# Avenues and Requisites for Successful Collaboration

*Strengthening Regional Resilience with Geo-Information: Programme on Trans-boundary Cooperation in South and South East Asia for geospatial information*

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GEOSPATIAL WORLD FORUM

IWM Water Environment & Climate

# 1. Introduction to IWM

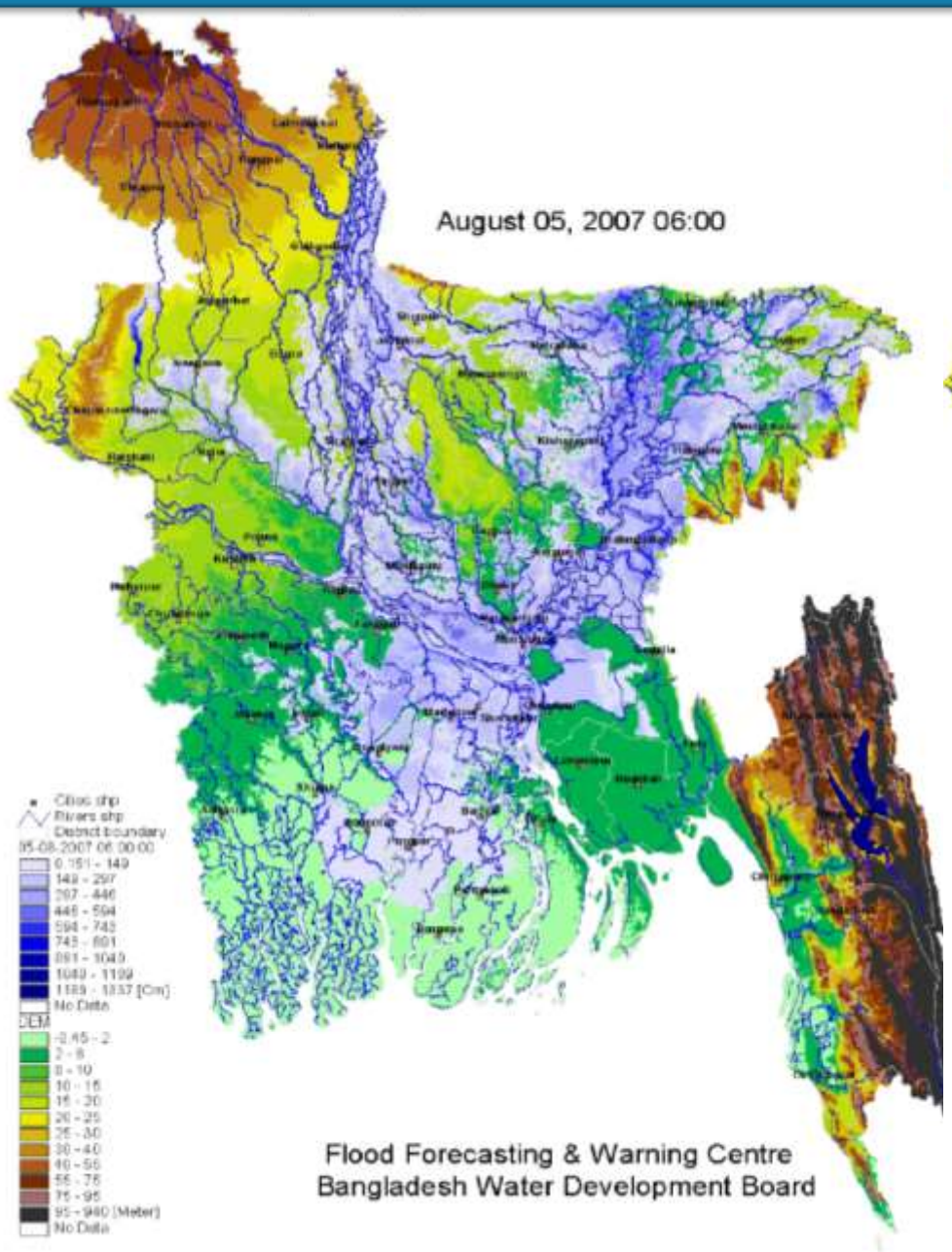
- Bangladesh Water Development Board (BWDB)
- Water Resource Planning Organization (WARPO)
- River Research Institute (RRI)
- Joint Rivers Commission (JRC)
- Bangladesh Haor & Wetlands Development Board (BHWDB)
- **Institute of Water Modelling (IWM)**
- Center for Environmental & Geographic Information Services (CEGIS)

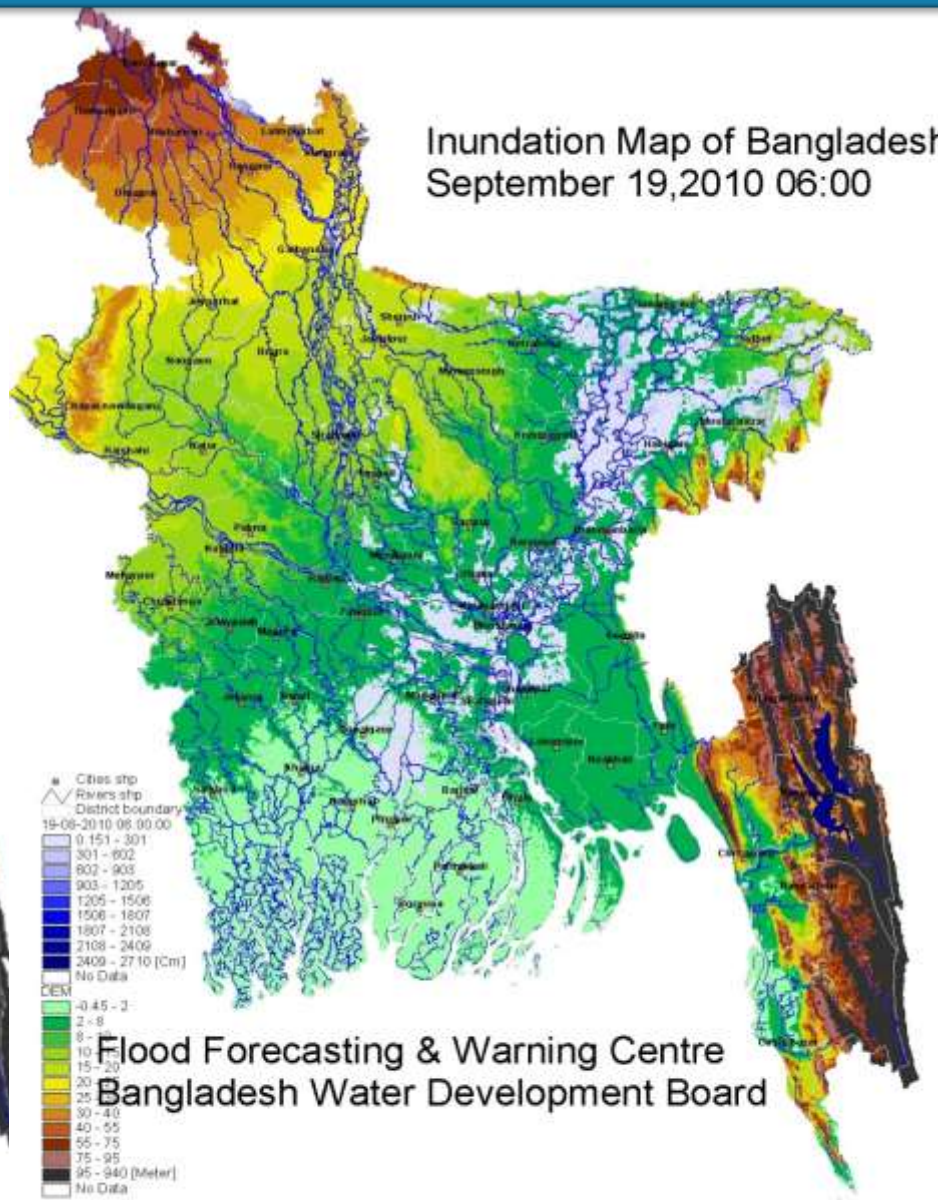
IWM – A Trust under the Ministry of Water Resources of Bangladesh

# GIS organizations with prominent maps

| Organization | Popular Maps |
|---|---|
| Survey of Bangladesh (SoB) | Topographic maps |
| Bangladesh Water Development Board (BWDB) | Contour maps with spot elevation |
| Local Government Engineering Department (LGED) | Thana base maps |
| Department of Public Health Engineering (DPHE) | Arsenic concentration map |
| Department of Land Records and Survey (DLRS) | Thana Maps<br>Mouza Maps |
| Soil Resource Development Institute (SRDI) | Soil Resources maps<br>Agricultural Landuse Maps |
| Bangladesh Agriculture Research Center (BARC) | AEZ Maps |
| Geological Survey of Bangladesh (GSB) | Geological Maps |
| Bangladesh Inland Water Transport Authority (BIWTA) | Navigation route map |
| CEGIS | Adds values on secondary maps |
| Institute of Water Modelling (IWM) | Adds values on secondary maps |

# Flood Inundation Map 2007, 2010



# Regional Challenges



Natural
+
Anthropogenic

Change in

- Temp, Rain, Humidity
- Land use
- Water levels, flow, salinity, pollution, erosion, disease
- Population
- Plans (short term, mid-term and long-term)
- Development Interventions
- Legislation, mindset
- and more++

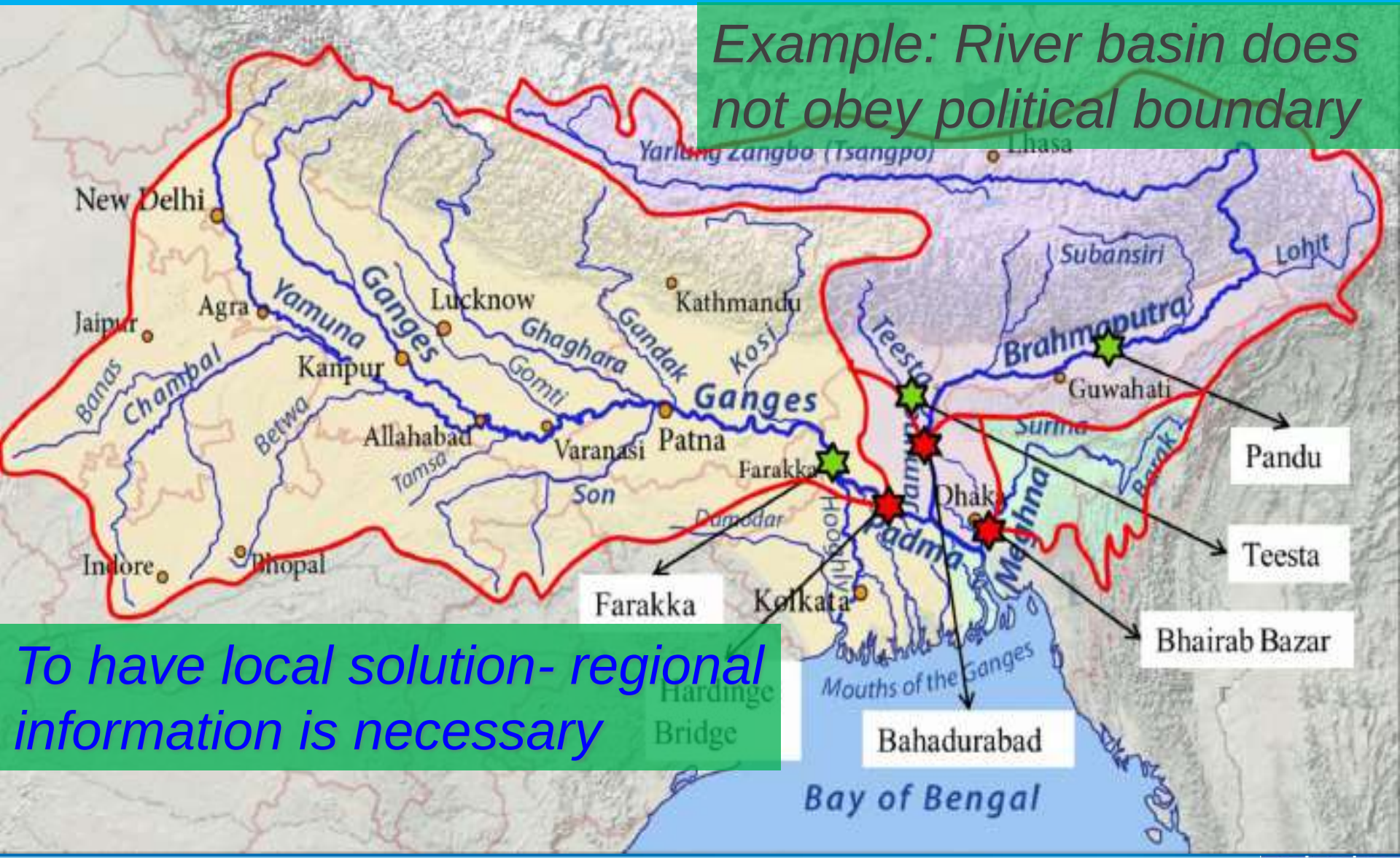
Effects

- Drought, flood, hotter summer, colder winter, more saline, frequent extreme events, loss of lives, aquatic and terrestrial degradation, adverse weather and climate, food shortage, deteriorate social well-beings, economic growth and more++

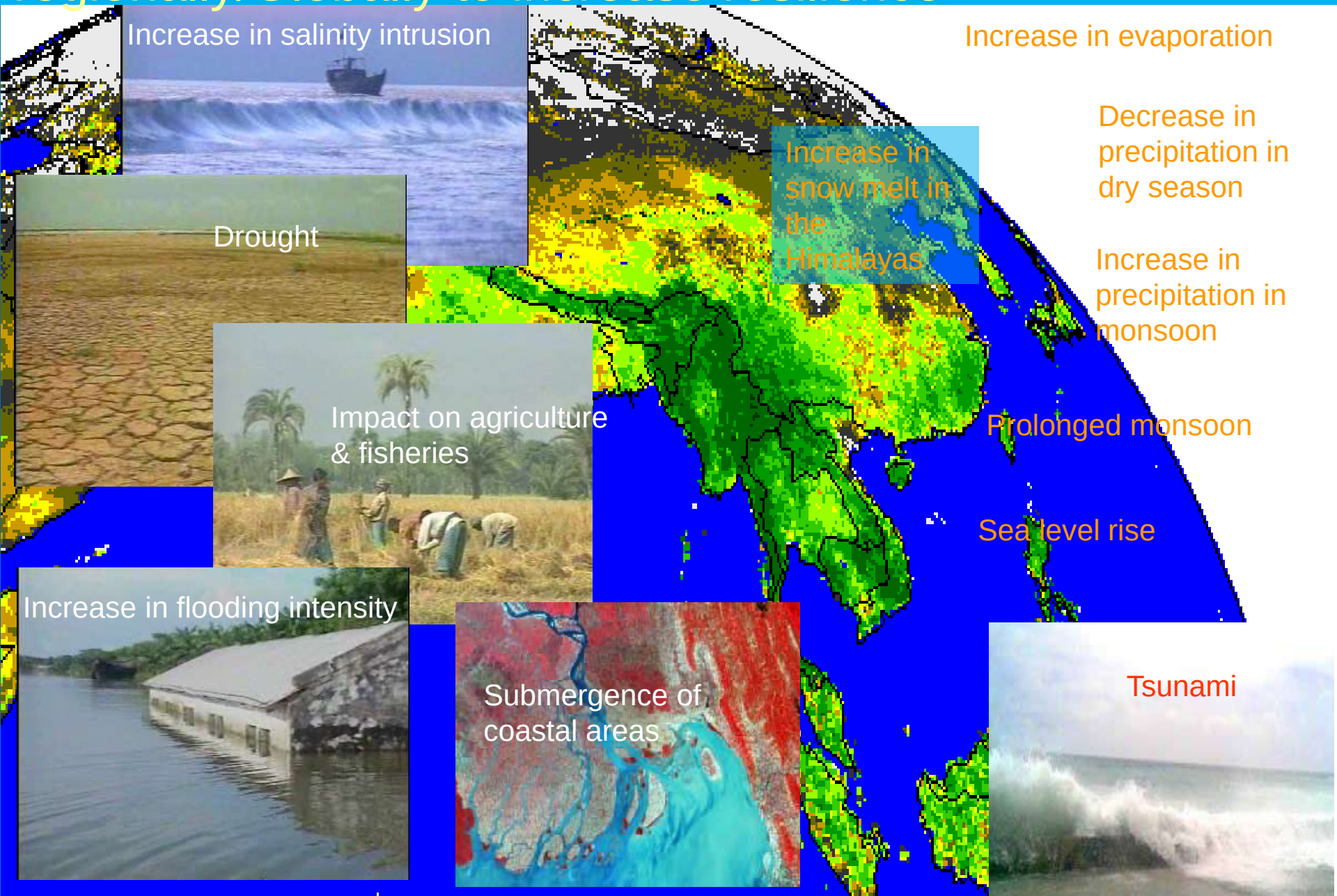
Need Resilience strengthening

# Regional Problem Local Solution





# Climate Change challenges – to be faced regionally/Globally to increase resilience



# Strengthening Resilience



**Geo Information can visualize the Hazard, Risk and Vulnerability.**

**If the cause of hazard is in another political domain—it require information sharing and cooperation to strengthen resilience.**

Purpose of this seminar: *Strengthening Regional Resilience with Geo-Information through Trans-boundary Cooperation in South and South East Asia*

# 2. Avenues of cooperation

1. **Sharing Information**
2. **Sharing Technology**
3. **Sharing Knowledge**
4. **Informed/Co-operative planning**
5. **Informed/Collaborative development**

Purpose of this seminar: *Strengthening Regional Resilience with Geo-Information through Trans-boundary Cooperation in South and South East Asia*

# 2.1 Avenues of cooperation



## Share Information to other countries/organization

- With precision and completeness
- Timely – spatially for disaster forecasts
- Understandably – in meaningful format
- Compatibly – ensure to be importable

### Information

- Catchment boundaries, DEM
- WLs, discharges with gauge map
- Water Infrastructures information with map
- Landuse
- Rainfall, Temp, Humidity, Evaporation
- Intervention plan (long, mid and short term)
- Existing infrastructure
- Pollution sources and information
- Wash load
- and so on..

# 2.2 Avenues of cooperation



## Sharing Technologies

- Spatial Tools for spatial analysis
- Database and storage technology
- Super High Processing Server
- Sharing unused internet band width
- Online Satellite Image Processing
- Satellite and Sensor
- Etc..

# 2.3 Avenues of cooperation



## Sharing Knowledge

- Access to Digital Libraries
- Project Plans, Evaluation Reports
- processed images
- GIS Analysis for solutions
- Intervention impact analysis reports with GIS data
- Spatial Computational Models

## How?

- Open Knowledge Portals
- Combined Seminars
- Co-operative research study
- Professional exchange
- Etc.

# 2.4 Avenues of cooperation



**Informed/Cooperative Planning**

- The planning activities which intervene the physical system that might create hazards directly/indirectly in other countries should be informed, and best option should be taken to protect rights and comforts.
- The knowledge about intervention will help finding solution and improve the resilience

## Example

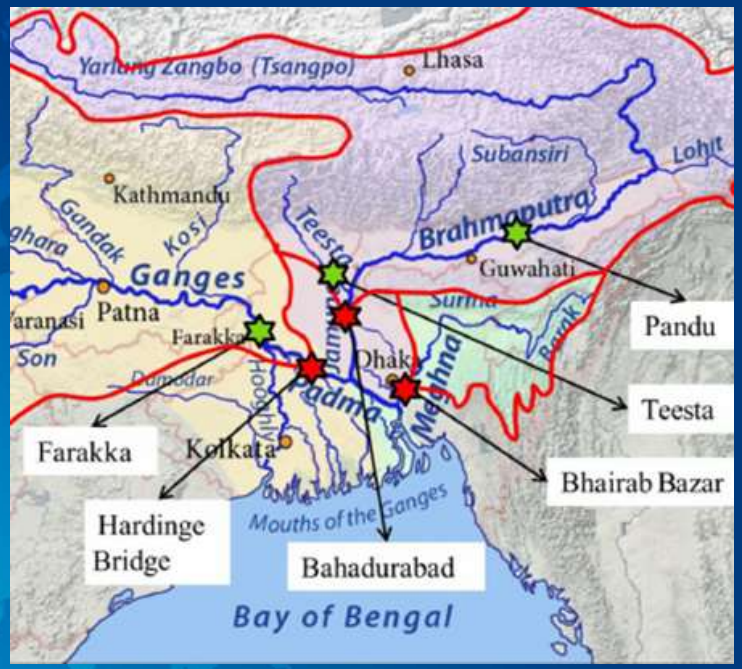
- Withdraw water from upstream
- Building Industry which has effluent
- Information with map to be shared with concerned countries

# Problem Analysis



1. **Source cause may be Transboundary**
   - **Requires information and co-operation**

2. **Local cause may create transboundary problem**
   - **Need inclusive planning**



# Requisites of cooperation



1. **Making Geo-Spatial information base for hazards, socio-economic status, geophysical infrastructure by each country.**
2. **Assessment of resilience to hazards from local level to country level to regional level**
3. **Establish regional data sharing protocol:**
   **(i) Sharing Technology and interoperability, (ii) Policy**
4. **Integrated and collaborative regional development approach**
5. **Informed/Collaborative national development planning**
6. **Establish Regional Data Center with proper access**
   - **National Spatial Data Portal with Metadata**
   - **Regional Non-Spatial and Geo-Spatial Data Portal**
   - **No-Question Non-Spatial and Geo-Spatial data access (category may be defined)**
7. **Political commitments and legislatives for transboundary information sharing for strengthening resilience**

To be agreed by member countries

# Bangladesh Initiatives



**Survey of Bangladesh**

## 1. NSDI – National Spatial Data Infrastructure

Honorable Prime minister urged to develop NSDI act. / Policy/ Rules which will accelerate the establishment of NSDI.

JICA is pleased to continue its support for the realization of Bangladeshi NSDI to achieve Digital Bangladesh by 2021

**WARPO**

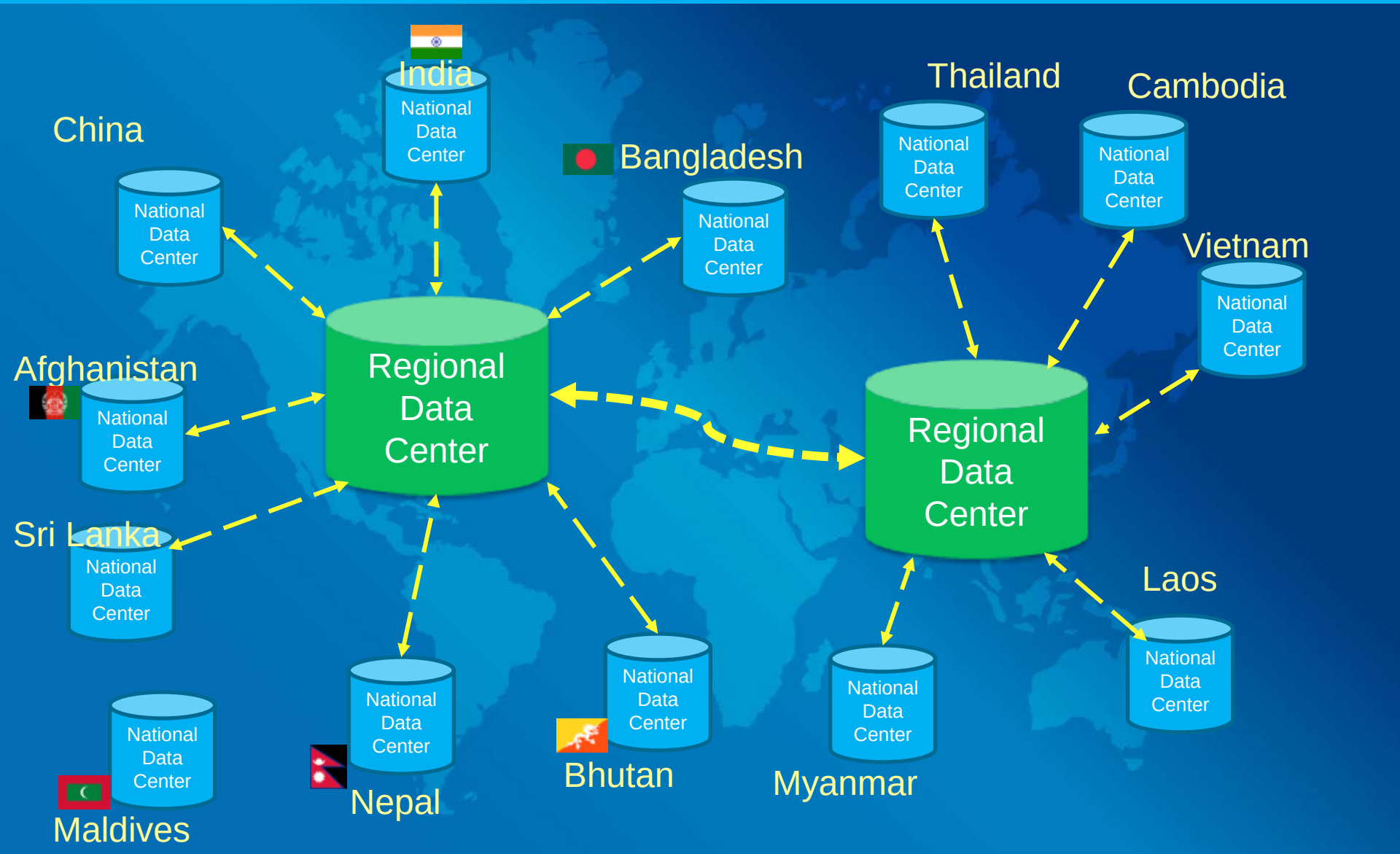
## 2. NWRD - National Water Resources Database (300+ GIS Data Layer)

**DOE**

## 3. CCD – Climate Change Database (250+ GIS data layer)

# Regional Data Networks

Avenues and Requisites for Successful Trans-boundary Cooperation to *Strengthen Regional Resilience*



# Thank You