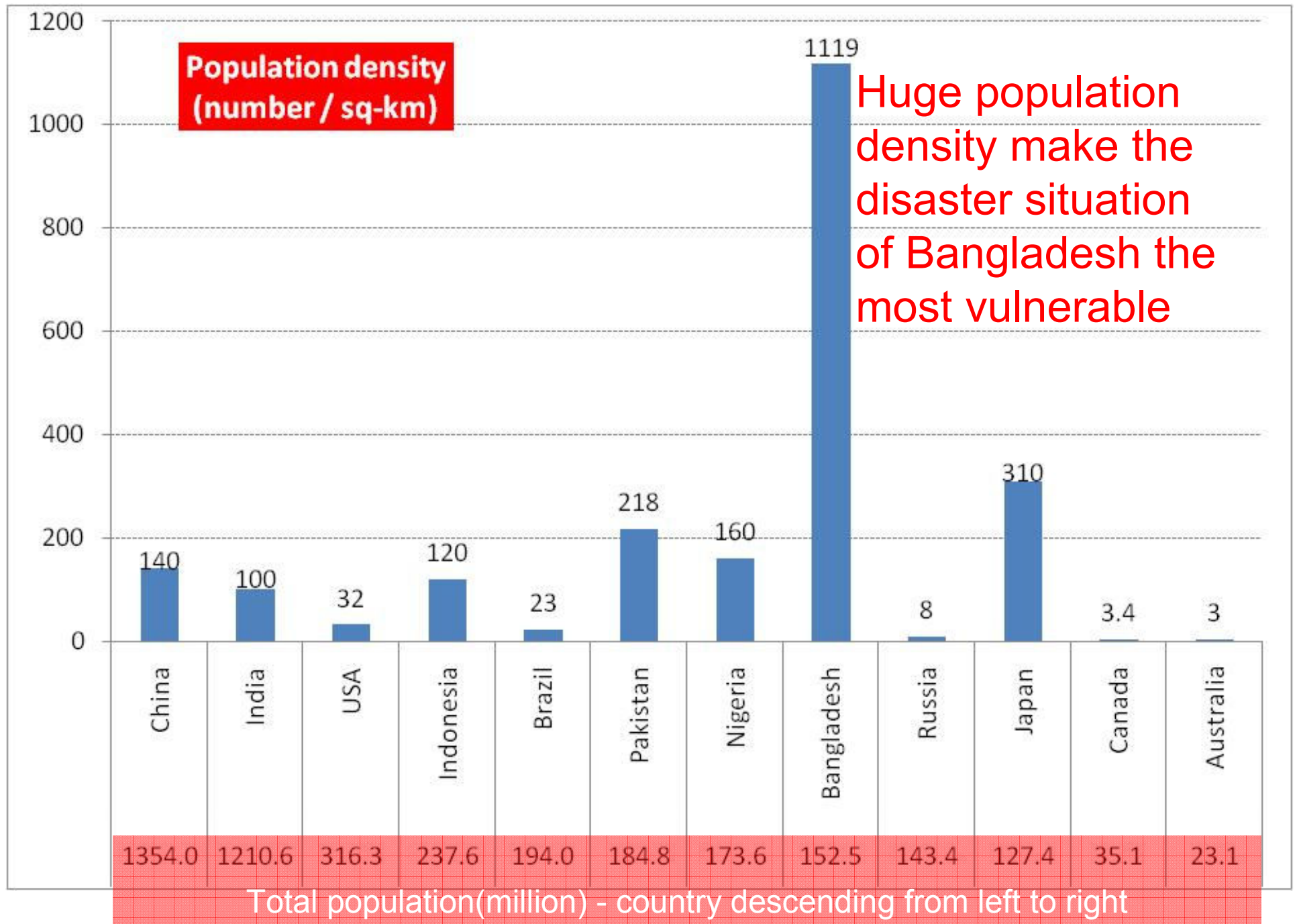


Disaster Risk Reduction and Resilience in Bangladesh



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Minister, Ministry of Water Resources
Bangladesh
January 2015**



Bangladesh in World Climate Risk Index

Disasters	Population Exposed	World Ranking
Flood	19,279,960	1 st out of 162
Cyclone	4,641,060	6 th out of 89
Drought	642,277	63 th out of 183
Earthquake	1,330,958	17 th out of 153
Tsunami	1,598,546	3 rd out of 76
Landslide	3,758	35 th out of 162

Source: Preventionweb, ISDR, 2012

Unique Geographical Location and Topography has made Bangladesh water induced hazards or Disasters prone Country

Major disasters are:

- Flood
- Drought
- Erosion (River bank and coastal)
- Salinity intrusion
- Sediment Deposition etc.
- Cyclone

The magnitude of the disasters will be aggravated with Climate Change scenario

Location and topography made the country vulnerable to the hazards of

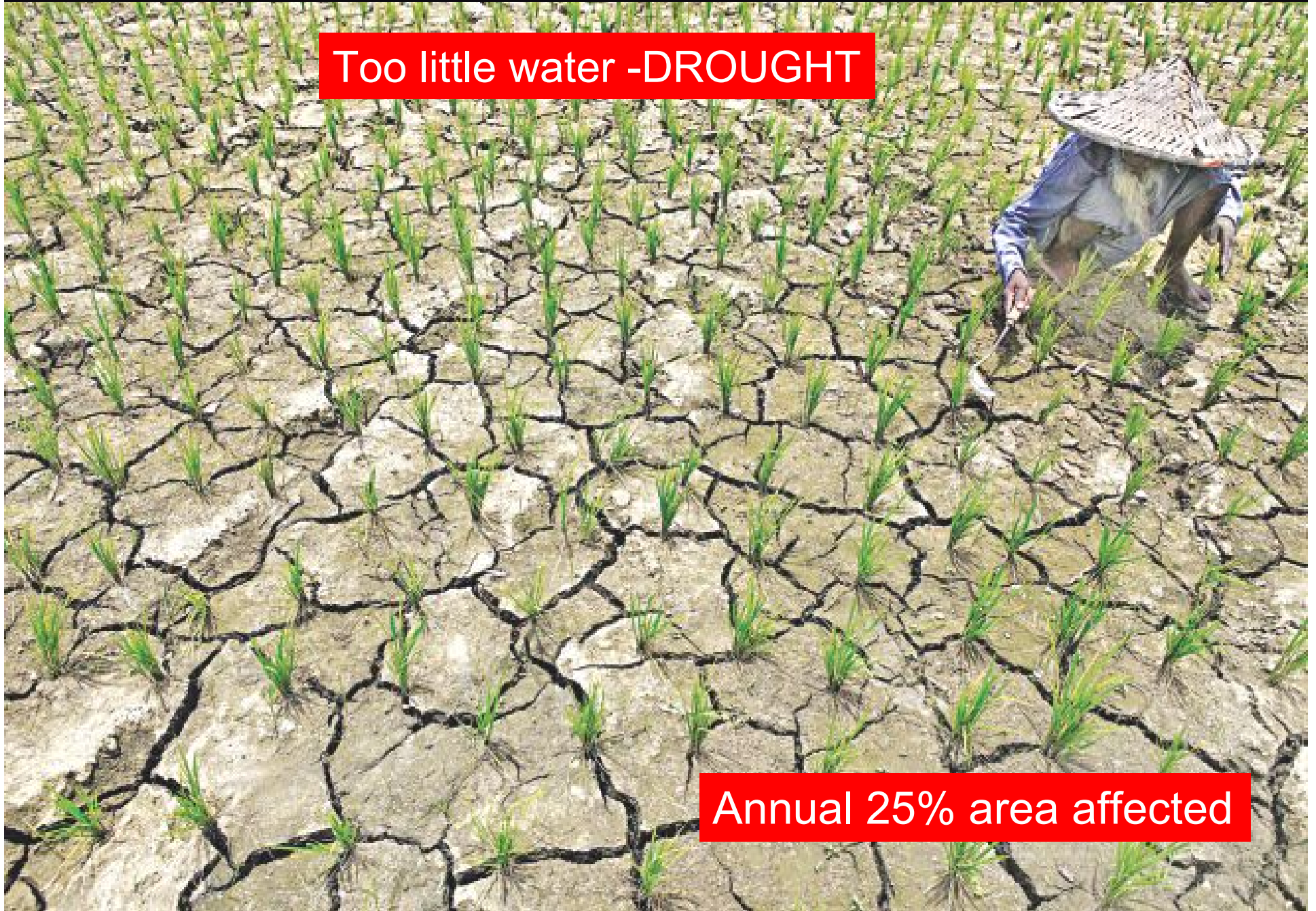
Too much water in Monsoon - FLOOD



Max 68% area
flooded in 1998

Location and topography made the country vulnerable to the hazards of

Too little water -DROUGHT



Annual 25% area affected

Location and topography made the country vulnerable to the hazards of



**Erosion – Source of
many Social Problems**
Annual 50,000 people home less and
6,000ha land loss

Location and topography made the country vulnerable to the hazards of

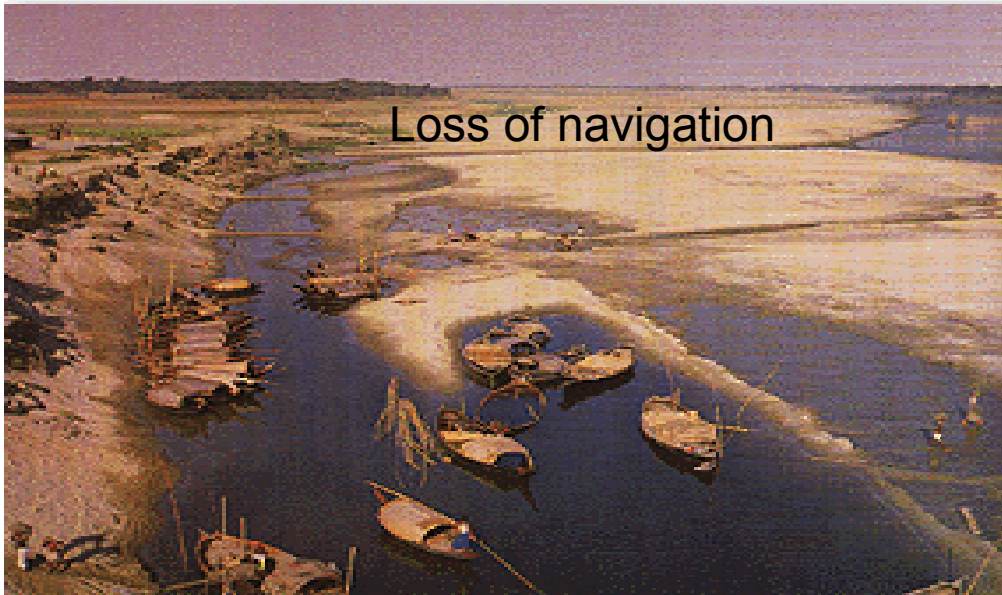
Drainage congestion



Sediment Deposition

Rivers carry about 1.2 billion
tons sediment per year

Loss of navigation



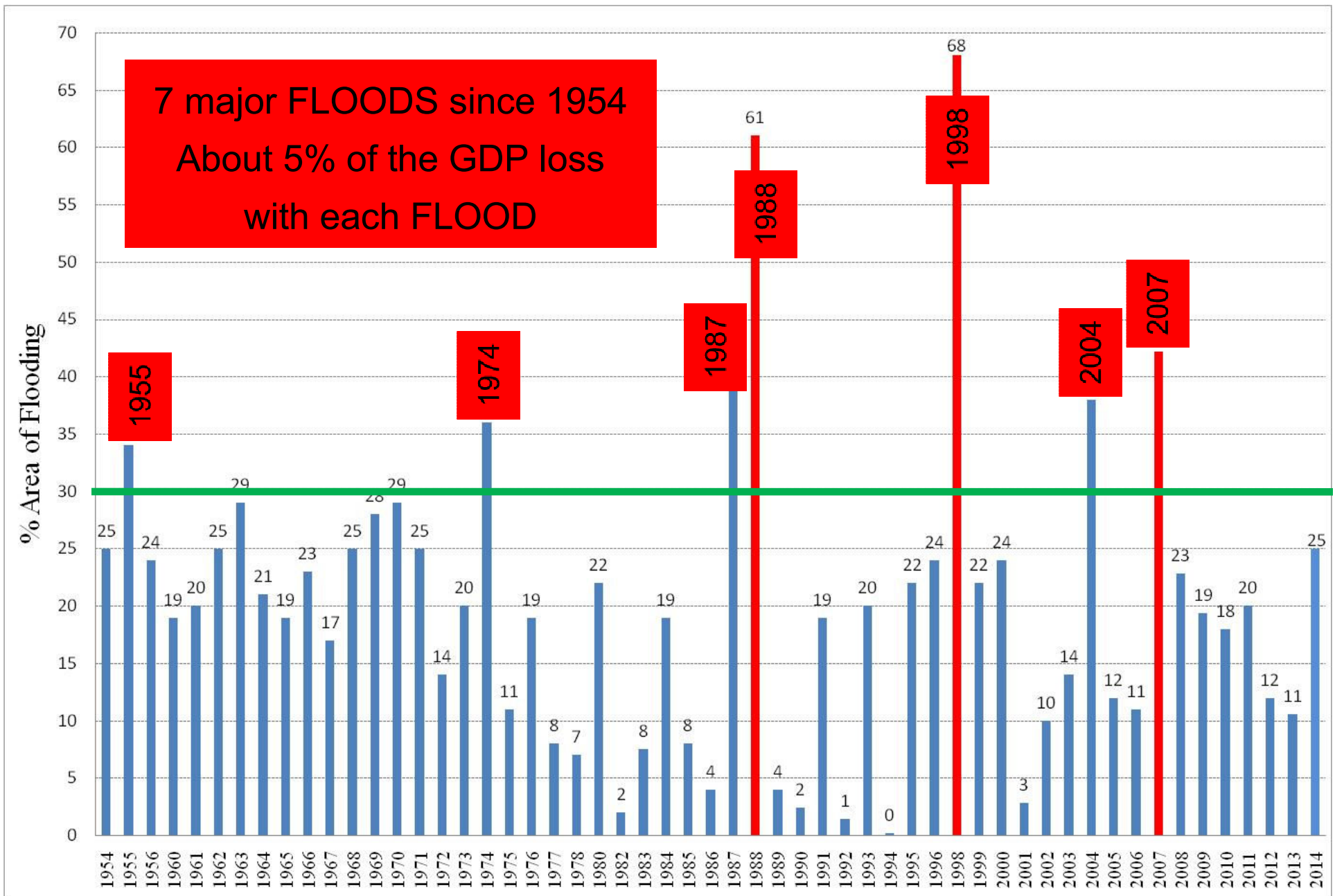
Dead river



Location and topography made the country vulnerable to the hazards of



Milestones with Floods from 1954 to 2014



OPTIONS for DRR

Bangladesh Perspective

1. RELOCATION ~~X~~

2. DISASTER PREVENTION ~~X~~

3. RISK REDUCTION



Disaster Management Water Sector

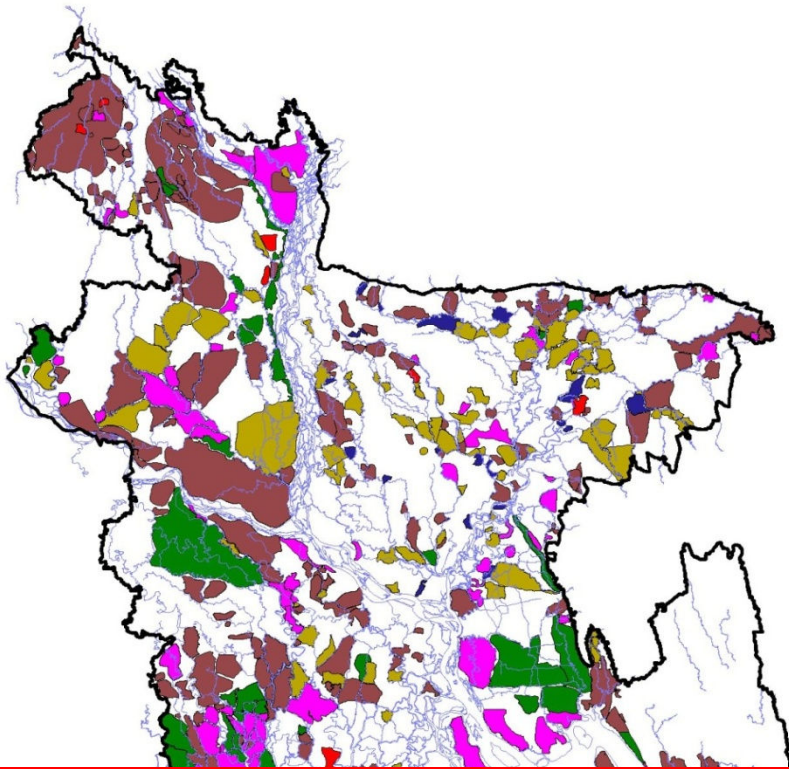
• Structural

- Flood Control, Drainage and Irrigation projects
- Coastal embankment
- Dredging/de-siltation to increase conveyance
- Erosion Protection
- Accelerated Land Reclamation
- Salinity protection
- Surface water retention (including rain water)

• Non-structural

- Flood and drought forecasting and warning
- Erosion Prediction (planned)
- Hydrological data collection and survey
- Capacity development

Completed Infastructures: up to June, 2014

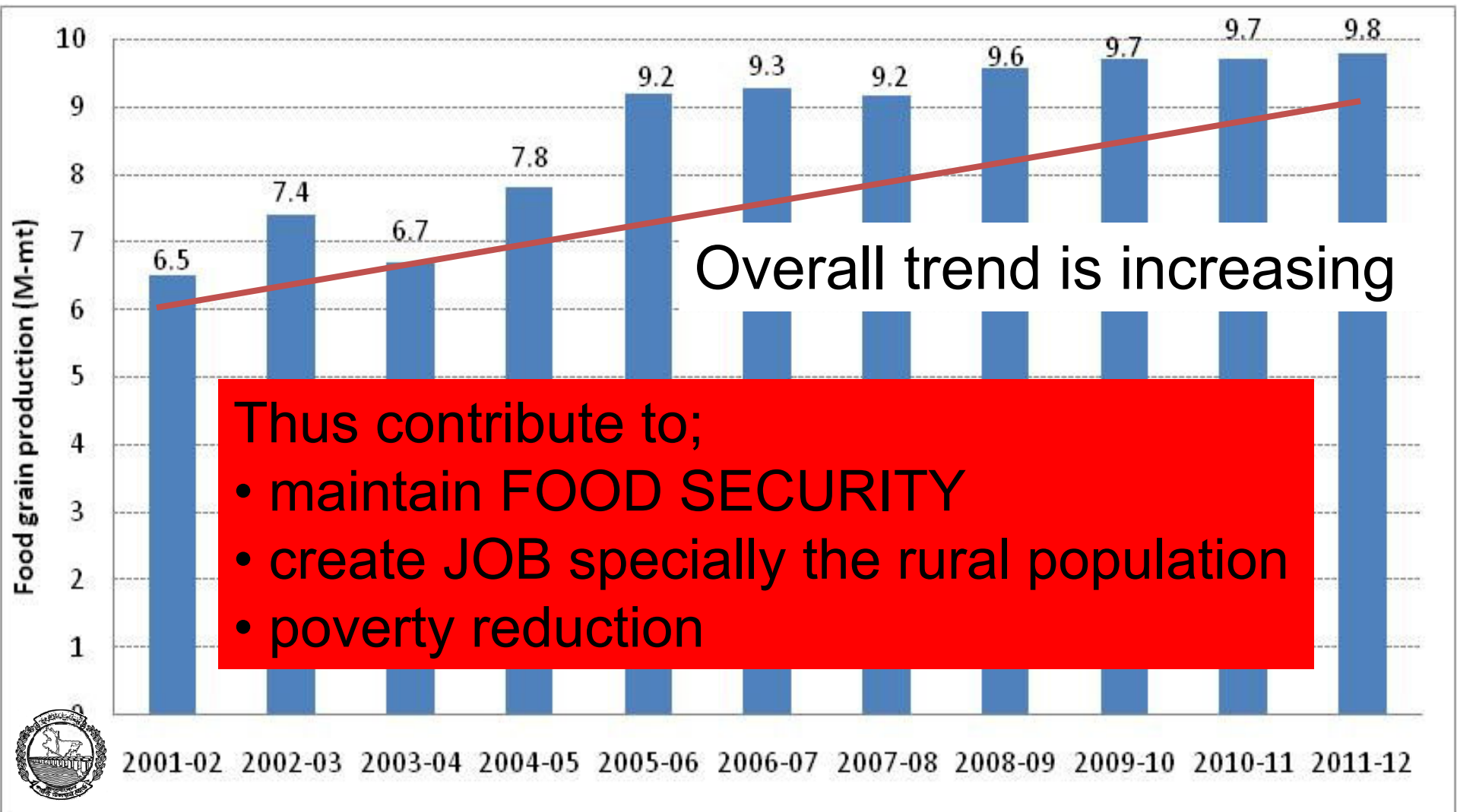


With all these interventions 85 million PEOPLE and 15 million HOUSEHOLDS are protected from average floods and salinity from sea

- Projects Completed: 769 Nos
- Total Embankment: 10,608 km
- Coastal Embankment: 4,671 Km
- Other Embankment: 5,937 Km
- Irrigation Canal : 5,302 Km
- Drainage Channel : 4,245 Km
- Hydraulic Structure: 14,508 Nos
- Flood Control, Irrigation and Drainage facility : 6.1 million-ha
- Barrage : 4 Nos
- Bridge and Culvert: 5,630 Nos
- Road (incl. semi-pacca): 1,041 Km
- Bank Revetment : 622 Km
- Spur/Groyene : 220 Nos



Food grain production from Flood Control, Drainage and Irrigation (FCDI) system of BWDB



Disaster Risk Reduction Initiatives

- Coastal embankment projects, involving over 6,000 km of embankments and polder schemes, designed to raise agricultural productivity in coastal areas by preventing tidal flooding and incursion of saline water;
- Over 2,000 cyclone shelters to provide refuges for communities from storm surges caused by tropical cyclones and 200 shelters from river floods;
- Flood management schemes to raise the agricultural productivity of many thousands of km of low-lying coastal areas and to protect them from extremely damaging floods and sea surge;

Disaster Risk Reduction Initiatives

- Agricultural research programmes to develop saline and flood-adapted high yielding varieties of rice and other crops, based on the traditional varieties evolved over centuries by Bangladeshi farmers;
- Coastal 'greenbelt' projects, involving mangrove planting along nearly 9,000 km of the shoreline;
- Coastal biodiversity project across the coastal belt to restore coastal biodiversity and the enhance community capacity to manage their own resources;

Disaster Risk Reduction Initiatives

- Char (island) development and settlement project to reduce the risk from the coastal hazards and improve coastal livelihoods;
- Community based adaptation to climate change project and coastal climate change adaptation project through coastal afforestation;
- Comprehensive disaster management projects, involving community-based programmes and early warning systems for floods and cyclones;
- Emergency cyclone recovery and restoration project, involving community empowerment programmes for cyclone victims in 12 coastal districts of Bangladesh.

Adaptive responses

(Alternative/selective – crop diversification)



Mango



Home gardening

Dual purpose (optimal use of water & plant)



Livestock and birds

(that consume less water)



Agricultural adaptations.



1. Agronomic management

2. Water harvesting and exploitation

3. Efficient Use of Water



Agricultural adaptations-Contd.



4. Crop intensification and diversification

5. Alternate enterprises

6. Post harvest practices



Complementary adaptation measures

- Physical adaptive measures
- Livelihood enhancement
- Income diversification
- Strengthening institutional structures
- Policy formulation
- Financial mechanisms for risk transfer
- Awareness creation & advocacy



Wrapping up

- 1\$ Investment/efforts in DRR can save 100\$
- No specific formula/prescription for DRR
- Look much more WIDE Angle; All Hazards, all Risks & all Sectors.
- Mainstreaming DRR should always be Adopted to Local Context.

Constraints of using Science and Technology

- Resource Gap (RG)
- Knowledge Gap(KG)
- Commitment and Awareness Gap(CAG)
- Regional Cooperation (RC)
- Lack of International Agreement.

Way Forward BANGALDESH – structural measures

Where possible, flood control structures (RG)

Barrages on the major Rivers (specially Gages and Brahmaputra (RG, CAG & RC)

Capital and pilot dredging of rivers & water ways (RC & KG)

River bank protection/Erosion Control (RG)

Coastal Embankment and Polders Strengthening (RG & KG)

Land Reclamation and Char Development along the coastal zone (RG & CAG)

Land reclamation from the major rivers for creating Special Economic Zone (RG)

Restoration of dying/polluted rivers including Burigonga (RG & CAG)

Way Forward – non structural measures

More area coverage under Flood Forecasting and Warning Services (RG & KG)

Medium & long range(seasonal)forecasts (RG & KG)

Salinity intrusion forecast in coastal belt (RG & KG)

Hydrological Drought prediction (KG)

Use of satellite based technology for improved

Flood Forecasting and Warning Services(RG, KG & CAG)

Regional cooperation for Transboundary river Basins Management (RC & CAG)

Basin Wise Flood Forecast (RC & KG)

Way Forward – non structural measures

Salinity Resistant Crops (KG & CAG)


Flood Resistant Crops (KG & CAG)

Low Water consumptive Crops (KG & CAG)

Diversified Income Generation (KG & CAG)

Both **Structural** and **Non-Structural** measures as mentioned above are essential to cater the Disaster Risk Reduction in Bangladesh

Bangladesh needs and appreciates the **Technical** and **Financial** support from international communities to face the future challenges and to save the **Vulnerable Population** of the country.

A sunset over a body of water with a palm tree silhouette in the foreground and a dock with pilings.

*Disaster risk reduction
is everyone's business.*

**THANKS FOR PATIENCE
HEARING**