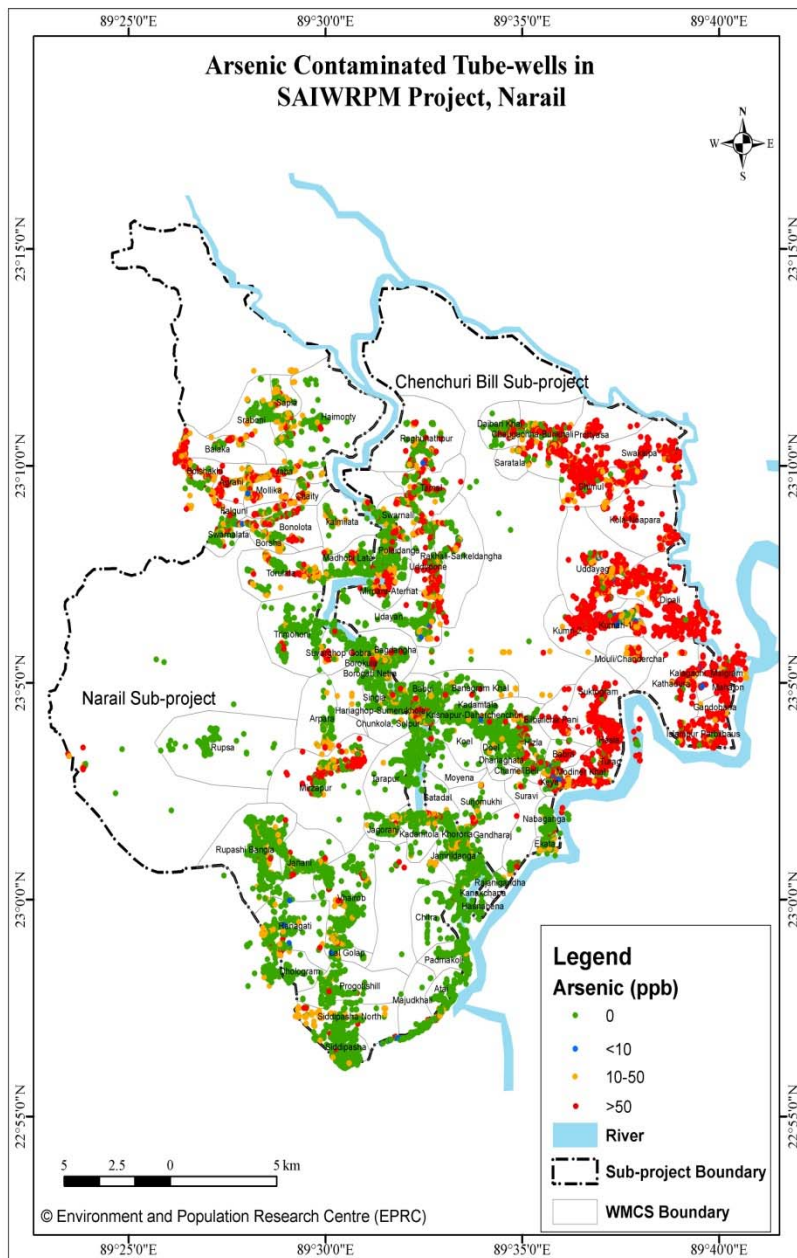


Purpose: to institutionalize effective mechanisms for enhancing and sustaining the performance of FCD/I systems

2010

Name of Works	Quantity
Proposed New Regulator	06 Nos.
Rehabilitation of Existing Regulator	18 Nos.
Pipe Sluice Construction	06 Nos.
New Khal Excavation	5 Km.
Khal Re-excavation	136.10 Km.
Embankment Rehabilitation	19.20 Km.
Proposed Check Structure	09 Nos.
Rehabilitation of Water Retaining St.	01 Nos.
Proposed Water Retaining Structure	05 Nos.

About 100,000 ha





The SW project mainly consists of the following:

- Participatory
- Productive and sustainable water management system
 - Preparing SIP
 - Establishing empowered WMAs
 - Undertaking participatory detail design of structures
 - Water management and structures
 - Enhanced production and livelihoods
 - Sustainable O&M by WMAs and BWDB, LGIs
 - Gender mainstreamed
- Project management system and strengthening institutions
- An action research on people demanded WASH (with arsenic mitigation)



Conclusions

- The adaptation-resilience strategies are multi-disciplinary, complex and changing
- Knowledge and technologies are in the same system
- Appropriate integration/mix /build-on of indigenous and modern knowledge & technologies are needed
- Community based adaptation approaches emerging

Recommendations

- Proper training should be designed, planned and implemented after proper assessment of the needs , gaps and opportunities
- Expert multi-disciplinary team/s should be formed to undertake this important capacity building TOT

THANK YOU