Presentation from

2015 World Water Week in Stockholm

www.worldwaterweek.org

Resilience to Climate and Disaster Risk Bangladesh Context

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Figure 1: Location of Bangladesh in South Asia

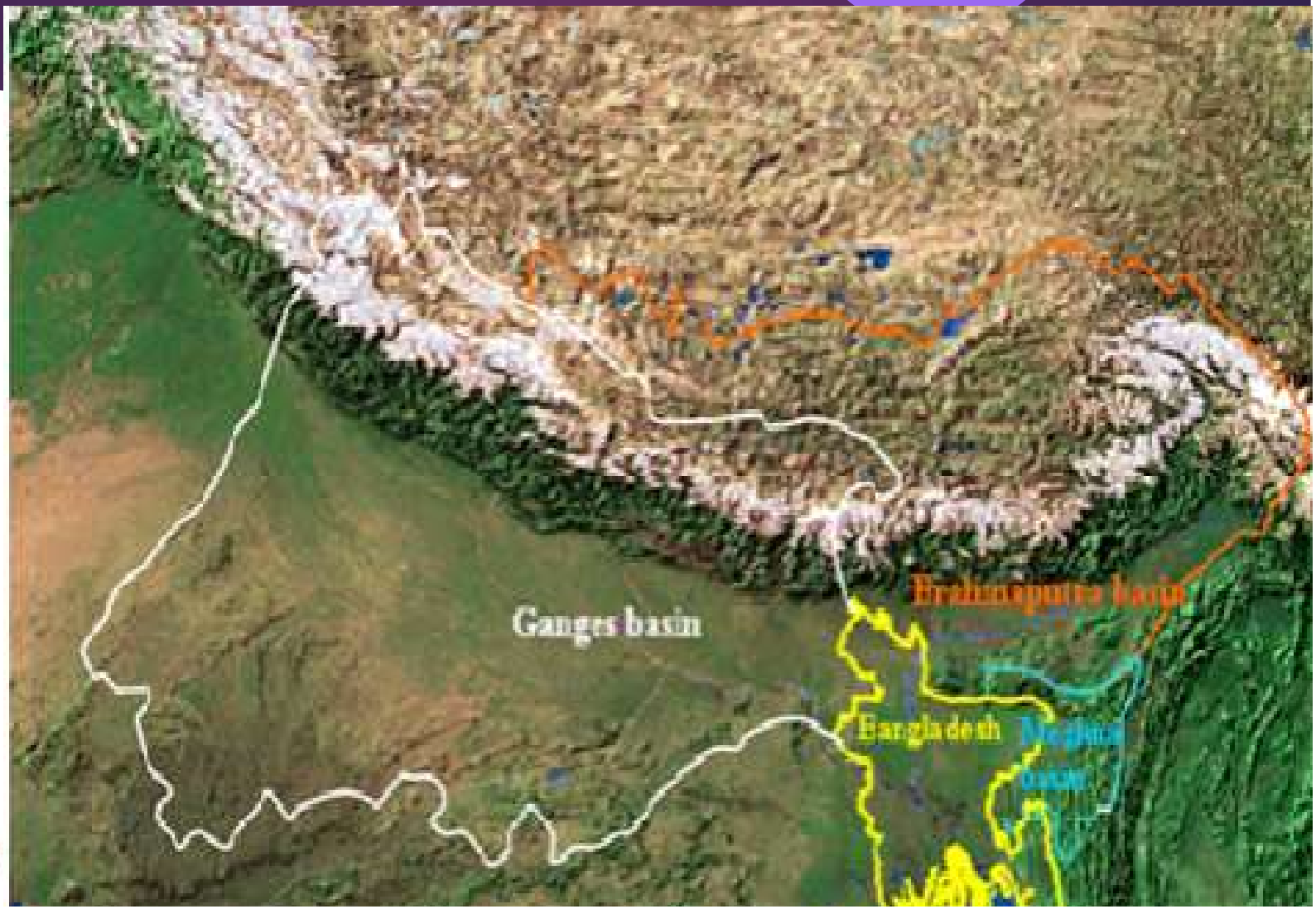


Figure 2: Bangladesh map showing different hazard risks

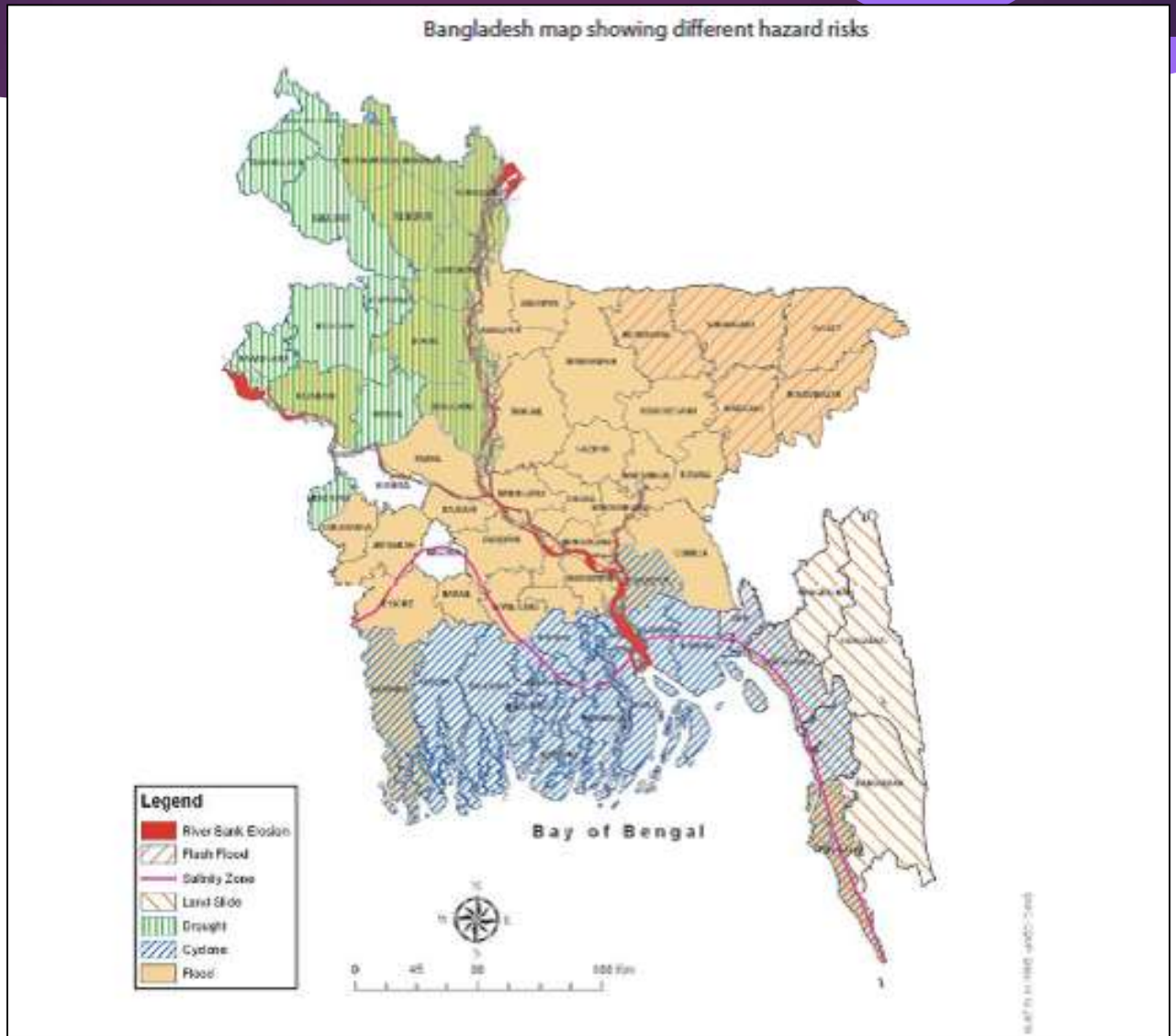


Table 1: Top 10 Natural Disasters in Bangladesh for the period 1900 to 2013 by economic damage costs

Disaster	Year	Damage (000 USD)
Flood	1998	4,300,000
Storm	2007	2,300,000
Flood	2004	2,200,000
Flood	1988	2,137,000
Storm	1991	1,780,000
Storm	1995	800,000
Flood	1987	727,500
Flood	1974	579,200
Flood	2000	500,000
Earthquake	2004	500,000
TOTAL (top 10)		= USD 15.82 billion

Challenges of Climate Change in Bangladesh

Every year natural disasters from climate-related hazards cause substantial loss of life, produce economic damage, and reverse gains from past economic and social development.

The vulnerability originated from its unique geographic location, hydro-geological characters like dominance of floodplains, low elevation from the sea.

Between 30-70% of the country is normally flooded each year. The huge sediment loads brought by three Himalayan rivers, coupled with a negligible flow gradient add to drainage congestion problems and exacerbate the extent of flooding.

Many climate change impacts in Bangladesh are likely to come from the south—that is, the Bay of Bengal and the adjoining North Indian Ocean.

The north western part of Bangladesh is experiencing successive drought and acute water shortage, pushing agriculture dependent communities further into poverty.

Challenges of Climate Change in Bangladesh

Bangladesh is experiencing the impacts of climate change through irregular rainfall pattern, floods, flash flood, cyclones and storm surges, coastal erosion, monsoon wind, evaporation for monsoon rainfall, saline intrusion, drought, sea level rise and water logging.

It is reinforced by the societal exposure enhanced by the socio-economical characters like high population density, poverty, and overwhelming dependence on nature, its resources and services.

Thus the Climate change has negative impact on all aspect of human development including livelihoods, food security, safe water and sanitation, health care, shelter etc. Again, the poor communities of developing countries will be pushed further into extreme vulnerable condition and suffer the most in the face of increased intensity and frequency of disasters.

Table 2: General impacts of climate change in Bangladesh

Effects of Climate change		Impacts	Projection
Direct	More frequent and severe droughts	• decreased water availability • lead directly to conflict over water resources	IPCC -by the year 2050 > 1 billion people in Asia adversely affect by.
		• ruin harvests, leading to malnutrition and migrations	IPCC -by the year 2020 75 - 250 million people exposed to water stress
	Acidification of the oceans	Hinder the formation of shells and skeletons of marine organisms, adversely affecting marine ecosystems.	
	Sea levels rise	• Large scale people migration • Increase frequency of floods, storm surges, salt water intrusion etc. • Contaminate fresh water wells and aquifers.	World Bank (Dasgupta et al. 2007) - 1 m sea-level rise would affect at least 56 million people.
	More frequent tropical storms and fires started by lightning strikes	• people movements from low-lying areas fleeing the devastation and the loss of farmland • clean water contamination due to saltwater by storm surges.	Large-scale people movements are highly likely to lead directly to conflicts as people try to cross borders and settle on land already claimed by others. Outbreaks of cholera, diarrhoea and other water-borne diseases.
	Loss of biodiversity	• organisms migration • lost of critical 'keystone' species	
		affecting human socio-economic systems • by agriculture and tourism, • loss of irreplaceable natural chemical compounds for pharmaceutical and bioscience research.	

Continued……

Table 2: General impacts of climate change in Bangladesh

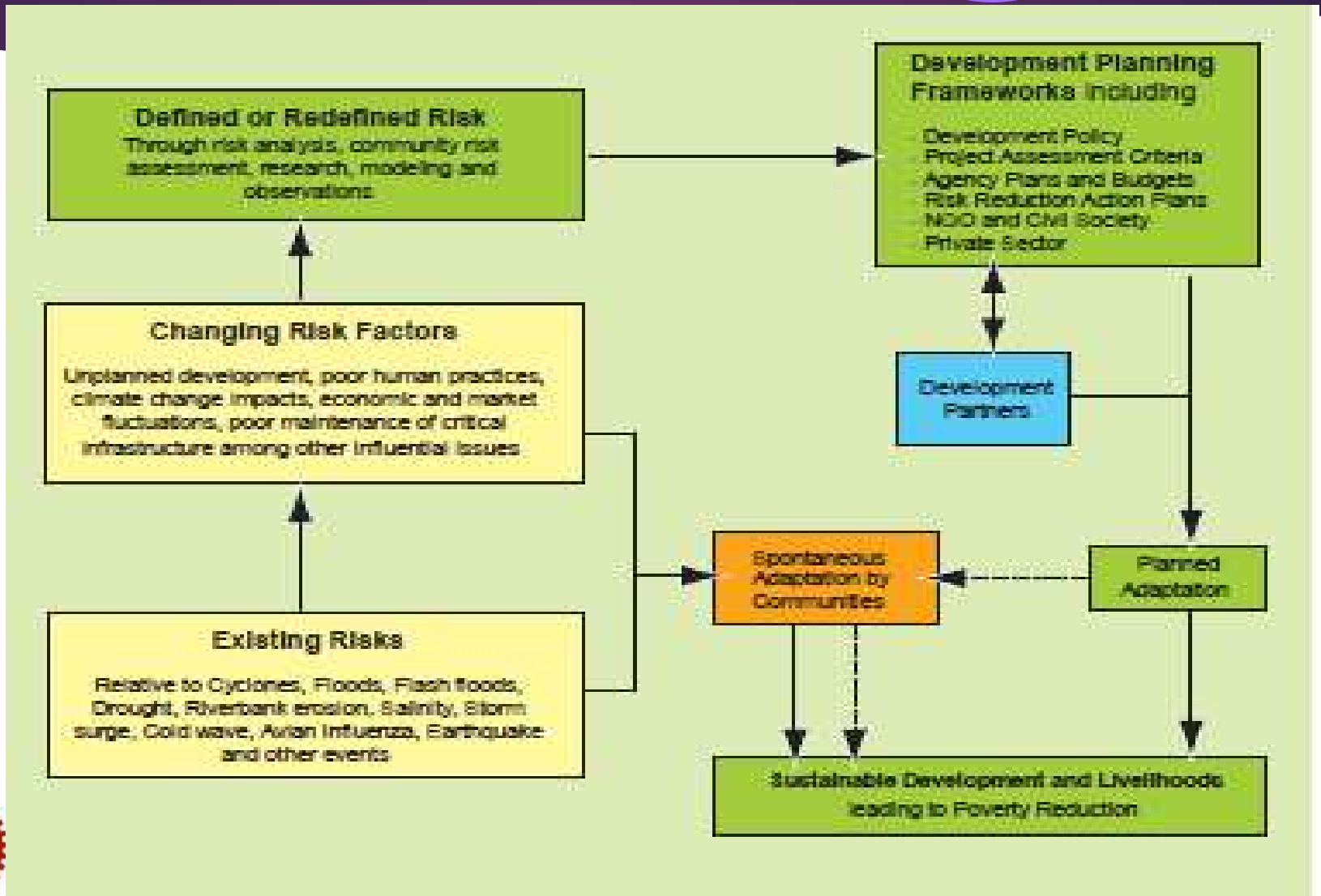
Effects of Climate change		Impacts	Projection
Indirect	'other' economic costs	Impact the insurance industry resulting in higher premiums • affect energy generation companies, finally this will pass costs onto consumers • make insurance unaffordable to those who previously able to afford	
	Higher energy costs lead	• adverse health outcomes since they increase transport, heating and electricity costs for the health sector.	
	Donor fatigue	increased natural disasters and conflicts, spread of tropical diseases etc will likely increase energy and other economic costs facing donor countries	pressure on donors' aid budgets

National Strategy for Disaster Risk Reduction and Climate Change Adaptation

Government of Bangladesh aims to create an enabling environment that empower communities and ensure appropriate resources to protect lives, livelihoods and its development and poverty reduction investments. This includes:

- Developing and implementing overall framework, effective approach and institutions to facilitate climate change adaptation across sectors for "Disaster and climate change proofing of development plans"
- Facilitating sustainable livelihood approaches and options at regions vulnerable to climate variability and extreme events
- Promoting activities, generating knowledge, and translating scientific information both for policy making and exploring appropriate technological options
- Documenting community level adaptation for national planning and international negotiations as well as enhancing public awareness on the convergence of DRR and CCA

Figure 3: Comprehensive Disaster Management Framework – Bangladesh



National Strategy for Disaster Risk Reduction and Climate Change Adaptation

Adhering to the Bali Action plan, Bangladesh is working for a pro-poor, climate resilient future through National Adaption Plan of Action (NAPA), an integral part of national development policies, plans and programs for achieving sustainable growth in:

(1) Food security, social protection and health;

(2) Comprehensive disaster management;

(3) Infrastructure development;

(4) Research and knowledge management;

(5) Mitigation and low-carbon development; and,

(6) Capacity building and institutional development.

National Strategy for Disaster Risk Reduction and Climate Change Adaptation

At the policy level the instruments that embody the integration that is:

- **The National Plan on Disaster Management (NPDM) and**
- **The Bangladesh Climate Change Strategy and Action Plan (BCCSAP).**

These two instruments jointly pursues and strengthens the Comprehensive Disaster Management systems, improving the capacity of government, civil society partners and communities to manage natural disasters, and ensuring appropriate policies and regulations for community-based adaptation programs in vulnerable areas of the country.

Climate Change Resilience

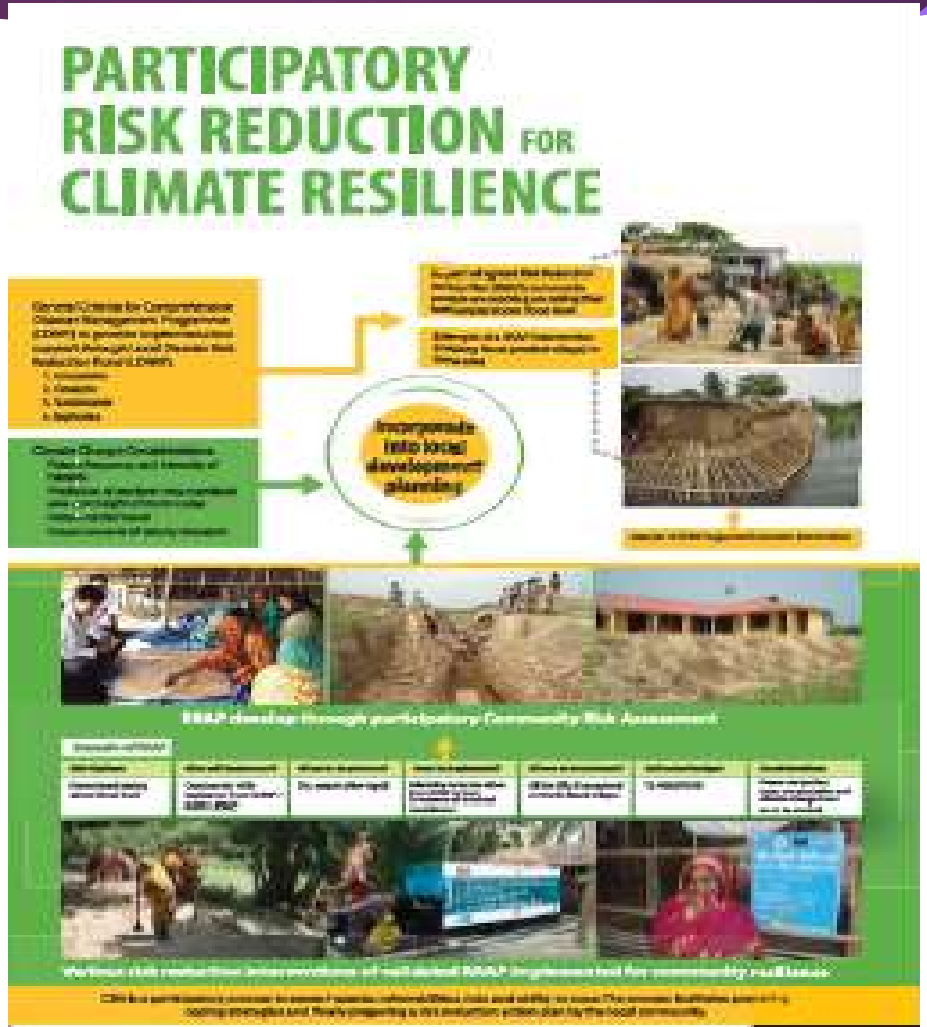
With the vision of a nation Bangladesh is capable of ensuring safe lives and livelihood of its people, the country is now able to shift from a culture of relief and response to more comprehensive Disaster Risk Reduction.

Bangladesh has embraced a holistic process to integrate disaster and climate risks into development planning and processes. Bangladesh is considering the following options to mainstream disaster risk reduction and climate change adaptation, and this is taking place at different levels:

- National Level
- Local level, and
- Sectoral level

Climate Change Resilience

Figure 4: participatory risk reductions for climate change



Climate Change Resilience

Comprehensive Disaster Management Programme (CDMP) was launched under the Disaster Management and Relief Division (DMRD) of the Ministry of Food and Disaster Management to institutionalize comprehensive disaster risk reduction approach during 2004 – 2009. Based on the success and lesson from phase I, CDMP (Phase II) is now striving toward improving linkages with, and synergies between, disaster risk reduction and adaptation to climate change.

Climate Change Resilience

(Case Study)

(a) Comprehensive approach to disaster resilience of a flood affected community

This includes:

- **Infrastructure Development**
- **Water Sanitation**
- **Livelihood**

of 31 villages inhabited by 10,522 families, this union covers nearly 10.75 square kilometer of area. According to the 2001 Census, total population is 51,503, of which 27,170 are male and 24,432 are female. Displaced by river erosion, additional 1500 women, men and children are living in Bagbati Union form surrounding areas.

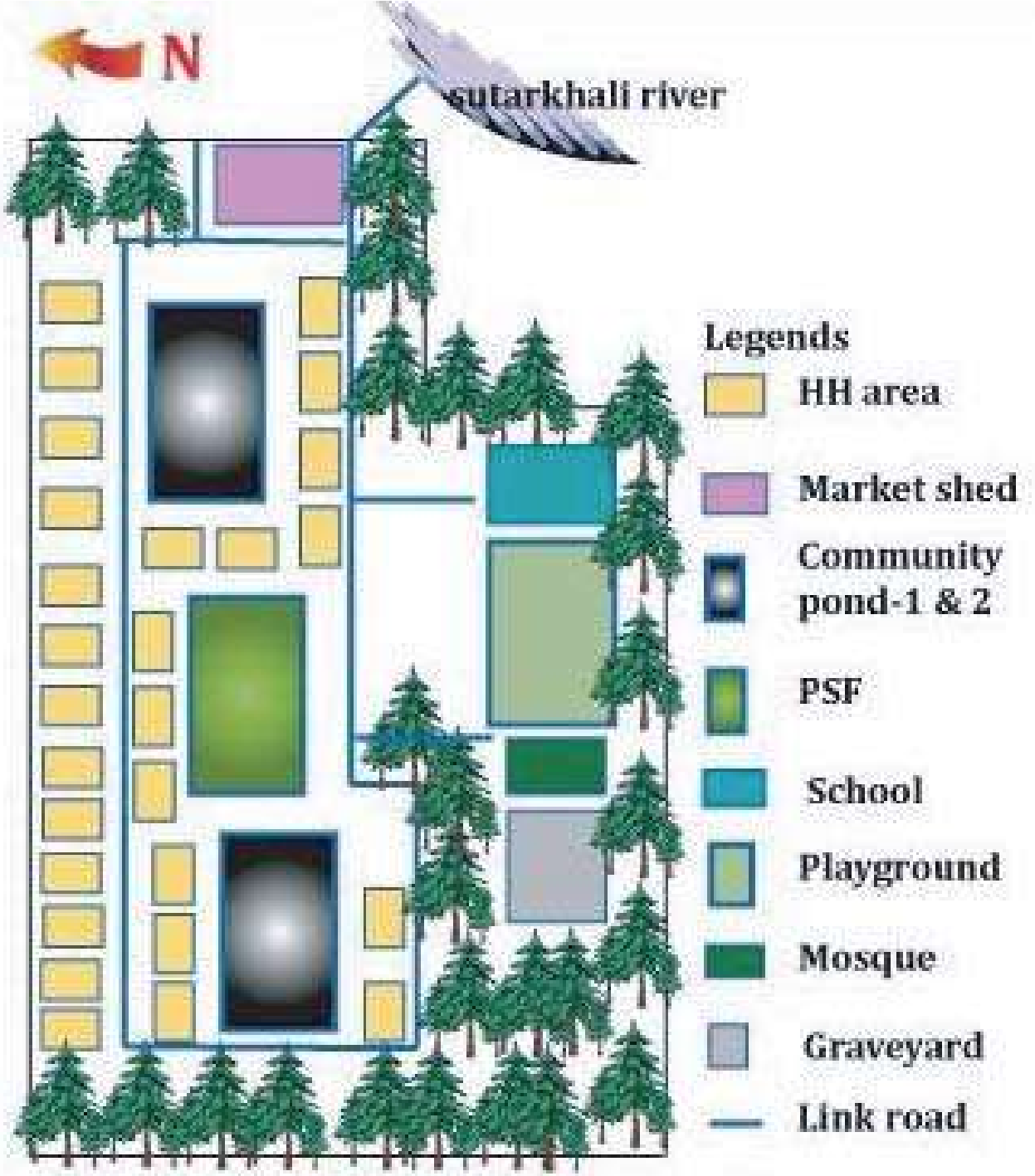
Climate Change Resilience

(Case Study)

(b) Climate Resilient habitat - Building Resilience of Coastal Communities

THE SALIENT FEATURES:

- **Structural Safety;**
- **Sustainable Livelihood;**
- **Adaptation Intervention;**
- **Natural Ecosystem Management;**
- **Social Protection;**
- **Early Warning; and,**
- **Community-managed.**


N
sutarkhali river
Legends
HH area
Market shed
Community pond-1 & 2
PSF
School
Playground
Mosque
Graveyard
Link road

Climate Change Resilience

(Case Study)

(c) Diverse Livelihoods Adaptation for Reducing Climate Change Risk

Livelihood Adaptation to Climate Change in Agriculture (LACC)

- Key example of the LACC Initiative:
- Rain Water harvesting through mini pond
- Improved Stove for Households
- Homestead gardening
- Drought tolerant fruits (Jujube)

(d) Ensuring Safe Drinking Water for Costal Community

Various Adaptive Technologies for Safe Drinking Water

- Rain Water Harvesting
- Pond Sand Filters
- Desalination Panel
- Desalination Plant

Climate Change Resilience

(Case Study)

(e) Early Warning System Reducing Losses and Damages

Community Based Early Warning for Vulnerability Reduction

Climate Change Resilience

(Case Study)

(f) Reducing Vulnerabilities of the Extreme Poor through Social Safety Nets

Major Safety Net Programmes in Bangladesh

- Vulnerable Group Feeding (VGF) Programme;
- Food-for-work - FFW (Kajer Binimoye Khadyo - KABIKHA);
- Test Relief Programme -(TR Programme); and,.
- Employment Generation Programme for the Poor (EGPP)

Climate Change Resilience

(Case Study)

Climate Change Resilience

(Case Study)

Thank You All