

Blue Economy : Bangladesh and the Bay of Bengal Regional Cooperation

Highlights

- ❑ Potential opportunities for blue economic development in Bangladesh
- ❑ Sectors of cooperation for regional benefits
- ❑ Strengthen blue economy issues in the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

Organized by



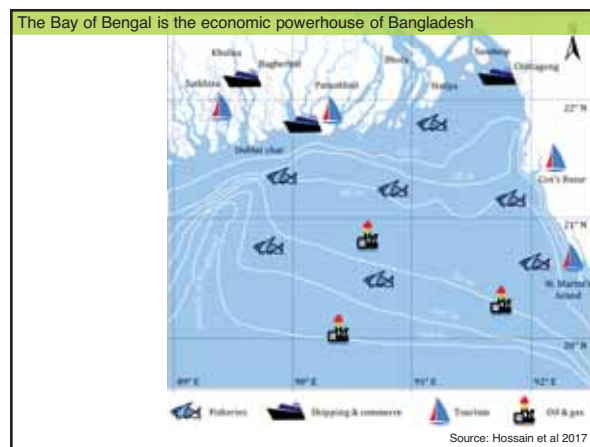

Dhaka, 04 June 2017

Oceans: Blue economy

- ❑ The oceans are directly and indirectly support all life on earth by generating oxygen, absorbing carbon dioxide, recycling nutrients, and regulating the global climate and temperature
- ❑ In addition, oceans are crucial for global food security and human health
- ❑ Thus, ocean resources are extremely important to the society and economy

Definition

Blue economy is the utilization of ocean resources for increasing food security, improving nutrition and health, alleviating poverty, creating jobs, generating alternative energy, lifting seaborne trade and industrial profiles while protecting ecosystem health and biodiversity.

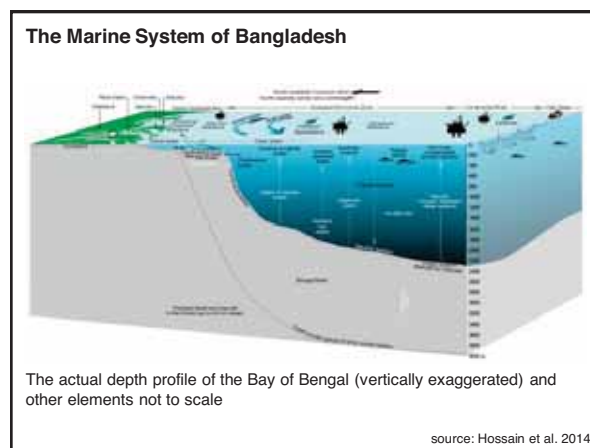


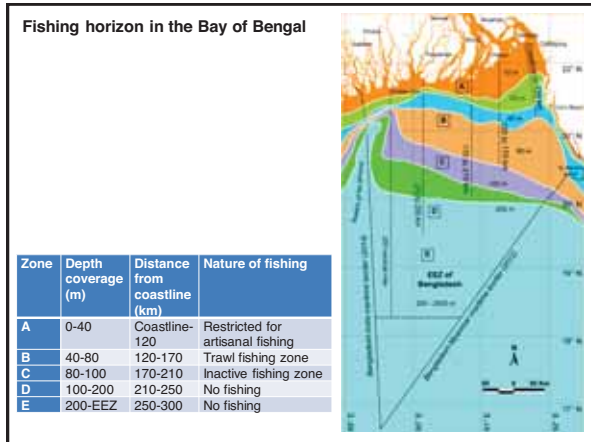
Making Marine Fisheries Sustainable





Professor M Shahadat Hossain
 Institute of Marine Sciences and Fisheries
 University of Chittagong, Bangladesh
 Email: hossainms@yahoo.com



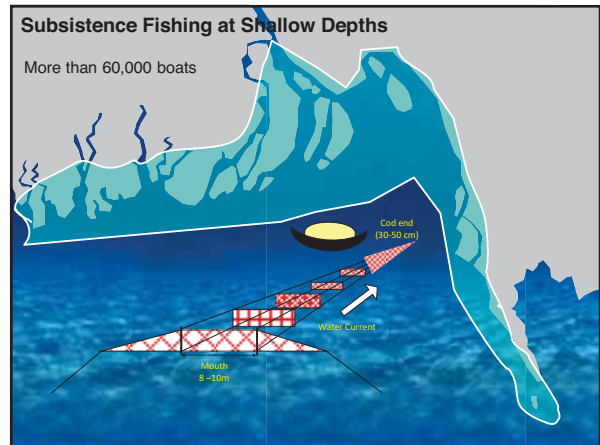


Marine Fisheries Resources

| Category | Number of species (reviewed by) | | |
|---------------------------------|---------------------------------|------------|--------------------|
| | Hossain 2001 | Islam 2003 | Ahamed et al. 2012 |
| Bony fish | 475 | 475 | 442 |
| Cartilaginous (soft-boned) fish | 50 | - | - |
| Shrimp | 25 | 24 | 56 |
| Crab | 15 | 50 | 16 |
| Lobster | 5 | - | 3 |
| Mollusc (Oyster) | 301 (6) | 301 (3) | 336 |
| Algae/Seaweed | 56 | 20-22 | 168 |
| Coral | 13 | - | 66 |
| Starfish/Echinoderms | 3 | - | 4 |
| Whale/Dolphin | 11 | - | - |
| Squids (Cuttlefish) | - | 7 (2) | - |

Standing stock (in tons) of fisheries resources in the Bay of Bengal

| Demersal fish | Pelagic fish | Shrimp | Reference |
|-----------------|-----------------|-------------|---------------|
| 264,000-373,000 | --- | 9,000 | West (1973) |
| 160,000 | 90,000-160,000 | --- | Saetre (1981) |
| 200,000-250,000 | 160,000-200,000 | 4,000-6,000 | Penn (1983) |
| On going | On going | On going | 2016-17 |





Potential opportunities: SWOT analysis of Marine Fisheries

| | Helpful | Harmful | |
|-----------------|--|---|--|
| Internal | <p>Strengths</p> <ul style="list-style-type: none"> Abundance in fisheries Species are mostly coastal and estuarine Experienced and skilled fishers Increased fishers and fishing efforts Established marketing channels | <p>Weakness</p> <ul style="list-style-type: none"> Few species in deeper zones & open sea Fishing operation extremely expensive Deficit in ocean observation, data assimilation & simulation facilities Insufficient R&D funding on marine fisheries studies Lack of conservation initiatives Inadequate inter-sectoral coordination | |
| External | <p>Opportunities</p> <ul style="list-style-type: none"> Defined maritime boundary Presence of keystone ecosystems e.g. mangrove, saltmarsh and coral reef Global priority on oceans Market demands from local to global Direct contribution towards SDGs | <p>Threats</p> <ul style="list-style-type: none"> Species are highly migratory Natural maritime hazards i.e. depression/signal Ocean acidification, hypoxia, SST, sedimentation, etc. Insufficient fishing water for tuna long liner, hook fishing | |

Marine Fisheries

Extending the fishing horizon on

- geographical front (deep waters and high seas)
- technological front (high-tonnage vessels, tuna long-lines and hooks)
- economic and nutritional front (high-valued deep sea fishes)

Online source

Marine Spatial Planning (MSP)

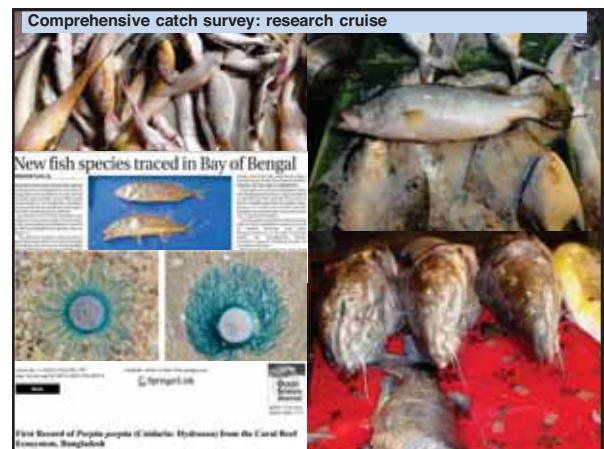
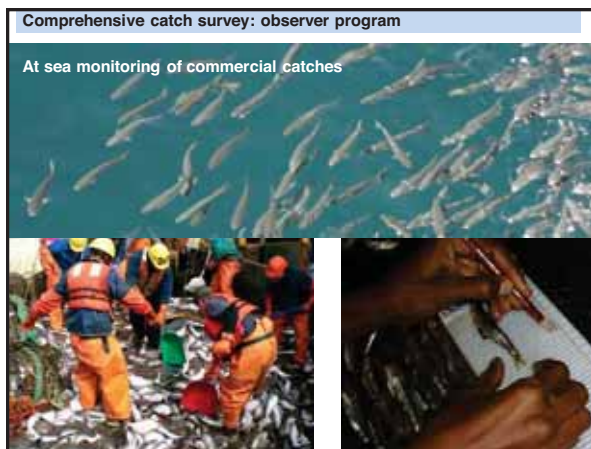
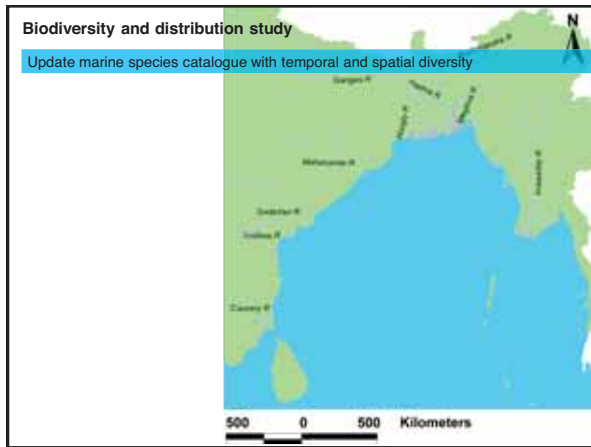
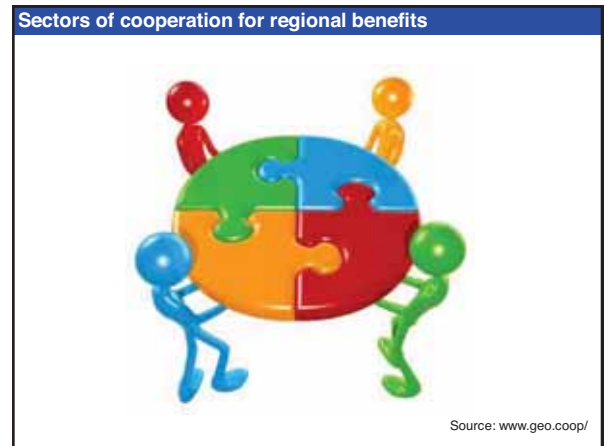
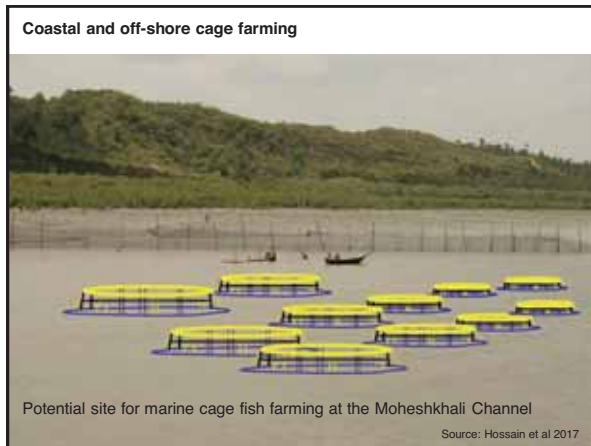
- MSP is a science-based tool
- address ocean management challenges i.e. spatial and temporal distribution of human activities in marine areas
- brings spaces, resources, agencies, uses and times together in one analytical framework to resolve and/or reduce conflicts
- achieve the goals of socio-economic development and conservation

Source: Background Paper for Preparation of the 7th Five Year Plan, 2014
<http://www.plancomm.gov.bd/7th-five-year-plan/>

Conservation and restoration: MPAs

- Care of stocks, ecosystem, habitat
- Marine reserve (MR) of 698 km² (absolutely no take, no go zone)
- Swath of No Ground Marine Protected Area (SoNG-MPA) of 1738 km² for the protection of threatened cetaceans (i.e. dolphins, whales), turtles, sharks and rays
- More MPAs (11,881 km² by 2020)

Non-conventional aquaculture: oyster, mussel, clam





Addressing overfishing

- ❑ Requires long-term monitoring of all trophic levels
- ❑ Requires adequate science data of valuable and important species on
 - Biology
 - Ecology
 - Life history
 - Stock

Ecosystem based fisheries management

- ❑ Fishes of a single species (e.g. hilsa or shrimp) is not an isolated resource, rather is an **integral part of the ecosystem** that it lives in, and it **interacts in many ways** with the ecosystem itself and all other living and non-living elements of the ecosystem in very delicate and intricate ways
- ❑ Maintain ecosystems in a healthy, productive and resilient condition so they can provide the services

Habitat identification: valuable and important species

- ❑ Fish tend to use different types of habitat for spawning, feeding, nursery, growth to maturity, migration or shelter
- ❑ Therefore, a network of connected aquatic habitats is essential for the viability of populations
- ❑ Integration of science and technology with fishers' technical knowledge illustrates the geo-spatial distribution of brood hilsa for habitat-specific management and conservation

Diversify livelihood for alternative income generation activities

| On-farm options | Off-farm options |
|---|--|
| Cage or pen aquaculture of commercial fish species (seabass, hilsa, mullet, crab) | Fish processing and preparing value added products (such as fish drying, salting, smoking, icing, packing) |
| Crab fattening and live marketing in domestic and export markets | Boat making/repairing, net mending |
| Integrated fish-poultry-livestock farming (well-designed for waste containment and recycling) | Tailoring and embroidery (indigenous, traditional dress) |
| Homestead gardening, organic vegetable production with compost (e.g. 'kecho sar') | Bamboo and cane handicrafts making (basket, stool, chair, etc) |
| Road/embankment side fruit (high yielding mango, lichi, guave, kul/plums) gardening | Handicrafts/showpieces making (doll, fish, hand fan, hat, etc.) |
| Mangrove/plant nurseries | Eco-tourism, catering service |



