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1.0. Introduction and background of BOBLME TDA:

Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri-Lanka and Thailand are working together through the Bay of Bengal Large Marine Ecosystem (BOBLME) project and lay the foundations for a coordinated programme of action designed to improve the lives of the coastal populations through improved regional management of the Bay of Bengal environment and its fisheries.

One of the two major outputs of the BOBLME project is to produce an agreed Transboundary Diagnostic Analysis (TDA) that identifies and prioritizes the major transboundary environmental concerns in the Bay of Bengal-this is a perquisite to other major output expected from the Project, the Strategic Action Programme (SAP) will address them and remediate them.

Thus, the expected outputs from the BOBLME Project include improvements in policy development; establishment of processes for planning and dialogue; better understanding of small-scale fisheries issues; multi-sectoral involvement in management of marine environment; healthier ecosystems; sustainable fisheries and improved well-being and greater resilience of coastal communities.

In accordance with the BOBLME work plan in 2010 and 2011 consultants updated the TDA. Therefore, it was important to plan national consultations to validate, endorse and adopt the TDA within a definite time-frame. The national workshop should take into account experiences from developing and implementing TDAs in other LMEs and consider the contents and key messages from the updated BOBLME TDA to prepare their respective national consultation.

Therefore, in 2010, National Coordinators (NCs) met in a regional ‘TDA Consultation Planning Workshop’ in Bangkok, Thailand and agreed to hold national Technical Consultation process to validate the update TDA specifying the process. Then a regional workshop will be held to validate the TDA on a regional basis, before revising the documents if necessary; and sending it for adoption by the Project Steering Committee on behalf of the government of the respective country.

Objectives:

Bay of Bengal (BoB) is one of the largest defined "large marine ecosystems” (LME) in the world. Working in this large and complex environment, the BOBLME project aims at preparation of a TDA as the main input for developing a Strategic Action Programme (SAP) for 8 countries of the region.

The other objectives of the project include, setting up of the required institutional mechanism and achieving an agreement among the project countries to implement the SAP.

Thus, the main objectives of the National TDA consultation process/workshop are to disseminate the contents of TDA widely to different types of stakeholders, to review /verify and make recommendations for additions /deletions and to assess whether this TDA from a transboundary perspective is an appropriate basis for the development of Strategic Action Programme.
2.0. Programme of TDA Workshop:

The Director General & National Coordinator, BOBLME- Bangladesh
Bangladesh Fisheries Research Institute

Cordially invites you
to the

National Stakeholders Consultation Workshop
on the Bay of Bengal Large Marine Ecosystem (BOBLME)
Transboundary Diagnostic Analysis (TDA)

on Tuesday, 31 May 2011
at CIRDAP Auditorium
Chameli House, 17 Topkhana Road, Dhaka

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**Programme**

**Inaugural Session**
9.00 - 10.00 Arrival of Invited Guests and Registration
10.00 Recitation from the Holy Quran
10.05 Welcome Address by Mr. Muhammad Shamsul Kibria, Joint Secretary, Ministry of Fisheries & Livestock and Member, Project Steering Committee, BOBLME Project
10.10 A brief on the Transboundary Diagnostic Analysis (TDA) of the Bay of Bengal Large Marine Ecosystem by Dr. Chris O'Brien, Regional Coordinator, BOBLME
10.20 Address by Guest of Honour, Mr. M. Mahabubur Rahman Khan, Director General, Department of Fisheries
10.30 Address by Special Guest, Mr. Aparup Chowdhury, Joint Secretary, Ministry of Environment & Forestry and Member, Project Steering Committee, BOBLME Project
10.40 Address by Chief Guest, Mr. Ujwal Bikash Dutta, Secretary, Ministry of Fisheries & Livestock
10.55 Closing Remarks by the Chairperson of the Session, Dr. Md. Gaham Hossain, Director General, BFRI & National Coordinator, BOBLME- Bangladesh
11.05 Tea break

**Technical Session**
11.30 The current status of the BOBLME Project and the significance of TDA for Strategic Action Plan on the Bay of Bengal Large Marine Ecosystem - BOBLME Regional Coordination Unit representative
11.40 Presentation on the Transboundary Diagnostic Analysis (TDA) of the Bay of Bengal Large Marine Ecosystem (Part 1): Issues, proximate analysis and root causes and Part 2: Background & environmental assessment) by Prof. Dr. Md. M. Mondal Hossain, BOBLME TDA National Facilitator
12.00 Group discussion: Formation of three groups based on three main issues on TDA documents with a Coordinator for each group. Group formation & discussion will start by the Group Coordinator, with the guidance of TDA National Facilitator
1.30 - 2.30 Lunch and Prayer break
2.30 Group discussion will continue led by Group Coordinator
4.00 Tea break
4.15 Presentation on the recommendations/comments based on the BOBLME TDA documents/Presentation
5.00 Concluding Remarks on the TDA National Consultation workshop/group discussion output by the Technical Session Chairman
3.0. Report on National TDA Workshop, Bangladesh:

A national Stakeholders Consultation Workshop on the Bay of Bengal Large Marine Ecosystem (BOBLME) Transboundary Diagnostic Analysis (TDA) was organized by the Director General, BFRI, Ministry of Fisheries & Livestock (MoFL), GoB & National Coordinator, BOBLME Project in Bangladesh as part of the Regional Program of the Bay of Bengal Large Marine Ecosystem (BOBLME) of eight countries. The workshop programme was supported by FAO/BOLME. The workshop was held on 31 May, 2011 at CIRDAP (Centre for Rural Development for Asia & Pacific) Auditorium, 17, Tophkhana Road, at the centre of Dhaka, Bangladesh. A total of 53 participants representing different relevant government and non-government organisations, representatives from different international and UN bodies, Universities, research organisations and Regional Coordinator, BOBLME project from Bangkok attended in this national TDA workshop.

Inaugural session of the TDA workshop:

Arrival of the invited guest, participants and registration was took place from 9.00-10.00 am. The Inaugural session of the workshop began with the recitation from holy Quran.

Then Mr. Muhammad Shamsul Kibria, Joint Secretary, Ministry of Fisheries & Livestock (MoFL) & Member, Steering Committee, BoBLME project welcomed the guest and participants,

Welcome address and introductory remarks by Mr. Muhammad Shamsul Kibria, Joint Secretary, MoFL & PSC member, BOBLME project:

Mr. Muhammad Shamsul Kibria, Joint Secretary, MoFL & PSC member, BOBLME project, said, it was great pleasure and privilege for him to welcome all the distinguished guest, participants, resource persons, expert from different organisations, on behalf of the organising committee for participating in the TDA Consultation workshop at CIRDAP Auditorium, Dhaka, Bangladesh in the morning of 31 May 2011.

He conveyed sincere thanks and gratitude to the Chief Guest, Mr. Ujjwal Bikash Dutta, Hon’ble Secretary, MOEL for agreeing to attend in the National TDA Workshop and to open the program through introductory speech highlighting the significance of TDA on sustainable management of BOBLME. He also conveyed sincere thanks to special guest, Dr. Chris O’Brien, Regional Coordinator, BOBLME, who came from Thailand for active participation and to facilitate the whole TDA process in Bangladesh; and he said that was encouraging for us. He also welcomed the guest of honour, Director General, Md. Mahabubur Rahman Khan, Department of Fisheries, GOB for having agreed to participate in the National Workshop and to the Chairperson, Dr. M. Gulam Hussain, DG, BFRI & National Coordinator, BOBLME-Bangladesh Project for their support and cooperation in preparation of this workshop. Finally, he conveyed sincere thanks to all the valuable participants, who came from different parts and organisations of Bangladesh to make the workshop a success.

Then he said on the importance of on going BOBLME program and on the adoption of TDA for sustainable management of the BOBLME. He said, as a PSC member, he had the opportunity to attend in the last regional TDA workshop in Bangkok and briefly shared his experiences on the application of major TDA issues through the implementation of SAP for the co-management of marine environment, its fisheries and the degraded habitat of the BoBLME through regional cooperation. In that context, he hoped that participants will contribute their scholastic opinions/views/recommendations on the TDA documents during the technical session of the workshop, which would be an important step for validation and adoption of TDA documents for sustainable management of BOBLME through the implementation of SAP, the next steps. Thus he hoped, their active participation and valuable
contribution in the TDA consultation workshop would help in establishing national strategy as well as regional management of the Bay of Bengal Large Marine Ecosystem within the framework of TDA outcomes.

**Introductory speech by Dr. Chris O’Brien, Regional Coordinator, BOBLME & special guest to the National BOBLME TDA Consultation Workshop in Dhaka, Bangladesh:**

Dr. Chris O’Brien, Regional Coordinator, BOBLME and special guest in his introductory speech in the inaugural session of the National BOBLME TDA Consultation Workshop first thanked the NC, BOBLME-Bangladesh and the organising committee of the TDA workshop for giving him an invitation to participate in this TDA workshop at Dhaka. Then, he gave a brief overview on the area covered by BOBLME and countries concerned and the main transboundary issues of concern on which the whole BOBLME coastal area and its people being affected. Then he showed the maps of LME areas of the world including BOB LME and the LME modules. He also showed slides on total fund allocated for the BOBLME program and spending of fund according to the activities; donors and their percentage of contributions. Lastly he mentioned about the expected outputs of the BOBLME project (detail of what he presented in technical session) with emphasis on the better knowledge and management of Hilsha (shad) fisheries- a major contributor in total marine catch of Bangladesh and on the degraded Sundarban mangrove forest. Finally he finished his speech by showing the organogram of BOBLME structure and steering committee of BoBLME in Bangladesh (PP of full presentation can be seen in annex - 3).

**Address by guest of honour Mr. M. Mahabubur Rahman, Director General, Department of Fisheries (DoF), MoEL, GOB:**

Guest of honour Mr. M. Mahabubur Rahman, DG, Department of Fisheries (DOF), GoB, in his speech conveyed thanks to the NC - BOBLME program, Bangladesh for inviting him in this important workshop on TDA of the 8 countries BOBLME. He mentioned that, this TDA documents was the culmination of many years work and will continue for the next five years. Thus this LME project through this Transboundary Diagnostic Analysis (TDA) tried to identify, and quantify (where possible) and rank, according to the severity of environmental and or socio/ economic impacts, water related environmental transboundary issues and their proximate and root causes. Thus the aim of this regional program is to improve the livelihood of the coastal population through the improved regional management of the Bay of Bengal environment and its fisheries.

Considering all this, he said, this TDA workshop being very important not only for sustainable management of the transboundary issues of the BOBLME but also equally important for our national strategic action plan for sustainable uses of the BOB. Again he thanked the organisers as well as all valued participants, whose active participation, he hoped would make the workshop a success.

**Address by Chief guest Mr. Ujjwal Bikash Dutta, Secretary, MoFL, GoB:**

Chief guest Mr. Ujjwal Bikash Dutta, Secretary, Ministry of Fisheries & Livestock (MoFL), GoB in his speech said, he was pleased to be here in this important consultation Workshop on TDA of the BOBLME, Bangladesh, which was part of on-going TDA consultation program in other BOBLME country. He said, the Bay of Bengal being very important for our survival, resources, livelihood, food supply and foreign currency earning.

He said that the growing demand for fish and fishery products has contributed to overexploitation and depletion of fish in different parts of the globe. The situation is more serious in the marine sector due to open access nature of fisheries and situation of Bangladesh being no exception. He further said this
situation being more aggravated by habitat destruction, industrial pollution and other untreated effluents and wastes dumped into the marine water, which ultimately affected the livelihood of fishers and the economy. He mentioned although there being legal mechanisms to tackle those issues but there being problems of implementation and lack of regional harmonization had rendered them ineffective.

He mentioned, BOBLME TDA documents was a culmination of many years works, including numerous studies and extensive regional and national consultations held with stakeholders and intensive effort of experts from all the BOBME countries, inputs of national and international expert/reviewers with an aim to identify the major issues and their the root causes, which are transboundary in nature, such as i. Over-Exploitation of marine living resources, ii. Degradation of critical habitats and iii. Pollution, for formulating a common platform for sustainable management of the BOBLME through the implementation of collaborative development of SAP (Strategic Action Plan) on regional basis. He said, at the same time, these TDA documents would be helpful for us to formulate national policy, regulation, guidelines and also to find laps and gaps, data shortage, constraints for “action program” broadly in the field of “Marine Sector”.

He mentioned that, unfortunately, this sector still being neglected or paid less attention compared to other sectors, though this sector being very important for our foreign currency earning, livelihood, nutrition inputs and many others.

He also mentioned the objectives of this project being to improve the livelihood of the coastal population through improved regional management of the Bay of Bengal environment and its fisheries.

Finally, he hoped this technical workshop would be a successful one, with the inputs/opinion of stakeholders/resource persons from relevant field/organisation. He thanked all the participants for their presence and contribution. Specially, he thanked Dr. Chris O’Brien, Regional Coordinator of BOBLME, for his active participation and to facilitate the TDA process in Bangladesh. He also had given sincere thanks to NC and Project Steering Committee of BOBLME, Bangladesh to invite him in this program. With this few word, he opened the TDA Workshop.

Address by Chairperson of the Session, Dr. M. Gulam Hussain, Director General, BFRI & National Coordinator, BOBLME, Bangladesh:

Chairperson of the Session, Dr. M. Gulam Hussain, Director General, BFRI and National Coordinator, BOBLME Bangladesh extended a warm welcome to all the participants and the guests for their presence and valuable speech in the inaugural session of national TDA consultation workshop in Bangladesh.

He said, it was great pleasure and privilege for him to say something on the BOBLME program and the significance of TDA of the Bay of Bengal Large Marine Ecosystem (BOBLME).

He mentioned that, the Bay of Bengal being not only one of the largest ecosystems in the world in size but also had the highest resource dependence ratio. Owing to the rapid population growth, increased industrialization in the BoB region, the LME, which is bordered by eight regional countries bearing an unprecedented pressure on its environmental services, exploitation of fishery resources and a sink for pollutants emerging from land and marine based anthropogenic activities.
As a result, he said, the ecological health of the LME is continually declining and now it is questionable, if it can sustain the rapid development of the countries using it.

Although he mentioned, the 8 countries boarding the BOB have multiple legislation to maintain the ecosystem health, fisheries resources etc., but lack of enforcement, weak coordination among various agencies responsible for implementation of the legislation and resource constraints, together maximized their efficacy.

He said, thus, one of the major outputs of the BOBLME project being to produce an agreed Regional Trans-boundary Diagnostic Analysis (TDA), that identified and prioritizes the major transboundary environmental and ecosystem related concerns in the BOB. Then he mentioned next steps would be SAP (Strategic Action Plan), what would address and remediate this concern and would also ensure the long term institutional and financial sustainability through the implementation of TDA concerns.

Finally, he hoped after the inaugural session, during the group discussion of the technical session, the valued participants would give their opinion, expertise remarks on the TDA documents, which will ultimately helpful to develop the SAP by the BOBLME countries based on the major issues of the TDA.

Technical session of the TDA workshop:

Technical session of the TDA workshop Chaired by Dr. M. Gulam Hussain, Director General, BFRI & National Coordinator, BOBLME-Bangladesh. There were two technical papers; one paper was presented by Dr. Chris O’Brien, Regional Coordinator of BOBLME and another one presented by Dr. Md. M. Maruf Hossain, National Facilitator, BOBLME TDA in Bangladesh. Session Chairman first introduced Dr. Chris O’Brien, to the participants and invited him for his presentation on “BOBLME Project Status & TDA” in the technical session.

Dr. O’Brien in his presentation highlighted the project status of the BOBLME through pp presentation.

He showed in brief the major achievements, activities and outputs of BOBLME programme in 2010.

- During that period major reviews and updates were done on: i. analysis to identify priority issues (TDA), ii. ICM best practices, iii. resource management practices, iv. study on small pelagic fisheries and iv. MPAs.
- Facilitation of Myeik/ Mergui Archipelago joint management structure.
- Key identification of major ecosystem indicators for its application and work plans for oceanography & pollution.
- Training on effective communications to support coastal management and project cycle management.
- Partnership development with over 30 organisations and bodies.

He also presented in brief, the activities of BOBLME in 2011, some of what already been completed and some of them still going on:

i. Stock assessment, ii. Data collection and management, iii. ICM and MPAs best practices and iv. Implementation of EAF;
ii. Study on critical habitats – Sundarbans;
iii. Key ecosystem indicators implemented;
iv. Pollution – NPAs;
v. Oceanography;
Then he mentioned on the national consultation process in 2011 on the outcomes of the BOBLME TDA and on expected outputs from the BOBLME programme and the preparedness of all the BOBLME countries to implement SAP to address the major impacting factor of the BOB. He also described the brief history of the whole TDA process from 2003 to till now and the effort to reach at this stages of TDA. Finally he described the importance of national stakeholders consultations on the major identified TDA issues of transboundary nature for its validation and implementation of SAP, where some important current national issues may arise, what would also be important for national causes (detail PP presentation can be seen in annex 3).

Then chairman the session invited Dr. Md. M. Maruf Hossain, National Facilitator, BOBLME TDA in Bangladesh to present the TDA documents (vol.1 & 2) in the workshop. At the start, Dr. Hossain said about the objectives of this National technical consultation workshop was to disseminate the TDA (draft) documents to all types of stakeholders for comments, suggestion, deletions, additions before finally adopted for Strategic Action Plan (SAP) in action by Regional body of BOBLME, based on the major identified area of TDA concerns for the BOBLME. So, he requested the participants that after his presentation, participants would put their remarks, opinions, suggestion during the group discussion on the TDA area of concerns, what will be presented later by the group coordinator and also will be considered as recommendation from the workshop.

Before the presentation of main TDA documents (vol.1 & 2), Dr. Hossain mentioned briefly what actually the TDA was and it’s meaning, then said on a widely accepted LME modules and the major indicator parameters to characterizes the status of an LME to achieve sustainable development. Then he showed 64 designed LME of the World, with the position of BOB LME (LME No. 34). Dr. Hossain also showed the linkages among major TDA issues and SAP with the 5 LME modules of sustainable development.

Then he showed the slides on the main documents of the TDA (issues, proximate analysis & the root causes) (vol.1). He mentioned, briefly, history on the developments of BOBLME TDA documents, which was a culmination of many years works, including numerous studies and extensive regional and national consultations held with stakeholders and intensive effort of experts from all the BOBME countries, inputs of national and international expert /reviewers with an aim to identify the major issues and their the root causes, both transboundary and national. Then he showed slides on main issues of TDA transboundary concerns (i. over-exploitation of marine living resources; ii. Degradation of critical habitats (mangroves & coral reefs); iii. marine pollution); its causal chain analysis; i.e. proximate causes, root causes along with data/table/figures, specifically for comments on Bangladesh issues by the participants. Then he showed slides on information gaps/data gaps in major area of concerns, such as i. Marine living resources (Fishery resources); ii. Critical habitats and iii Marine Pollution, what would be useful for future management of the BOBLME.

Then presentation on the TDA documents of vol.2 (background & environmental assessment), the main figures and tables on the transboundary issues of the 8 BOBLME countries were presented for comments/remarks by the participants. They were mainly on; bio-physical characteristics (sea surface temperature and productivity); contribution of fisheries and tourism to GDP; assessment of marine living resources; catch statistics of major species group; number and fleet characteristics; stagnation in catches; transboundary species/species group in BOBLME; stock assessment & on depletion of fish stock; status of degraded habitats (mangroves, corals & sea grass); marine pollution and the loads on some transboundary pollutants. Then slides on legal, administrative, political context & constraints and the status of major environmental & fishery treaties; its adoption in BOBLME countries were presented.

The final message by the presenter was to relevant authority/policy makers to give more emphasis on ‘marine sector’ of Bangladesh, which still being relatively neglected sector in comparison to other sectors. But he mentioned, this sector being important sector in terms of foreign currency earning, protein supply, livelihood and employment opportunity and many others. So, he reiterated that, we should not ignore this sector for long time for our own survival and existence. So, that being the time to response positively. He said, TDA documents for the BOBLME countries would be an important guideline for taking necessary steps and action program nationally for our vulnerable marine
environment and its resources. At the same time collaborative SAP program will ensure sustainable management of the whole BoB large marine ecosystem (detail PP presentation can be seen in annex 4).

**Outputs at ‘Technical Session’ of “National Stakeholders Consultation Workshop on the Bay of Bengal Large Marine Ecosystem (BOBLME) Transboundary Diagnostic Analysis (TDA)” held on 31 May 2011 at Dhaka, Bangladesh:**

During the group discussion of the technical session of National Consultation Workshop on TDA of BOBLME, the whole participants/stakeholders were divided as per their choices/ expertise/ field of interest, broadly into two groups (A and B) on the identified main areas of TDA concern for BOBLME.

**Group –A: “Marine Environment and Habitat Degradation” (i.e. TDA’s main area’s of concern no. 2 & 3):**

The Coordinator of that group was Mr. Md. Obaidul Quader, Former CSO, SPARRSO, Dhaka and member, NOAMI and the Rapporteur was Dr. Md. Aminur Rahman, Deputy Director (DD), Riverine Station, BFRI, Chandpur.

Among the three main areas of concern as identified by the TDA (draft) doc’s of the BOBLME, area no. 2: Degradation of mangroves, coral reefs and sea grass; and area no. 3: Marine Pollution were discussed by the Group- A.

After having discussion by the participants/stakeholders of that group on the above area of concerns, following recommendations/remarks/suggestion were made in the form of PP (Power Point) presentation by the group coordinator. Inputs/comments by the NF, TDA program, Bangladesh also included herewith:

1. Bangladesh has dispute with India and Myanmar regarding maritime boundary delineation issue. Bangladesh has lodged cases against both the country in 2009 to bring the issue into justice in the following code:
   - Bangladesh vs. Myanmar in International tribunal for Law of the Sea (ICLOS),
   - Bangladesh vs. India in adhoc arbitrating court,
   - Bangladesh urges that the boundary problem with India & Myanmar should be solved through equity basis i.e. equitable principle of delimitation-a widely accepted principle of LOS Convention for such dispute.

2. **Regarding the Continental Shelf Claim:**
   - Bangladesh put her continental shelf claim to commission on the limits of the Continental Shelf of UN on 25 February, 2011. It is expected that our claim will be accepted soon.
   - For this reason, the participant suggested that the area’s shown in the BOBLME TDA (draft) report (vol.2, fig.no.2.1, p.6 and in vol.1, p.9) (also the NF in his PP presentation on TDA doc’s) for Bangladesh Territorial water cannot be accepted as a concrete basis or legal boundary until the disputes settled.

3. So, it is hoped that contradictory delineations of EEZ boundary as shown in figure for Bangladesh would not be shown in the final TDA report of BOBLME. The estimated area of i. EEZ and accordingly ii. Percentage of the EEZ area of Bangladesh in BOBLME shown in the table 2.1 (p.6, vol.2 of TDA Doc.) should be corrected (should be 164,000 km² until the matter settled) or the contradictory table should be omitted.
4. Regarding Extreme Events:
   - It was also suggested by the group, that BoB country is a disaster prone area (natural and anthropogenic). So, natural disaster like cyclones, tsunami, storm surges, earth quakes should be monitored; and damage assessment study would be necessary with other BoBLME countries.
   - Need regional (BoBLME & SAARC Countries) action program for possible mitigation measures (NF Comments).

5. The group suggested buoy should be set up (in some selected sites throughout the BOBLME) for operational monitoring of Oceanographic data.

   i. This will helpful for national capacity building and data input source for set up of National Oceanographic Data Centre (NODC) for NIO (National Oceanographic Centre), Bangladesh (National issue, NF comments).
   ii. Need cooperation, training, capacity building, exchange of data on oceanography, threatened habitats, transboundary marine pollution and pollutants; among the BOBLME countries, specifically experiences of India and Malaysia on this sector could be helpful for less developed BoBLME countries to develop their NIO and marine institutions (NF comments).

6. Climate change issue and Sea level rise: Participants from this group suggested that:
   i. Climate change issue & sea level rise, ii. Pollution: Internal and External sources of pollution, such as dumping of wastes, oil spills, ship breaking should be monitored.
   ii. Persistent (e.g. POPs, PTS’s, PAHs, TBTs etc.) and organic pollutants (untreated sewage matters, DOM, SPM etc.) should be monitored (GBM is one of the major source of such pollutants). So, regional monitoring program on: a. Climate Change and Sea level Rise issue for BOBLME countries (specifically the vulnerability of the low lying large coastal area of Bangladesh and Maldives); and b. Monitoring of transboundary pollutants will enable us to identify the “hot spots” surrounding the coastal area of the Bay of Bengal Large Marine Ecosystem (BOBLME) for implementation of SAP both for regional and national management of the BOBLME (NF comments).

7. Degradation of Critical Habitats:
   i. Status of Mangroves, its biodiversity and other relevant issues of Bangladesh may be reviewed (National issue, need to study nationally and through regional cooperation to know the present status; NF comments).
   ii. The status of endangered biodiversity of the ecologically sensitive area (ESA’s) and the only coral belonging island of Bangladesh (St. Martin’s Island) should be studied thoroughly (along with the area covered by corals) for national/regional significance in cooperation with other coral reefs country of the BOBLME(NF comments).
   iii. The sea grass area in the coastal area of Bangladesh should be identified in detail and need to be protected because of its significance in fishery production, nursery ground, nutrient suppliers and also for considering it as a transboundary degraded habitats in BOBLME (NF comments).
   iv. Shoreline changes (accretion and erosion) of our coast should be updated (National issue, however, sediment load by the GMB already in the TDA documents; NF Comments).
   v. Participants also suggested environment friendly and social responsive shrimp farming would be necessary for our coast (National issue, NF Comments).
vi. Last comments by the participants were that, intensive coastal afforestation and conservation being needed (National issue, NF Comments).

Part of e-consultation process with resource persons/stakeholders on the outputs of the TDA Consultation Workshop, it was asked to provide view/comments specifically on ‘Sunderbon Mangrove Forest’ (No.7), considering its transboundary significance to Prof. Dr. Niaz Ahamed Khan, Country Representative, IUCN, Bangladesh and renown expert in mangroves forestry. Below is the comments/suggestion from him and his colleagues in IUCN, Bangladesh.

It is encouraging to see that the BOBLME-TDA draft widely covers the burning issues on the Sundarbans. Some specific comments following the discussion are provided below for incorporation:

1. Despite the protected/reserve status of the Sundarbans, fisheries and associated fishing practices require appropriate measures to foster traditional practices with sustainable management of fisheries resources. It is highly recommended that deploying effective strategies have become urgent to prescribe changes in customary fishing practices and use of certain economic instruments (e.g. revenue collection system based on quota/volume, land use charges etc.) to limit or control for fisheries resources conservation. Problems surfaced from IUU-type fishing in and around the Sundarbans are unlikely to be effective solutions in absence of livelihood interventions and social safety nets. Promotion of co-management across the borders and for local fishing communities would be vital to share benefits and concerns.

2. Dwindling status of the Sundarbans species was addressed in TDA draft and so, principal recommendation would follow transboundary cooperation to understand the current status of coastal and marine species in the Sundarbans. In particular, fish or other aquatic species movement/tracking, migration, breeding, abundance/distribution should be studied. This again, should ideally differentiate between – i) scale of commercial use, ii) species in need for conservation and protection, and iii) degrading habitats where commercial and other types of harvests or agriculture could be limited or have regulated access.

3. According to IUCN and other local agencies, one of the major threats in Bangladesh Sundarbans is the use of destructive fishing practices or poison fishing including in the sanctuaries where fishing is not generally allowed. This has catalyzed unprecedented losses in breeding and survival of mangrove and coastal species including amphibians, reptiles, cetaceans apart from other fish. Micro-habitats are severely disturbed by the recent increase in destructive fishing which signals to lack of monitoring, control, surveillance and enforcement problems. On the Indian side, Sundarbans face similar problems. This should be considered as a vital concern for BOBLME transboundary intervention in the Sundarban.

4. Species highly associated or dependent on fish and aquatic resources of the forest could be identified for joint conservation management at the ecosystem level instead of providing piecemeal solutions to conserve a particular species in any vulnerable area or biodiversity hotspots across the Indo-Bangladesh borders.

5. Intensive coastal afforestation should be based on ecosystem-approach and mangrove species diversity with emphasis on tidal mudflat restorations, conservation of breeding grounds etc.
6. **Status of mangroves and climate change:**
   a. Monitoring species status and comparison with management status of the same.
   b. Promotion of research and knowledge-based actions to monitor impacts of climate change based on indicator species such as the Gangetic Dolphin- fish resources-habitats-climate change impacts. Partnerships with other international and national organizations would be imperative to develop such mechanisms.

7. Literature and interventions are still lacking in detailed fishing practices linking to the health of the Sundarbans forests. Joint cooperation between the countries is needed to share information to prescribe changes/solutions and understanding the ‘value of the Sundarban resources’ [also refer to point 1].

8. Other commercial activities such as tourism, an important revenue-collection vehicle, should be addressed for critical habitats in the Sundarbans with clear guiding principles and rules of practice.

9. In addition to recommendation of the shoreline changes, siltation, accretion and salinity problems, IUCN recommends transboundary cooperation on updating current information on dynamic water regimes with the impacts on fish and aquatic species of Sundarbans. BOBLME could expedite the process of information sharing.

10. Institutional analysis for joint cooperation for protection of the Sundarbans resources should be addressed holistically and thereby, identify gaps and mechanisms in existing institutions which caused impediments in building joint efforts in the region.

11. Identify cost-effective and sustainable harvest mechanisms without compromising the need for protection of species and/or habitats in the Sundarbans.

12. Establish ecological criteria-based assessment for economic activities in the Sundarban for better monitoring and conservation of the natural forest.

**Outputs of ‘Technical Session’ of the Group –B discussion on ”Marine Fishery Resource Issues” at “National Stakeholders Consultation Workshop on the BOBLME TDA” held on 31 May, 2011 at CIRDAP Auditorium, Dhaka, Bangladesh:**

**Group –B: “Marine Fishery Resource Issues” (i.e. Area of Concerns no. 1 as identified by BOBLME TDA is: “Overexploitation of marine living resources”);**

The group were formed with similar process for discussion by relevant stakeholders/participants/experts on "Marine Fishery Resource Issues". The Coordinator of that group was Dr. Saleh Uddin Ahmed, Former CSO, BFRI, Mymensingh and the Rapporteur was Dr. M. Jalilur Rahman, SSO, Cox’s Bazar Marine Research Centre, BFRI.

The participants of that group’s comments/suggestion on that major area of concern (area no.1) were as follows. In addition comments by the NF also included here with:

**Area no. 1: Overexploitation of Marine Living Resources:**

**Issue no. 1: Decline in overall availability of fish resources;** The group suggested that, in issue no. 1, instead of ‘Decline of overall availability of fish resources’, should be ‘The total catch of the fish resources is increasing, but the CPUE is declining’.

**Issue no. 2: Changes in species composition of catches;** Comments on that issue by group was that, percentage composition of the total fish catch is changing remarkably in terms of species contribution.
(i.e. Last few years catch data statistics suggested that, shifting remarkably from high valued fish species to low valued fish species) (Ref. BOBLME /BFRI pub. on Fishery, 2010; DOE Fisheries Statistical Year book, Dhaka, Bangladesh (April, 2010) (NF comments).

**Issue no. 3: High proportion of juvenile fish in the catch;** Group agreed with this statement.

**Issue no. 4: Changes in marine biodiversity, especially through loss of vulnerable and endangered species;** In this issue, group suggested to replace the word ‘especially through’ with ‘and’.

Regarding ‘The transboundary nature of the major issues’ in the area of concern i.e. ‘Overexploitation of marine living resources’- the working group had the following comments/suggestions:

- **1st issue:** ‘Many fish stocks’ should be replaced by ‘Many fish and other species’ ----------- ‘fish or larvae’ should be replaced by ‘fish and other species’.
  (Comments by NF: From coral reefs, larvae of different type of species, e.g. larvae of diff. species of molluscs disperse and it may cross the boundary of one country to another (transboundary) through water mass/currents).
- **2nd issue:** Regarding ‘Fishing overlaps national jurisdictions, both --------- to other locations’ &
- **3rd issue:** ‘All countries ----------- especially the ecosystem approach’ - group’s opinion was OK.
- **4th issue:** Regarding ‘BOBLME countries contribute significantly to the global problem of loss of vulnerable and endangered species.’-the group suggested that, to what extent the issue significant (i.e. contribution) should be mentioned.

Regarding ‘The root causes of the issues’ in the area of ‘Overexploitation of marine living resources’- as mentioned in the TDA documents were OK as said by the group.

Regarding suggestions from other group (‘Marine Environment & Habitat degradation’) - fishery group suggested that, information from satellite data should be considered nationally and then regionally.

**Question by the participants & answers by the RC, NC & NF:**

After the group presentation there were some questions by the participants to the RC, BOBLME on; set up of buoy in the BoB, inclusion of cetaceans & turtle in the program, Co-management of migratory pelagic fishes (Shad, Indian mackerel, Shark ... ) by the neighbouring BOBLME country, waste dumping, dispute on boundary line (EEZ), sharing on international rivers waters, the implementation of rules & regulation on the crossing of EEZ of one country by other country by illegal fishing, protection & co-management of Sundarban & its biodiversity, cooperation on sea level rise & natural disasters etc. The reply by the Regional coordinator, BOBLME was that most of those issues already mentioned in the TDA documents, however the major issue of concerns on transboundary nature were given priority for Strategic Action Plan (SAP) by the BOBLME, what explain earlier. Some of the reply was also given by the session chairman & NF.

Finally, the concluding remarks were made by the Session Chairman & NC-BOBLME Bangladesh. He again re-iterated his sincere thanks to the valued participants for their efforts and inputs in this technical session of TDA consultation. He also thanked RC, BOBLME & NF, TDA BOBLME, Bangladesh
for their presentation & effort. He thanked NTA & PD, SBOBLME for their sincere help & cooperation to make the workshop success. Lastly he conveyed thanks to all other supporting staffs and persons, who in one or other way helped for smooth completion of this workshop. Finally he wished safe return home to all participants.

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Chairperson with guest in inaugural session of the workshop.

Partial view of participants at national TDA workshop.
TDA National Facilitator giving some guidance during group discussion (Gr.A) at technical session.

Discussion by participants (Gr-B) during technical session.
4.0. Inputs on TDA (draft) documents by the NF, BOBLME TDA, Bangladesh:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of Issue (Bangladesh)</th>
<th>Title in the table/fig.</th>
<th>Table No/Fig. no.</th>
<th>Page No.</th>
<th>Existing Data</th>
<th>Update Data</th>
<th>(Ref.)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>1</td>
<td>Estimated area of the EEZ km² &amp; percentage area</td>
<td>EEZ areas of the countries in the BOBLME (BD.)</td>
<td>2.1</td>
<td>6 (vol.2) 9 (vol.1)</td>
<td>78,540 km² &amp; 1.3%</td>
<td>164,000 km² Percentage: 2.62% (Hussain &amp; Hoq (eds.), (2010))</td>
<td>Existing figure 2.1 &amp; table 2.1 should be replaced or omitted.</td>
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</tr>
<tr>
<td>2</td>
<td>Population (millions) density / km² (2010)</td>
<td>BOBLME national population statistics in 2010 (BD.)</td>
<td>2.2</td>
<td>10</td>
<td>164 million &amp; 1142/ km²</td>
<td>146.1 million &amp; 990 / km² (Bangladesh Economic Review, 2010)</td>
<td>Previous data should be updated.</td>
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<tr>
<td>3</td>
<td>GDP Growth: Agriculture, Industries &amp; Services (2000-2005)</td>
<td>Estimates of GDP (per capita) for BOBLME countries 2007 (in 1990 US dollars) (BD.)</td>
<td>2.3</td>
<td>12</td>
<td>455, (5.4%); Agriculture: 19% (2.5%); Industries: 29%, (7.4%); Services: 53% (5.7%)</td>
<td>684(4.57%); Agriculture: 11.56% (5.02%); Industries-17.78%, (5.92%); Services: 49.67% (6.25%) in 2008-2009 (BBS 2009)</td>
<td>Previous data should be updated.</td>
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<tr>
<td>4</td>
<td>% Contribution of capture fisheries to GDP (2006)</td>
<td>Percentage contribution of capture fisheries &amp; tourism to GDP (BD.)</td>
<td>2.4</td>
<td>13</td>
<td>2%</td>
<td>3.68% of GDP in 2008-2009 (BBS, 2009)</td>
<td>Previous data should be updated.</td>
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<td>5</td>
<td>Employment in Fisheries</td>
<td>Number employed and number of active fishermen in BOBLME countries. (BD.)</td>
<td>2.5</td>
<td>14</td>
<td>Number employed : 1095,000 fishermen</td>
<td>Number employed: 1280,000 fishermen (Fisheries Statistical Yearbook of Bangladesh, 2009)</td>
<td>Previous data should be updated.</td>
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<td>6</td>
<td>Adult literacy Rate (% aged 15 and over)</td>
<td>Education indicators in BOBLME countries</td>
<td>2.8</td>
<td>19</td>
<td>53.5 Adult literacy rate in 2007</td>
<td>Adult literacy rate 59.07% in 2008 (BBS 2009)</td>
<td>Previous data should be updated.</td>
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<td>7</td>
<td>Social Protection</td>
<td>Social protection in the BoBLME countries (BD.)</td>
<td>2.10</td>
<td>22</td>
<td>i. Allowance for poor old, widow &amp; disabled person (Poverty), ii. Stipend for all school going girls from class vi- xii, (education) iii. Support for medical treatment for poor pregnant/ breast feeding mothers, disabled women (health) iv. Others: allowance for freedom fighters (Social protection 21 June, 2100, article in Prothom Alo, Nat. Daily by Sk. Hasina, PM, GOB.)</td>
<td>Should be included</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Legislation (Marine Fisheries, Env., Habitat)</td>
<td>Marine related legislation in BOBLME counties (BD.)</td>
<td>3.3</td>
<td>30</td>
<td>Update policy, rules &amp; regulation on fisheries, marine env. ((BobLME/ BFRI workshop, 2011; Hossain, M.M. 2010)</td>
<td>Should be updated</td>
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<td>9</td>
<td>Marine production</td>
<td>Estimation of Marine production value for each country of the Bay of Bengal, 2006 (BD)</td>
<td>4.1</td>
<td>42</td>
<td>486,000 MT</td>
<td>Previous data should be updated.</td>
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<td>10</td>
<td>Fish Catch profile</td>
<td>Major species group contributing to fisheries production in the BOBLME countries (%) (BD.)</td>
<td>4.2</td>
<td>43</td>
<td>Others 10.7% in 2008 Misc. Pelagic Fishes (Bombay duck &amp; Indian salmon)- 12.82%; Shrimps, Prawns - 10.15%; Others- 17.09%; (Fisheries Statistical Yearbook of Bangladesh , 2009)</td>
<td>Missing data should be included &amp; previous data should be updated.</td>
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<td>11</td>
<td>Fishing Fleet</td>
<td>Number of fishing vessels operating in the BOBLME countries (BD.)</td>
<td>4.4</td>
<td>45</td>
<td>Trawlers-122 Trawlers-141 (Fisheries Statistical Yearbook of Bangladesh, 2009)</td>
<td>Previous data should be updated.</td>
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<td>Mangroves</td>
<td>Major mangrove forest in the BOBLME (2004)</td>
<td>4.12</td>
<td>65</td>
<td>Need to know current status/data (Sunderbon mangrove forest) Need regional /national study to know the update status of Sunderbon Mangroves (BD./India)</td>
<td>Recommendation on “Sunderbon mangroves” based on the outputs of TDA Consultation, 2011 Dhaka, BD. could be incorporated in TDA documents for SAP.</td>
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<td>No.</td>
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<td>Description</td>
<td>Latitude</td>
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<td>14</td>
<td>Coral reef</td>
<td>Coral Reef status in the BOBLME (2004).</td>
<td>4.15</td>
<td>72</td>
<td>St. Martin’s coral Island &amp; its biodiversity needed to be studied thoroughly. (BD.)</td>
<td>App. 8.00 km² (7.6% coverage on S-E coast), Update information on St. Martin’s Bd: Tomaascik (1997); Rajasuria et.al. (2004); Hossain et.al. 2009 &amp; Hossain &amp; Ahammed (2010) (unpublished) Need regional cooperation &amp; international support (e.g. BoBLME/ SAS/ GCRMN) to assess the overall status of corals in St. Martin’s Bangladesh.</td>
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<tr>
<td>15</td>
<td>Sea grass</td>
<td>Status of Sea grass beds in BOBLME (Bd.)</td>
<td>4.16</td>
<td>78</td>
<td>Bakkhali estuary, Bd.</td>
<td>5 species reported; In addition availability of sea grass in St. Martin’, Sunderbon’s, Naf river estuary, were reported (Shafuiddin, 2010). Need to be studied for identify the area covered by sea grass meadows in Bangladesh for management (transboundary significance).</td>
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</table>
5.0. References:


6.0. Annex-1

Activities carried out by NF, TDA, Bangladesh:

Preparation of background documentation and other materials to be used during the consultation:

Prepared a brief outline on the proposed TDA activities what should be done in Bangladesh, as asked by the PSC members & Joint Secretary, Mr. S. Kibria, during selection committee meeting on ------- in his ministry on National Facilitator, TDA Bangladesh (Hard copy of what distributed to all TDA Workshop participants).

- 09.05.2011, First consultation and planning meeting held on “TDA Consultation Workshop in Bangladesh” in BFRI, Mymensing, with NC, BOBLME, PD and NTA of SBOBLME team on the overall activity of the TDA Workshop (i.e. a. tentative date of the workshop, b. venue, c. budget, d. preparation of the letter of invitation & tentative program, e. name of possible guests and others incidental activities).

- Stay in BFRI till 11.05.11 on the above preliminary activities and after that left for Dhaka and stay till 12 June and went to CIRDAP Auditorium (as well some other places) to see the facilities for holding the TDA Workshop and talked to the authority for booking procedure of their auditorium and had consultation (telephonic) and meeting with some potential stakeholders on their possible participation at TDA consultation workshop.

Identification of stakeholders who need to be involved in the TDA consultations:

- Returned back to Chittagong on 13 May and started works on the identification of stakeholders/experts/resources persons based on the guidelines on stakeholders list (Conc. ministry/dept./org. etc.) as listed and mentioned by the Bangladesh representatives in TDA Workshop (NC & PSC members of BOBLME, Bangladesh) in the TDA Consultation Planning Workshop 24-25 August 2010, Bangkok, Thailand, a preparatory workshop for guiding the National TDA workshop for its validation and adoption to implement that in the next step (SAP).

- Initially, as per my activity plan, prepared a tentative list of 82 stakeholders /participants covering nearly all most all the stakeholder groups as listed in the road map, with their name/s, address, field of expertise/specialization along with contact no., e-mail as far as I was enable to do after having personal contact with many of them and send that list to NC and PD for their consent and approval.

- On the 23 May, 2011: Confirmation on the date for TDA Consultation Workshop finalized on 31 June, 2011 and NC confirmed that in the same day that, the Secretary, MOFL, GoB had given his consent that he will be the Chief guest on that occasion on 31st June, 2011.

- Stay in Dhaka from 23 May -01 June, 2011: Then I left for Dhaka on the same day (afternoon of 23rd June, 2011) to do rest of activities relevant to TDA Workshop. On the next day, me and NTA, SOBLME went to CIRDAP for booking and confirmation of the venue for 31st May, 2011 and from there went to Directorate of Fisheries (DoF) with signed letter by DG, BFRI & Nat. Coordinator, BOBLME, Bangladesh to the DG, DoF for asking nomination of relevant participants from his organisation.

- From 23-26 May, 2011: Then I have taken a no. of signed letter by NC to different head/ DG/ Chief/ Chairman etc. of diff. organisation/s, department/s. Then, I went to meet personally with them and handed the ‘letter for asking nomination of relevant person/s from his/her organisation/s in different parts of Dhaka (Gulshan, Banani, Bardhara, Motjheel, Segunbagucha, Dhanmondi, Hatipol, Sheri Bangla nagar and some other parts of Dhaka) to expedite the process of nomination as suggested by the PD, SBOBLME. The rest of the letter to different head of the department in other parts of the country (Chittagong, Cox’s Bazar, Khulna etc) were posted through courier service and later talked with some of them over telephone regarding the nomination and confirmation of participant from his/her organisation/s.
27-30 May, 2011:

i. Preparation of PP based on the BOBLME TDA draft documents (vol. 1 & vol. 2) (digest of the TDA Doc’s) for present in the technical session of the TDA Consultation Workshop on 31 May, 2011.

ii. Preparation of possible list Co-ordinators, Reporters’ for the group discussion in Technical session and send that to the PD of BOBLME-BD for approval.

iii. Prepared draft speeches for the inaugural session of the TDA workshop and send that to PD, BOBLME-Bangladesh for necessary correction or changes.

31 May, 2011: Presented the TDA draft (brief) documents in the technical session of the workshop and later facilitate the group discussion/ s for both the groups (Gr-A. Marine Environment & Habitat & Gr-B: Fishery).

14th -15th June, 2011: Email correspondence with the head of the Organisation/s to convey sincere thanks for sending nomination/s with such a short notice as well as also if he or relevant expert/s from his/her organisation have any further comments/opinion/s on the draft TDA doc’s (web site of BOBLME send to them with a request to download the TDA doc’s,), pass that to my e-mail on or before 20th June, 2011.

14th -15th June, 2011: Similar e-mail were also send to all the registered workshop participants/potential stakeholder/s, expert/resource person/s to see the draft TDA doc’s (with Boblme web site) as well as other TDA documents, what we have provided them earlier (a. Executive Summary of TDA documents, b. PP of my presentation & c. the brief outlines of TDA activities in BD), with a request to send if they have any other opinion/views, in addition, what they have provided during gr. discussion on or before 20th June, 2011.

On 18th June, 2011: An humble reminder was again send to all those stake holders, through E-mail , if they have any other input further on the TDA docs pl. send by 20th June, 2011.

22nd -23 June, 2011: Send e-mail along with attachment file on the compiled outputs of group discussion & my inputs, comments on that issues to some selected participants/stakeholders for any final comments/suggestion.(a) Gr-A (Marine Env. & degraded Habitats) – send e-mail to 12 participants; Gr-B (Marine Fishery Resources) –Send e-mail to 13 participants.

Some of the participants responded and said the “Comments & outputs of TDA workshop was OK & informative” and one of them (expert) responding to my request send additional recommendations on “Sunderbons ecosystem” as an attach file, what have been included as a separate inputs of Stakeholders e-consultations in Gr.A of TDA consultation.


30th June -1st July: Send draft report/meet with the NC- BOBLME,Bangladesh for his consent/opinion and advice if any and then will send that report to the RC, BOBLME for his consent and approval.
## Annex-2

### List of Participants:

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name</th>
<th>Address</th>
<th>MoFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Mr. Ujjwal Bikash Dutta</td>
<td>Secretary, Ministry of Fisheries &amp; Livestock, Bangladesh Secretariat, Dhaka</td>
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<td>Dr. Mafizur Rahman</td>
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</tr>
<tr>
<td>03</td>
<td>Mr. Muhammad Shamsul Kibria</td>
<td>Joint Secretary (Fisheries), Ministry of Fisheries &amp; Livestock, Bangladesh Secretariat, Dhaka</td>
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<td>07</td>
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<td>Project Director, Bangladesh Marine Fisheries Capacity Building Project, Department of Fisheries, Matshya Bhaban, Ramna, Dhaka</td>
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<td>10</td>
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<tr>
<td>11</td>
<td>Md. Sirajul Islam</td>
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<td>13</td>
<td>Dr. Md. Sharif Uddin</td>
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<td>16</td>
<td>Md. Gaziur Rahman</td>
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<td>17</td>
<td>Commander Abdul Kader</td>
<td>General Manager</td>
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<td>BN</td>
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<td>Bangladesh Fisheries Development</td>
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<td></td>
<td>Corporation 24-25 Dilkusha C/A, Dhaka-1000</td>
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<tr>
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<td>Kh. Lutfunnesa</td>
<td>Manager (Planning)</td>
<td>Mobile: 01714245716 e-mail: <a href="mailto:bfade_64@yahoo.com">bfade_64@yahoo.com</a></td>
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<td>19</td>
<td>Pervin Sultana</td>
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<td></td>
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<td>141/143 Motijheel C/A, Dhaka-1000</td>
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<td>20</td>
<td>Syed Mahabul Ullah</td>
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<td>21</td>
<td>Capt. Zafarullah</td>
<td>Harbour Master</td>
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<td>Chittagong Port Authority</td>
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<td>Bandar Bhaban, Chittagong-4100</td>
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<tr>
<td>22</td>
<td>Md. Saeed Ullah</td>
<td>Principal</td>
<td>Mobile: 01992494444 e-mail: <a href="mailto:edt@bsc.gov.bd">edt@bsc.gov.bd</a>;</td>
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<td>National Maritime Institute</td>
<td><a href="mailto:nmiictbd@bttb.net.bd">nmiictbd@bttb.net.bd</a></td>
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<td>23</td>
<td>Comm. Sk. Mahmudul Hasan</td>
<td>Bangladesh Navy</td>
<td>Mobile: 01730027320 e-mail: <a href="mailto:dhydro@bangladeshnavy.org">dhydro@bangladeshnavy.org</a></td>
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<td>24</td>
<td>Comm. M. Minarul Haque</td>
<td>Bangladesh Navy</td>
<td>Mobile: 01713332056 e-mail: <a href="mailto:minar71@yahoo.com">minar71@yahoo.com</a></td>
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<td>25</td>
<td>Lt. M. Shamim Khaleque</td>
<td>Coast Guard HQ</td>
<td>Mobile: 01817299522 e-mail: <a href="mailto:shamil8107@yahoo.com">shamil8107@yahoo.com</a></td>
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<td>26</td>
<td>Mohammaad Alamgir</td>
<td>PSO (Env., Forest &amp; Fish.)</td>
<td>Mobile: 01556555684 e-mail: <a href="mailto:alamgirforester@yahoo.com">alamgirforester@yahoo.com</a></td>
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<td></td>
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<tr>
<td>27</td>
<td>Dr. Md. Abdus Shahid</td>
<td>Chief Scientific Officer</td>
<td>Mobile: 01711035297 e-mail: <a href="mailto:shahid-rajib2003@yahoo.com">shahid-rajib2003@yahoo.com</a></td>
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<td>28</td>
<td>Dr. Kazi Ali Toufique</td>
<td>Senior Research Fellow</td>
<td>Mobile: 01732176307 e-mail:</td>
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<tr>
<td>29</td>
<td>Md. Liaquat Ali</td>
<td>Senior Research fellow</td>
<td>Mobile: 01713459863</td>
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<td>Bangladesh Center for Advanced Studies,</td>
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<tr>
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<td>30</td>
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<td>NOAMI</td>
<td>National Oceanic and Maritime Institute, 10/8, 9th Floor, Eastern Plaza Sonargaon Road, Hatirpool, Dhaka-1205</td>
</tr>
<tr>
<td>31</td>
<td>Md. Shahabuddin</td>
<td>COAST</td>
<td>Project Coordinator COAST House 9A, Road 2, Shyamoli, Adabor, Dhaka-1207</td>
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<td>32</td>
<td>Dr. S. M. A. Rashid</td>
<td>CARINAM</td>
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<td>33</td>
<td>Ms. Shazia Mohsin Khan</td>
<td>IUCN</td>
<td>Dialogue Coordinator IUCN Bangladesh, House 1, Road 138, Gulshan-1, Dhaka-1212</td>
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<tr>
<td>34</td>
<td>Dr. Md. Gulum Mostafa</td>
<td>World Fish Center</td>
<td>Biophysical Advisor World Fish Center Bangladesh &amp; South-Asia Office, House 22 B, Road 7 Block-F, Banani, Dhaka-1213</td>
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<td>35</td>
<td>Dr. Md. M. Maruf Hossain</td>
<td>IMS&amp;F, CU</td>
<td>Professor Institute of Marine Science &amp; Fisheries, University of Chittagong, Chittagong-4331 National Facilitator, BOBLME TDA</td>
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<tr>
<td>36</td>
<td>Dr. Rashed-Un-Nabi</td>
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<td>37</td>
<td>Mr. Zahedur Rahman Chowdhury</td>
<td>IMS&amp;F, CU</td>
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<td>38</td>
<td>Md. Atiqur Rahman</td>
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<td>39</td>
<td>Md. Tariqul Islam</td>
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<td>40</td>
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<td>Dept. of Fisheries, Rajshahi University</td>
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<td>41</td>
<td>Dr. Md. Neamul Naser</td>
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<td>Bangladesh Marine Fisheries Association, Center Point Concord (13th Floor), 13/A Farm Gate, Dhaka-1215, Mobile: 01819435280, e-mail: <a href="mailto:freebmfa@yahoo.com">freebmfa@yahoo.com</a></td>
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<td>Md. Nazmul Haider</td>
<td>Chief Executive, Young Power in Social Action (YPSA), House F/10 (P), Road 13, Block-B, Chittagong R/A, Chittagong-4212, Mobile: 01818578790, e-mail: <a href="mailto:ypsa_nazmul@yahoo.com">ypsa_nazmul@yahoo.com</a></td>
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<tr>
<td>46</td>
<td>Dr. Chris O’Brien</td>
<td>Regional Coordinator, Bay of Bengal Large Marine Ecosystem (BOBLME) Project Regional Coordination Unit, Phuket, Thailand</td>
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<tr>
<td>47</td>
<td>Dr. M. Gulam Hussain</td>
<td>DG, BFRI &amp; NC, BOBLME-Bangladesh Project</td>
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<td>48</td>
<td>Dr. S. U. Ahammed</td>
<td>Ex-Director (Res. &amp; Plan.), BFRI, Mobile: 01718305952, e-mail: <a href="mailto:ahamed_su@yahoo.com">ahamed_su@yahoo.com</a></td>
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<td>49</td>
<td>Dr. M. Shahb Uddin</td>
<td>CSO, Marine Fisheries &amp; Technology Station, BFRI, Cox’s Bazar, Mobile: 01712260256, e-mail: <a href="mailto:shahabudd10@live.com">shahabudd10@live.com</a></td>
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<td>50</td>
<td>Dr. A. K. Yousuf Haroon</td>
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<td>51</td>
<td>Dr. M. Enamul Hoq</td>
<td>PD, SBOBLME Project, BFRI, Mymensingh, Mobile: 01715132369, e-mail: <a href="mailto:hoq_me@yahoo.com">hoq_me@yahoo.com</a></td>
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<td>52</td>
<td>Dr. M. J. Rahman</td>
<td>SSO, Marine Fisheries &amp; Technology Station, BFRI, Cox’s Bazar, Mobile: 01711408339, e-mail: <a href="mailto:jrhmm@yahoo.com">jrhmm@yahoo.com</a></td>
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<tr>
<td>53</td>
<td>Dr. M. Anisur Rahman</td>
<td>SSO, Riverine Station, BFRI, Chandpur, Mobile: 01711458520, e-mail: <a href="mailto:anisur2002@yahoo.com">anisur2002@yahoo.com</a></td>
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Annex-3

Slides on key presentation of BOBLME TDA by Dr. Chris O’Brien, Regional Coordinator, BOBLME

The Bay of Bengal Large Marine Ecosystem Project

Chris O’Brien
Regional Coordinator
Bangladesh National TDA Consultations
Dhaka, 31 May 2011

- over exploitation of fishstocks
- habitat degradation
- land based pollution

Large Marine Ecosystems of the World

FIVE LME MODULES
Modular Assessments for Sustainable Development

Bathymetry Hydrography
Productivity Trophodynamics
Costs ($USD millions)

1. SAP, $5.4
2. Resource Management and sustainable use, $14.5
3. Understanding BOB, $6.7
4. Ecosystem health, $1.3
5. Project Management, $3.1

Component 2 ($14.5 m):
- ICM - $1.0 m
- Policy - $2.8 m
- Fisheries assessment & mgt - $10.1 m
- Critical habitat management - $0.6 m

Project financing ($31 m)

Country-cash $2.2
Co-financing, $9.7
Country in-kind $3.6
NOAA, $0.4
NOR, $1.2
SWE, $1.3
FAO, $0.8
GEF, $12.1

Expected outputs of the BOBLME project

- **Stronger governance:**
  - Processes for planning and dialogue
  - Enhanced mechanisms for regional collaboration

- **Improved resource management:**
  - Best practices – ICM, MPAs
  - Better understanding of small-scale fisheries issues

- **Better knowledge of:**
  - The fisheries for hilsa*, Indian mackerel and sharks
  - Large-scale processes* and ecology
  - Basic ecosystem health indicators

- **Healthier ecosystems, sustainable fisheries – EAF*, regional hilsa mgmt**
- **Improved well-being and resilience of coastal fisher communities**

Expected outputs of the BOBLME project

1. Trans-boundary Diagnostic Analysis
2. Strategic Action Programme addressing major issues

National Project Structure

**National Task Force**
- National Coordinator (fisheries)

**National Scientific Advisory Panel**
- National Technical Adviser (fisheries / environment)

**National Experts**
- National Activities
National Project Structure

Project Steering Committee
comprises 2 high level representatives from each country
(fisheries and environment)

Mr. M. Shamsul Kabir
Joint Secretary (Fisheries)
Ministry Of Fisheries and Livestock

Mr. Aparup Chauhdury
Joint Secretary
Ministry of Environment & Forest

provide overall guidance on the project
promote the project at all levels

Regional Coordination Unit

National Coordinator
Dr. M.G. Hussain
Director General Bangladesh Fisheries Research Institute
Dr. Youaf A K Hanon – Technical Advisor
Dr. Md. Enamul Hoq - Project Director

National Task Force

PSC members
fisheries
environment

National Coordinator
(fisheries)

National Scientific
Advisory Panel

National Technical
Adviser (fisheries / environment)

National Experts

National Activities

Bay of Bengal LME

www.boblme.org
The Bay of Bengal Large Marine Ecosystem Project

**Project status**

Chris O’Brien
Regional Coordinator
BOBLME Project

---

Achievements of BOBLME in 2010

- Major reviews:
  - analysis to identify priority issues (TDA)
  - ICM best practices
  - resource management policies
  - small pelagic fisheries
  - MPAs
- Facilitation of a Myeik/Mergui Archipelago Joint Management structure
- Key ecosystem indicators selected for development and application
- Work plans for oceanography and pollution

---

2010 achievements

- Training:
  - Effective Communication to Support Coastal Mgt
  - Project Cycle Management
- Partnerships developed with over 30 organisations and bodies

---

2011 Work Plan

- Activities:
  - stock assessment
  - data collection and management
  - ICM and MPA best practices
  - resource management policies
  - Implementing EAF
- Critical habitats - Sundarbans
- Key ecosystem indicators implemented
- Pollution – NPA’s
- Oceanography

---

The Bay of Bengal Large Marine Ecosystem Project

**Transboundary Diagnostic Analysis**

Chris O’Brien
Regional Coordinator
BOBLME Project

National Consultations 2011

www.boblme.org
Expected outputs of the BOBLME project

1. Trans-boundary Diagnostic Analysis
2. Commitment from the BOBLME countries to implement a Strategic Action Programme to address the major factors impacting the Bay of Bengal Ecosystem.

A TDA is a scientific, technical, analytical document to identify priority environmental and fisheries issues that are transboundary in nature

A TDA provides the factual basis for the formulation of a Strategic Action Plan (to address the priority issues)

History of Transboundary Diagnostic Analysis

- Feb 2003 – First Regional Workshop, Pattaya, Thailand
  - Overexploitation of the marine living resources
  - Degradation of mangroves and coral reefs
  - Land-based sources of pollution.
- 2003 & 2004
  - 8 Country papers
  - 6 Theme papers
  - Regional & national consultations
  - Preliminary TDA drafted
- Oct 2004 – Second Regional Workshop, Colombo, Sri Lanka
  - Draft Preliminary TDA presented
  - Inclusion of seagrass

History [continued]

- December 2009
  - Preliminary draft TDA reviewed
  - Gaps and updating needs identified
  - TORs for redrafting of TDA
- August 2010
  - TDA Consultation Planning workshop
- December 2010
  - TDA update complete
  - Two volumes:
    1. TDA and 2. Background Statistics and Information

Theme papers

1. Mangroves and coral reefs
2. Livelihoods and food security
3. Legal and enforcement mechanisms
4. Land-based sources of pollution
5. Shared/common marine living resources stocks and stock assessment capabilities
6. Options for regional coordination

Available on www.boblme.org

The TDA identified 3 main areas of concern

1. Overexploitation of marine living resources
2. Degradation of mangroves coral reefs and seagrasses
3. Pollution

And a causal chain analysis was undertaken to identify the priority issues under each concern, and their underlying causes
A “transboundary issue” is defined as an issue that is common to or shared between two or more countries.

- A “common” issue is one that two or more countries are confronted with
- A “shared” issue is one that straddles or whose effects are felt across the boundaries, however defined, between two or more countries.
- It can also be an issue that is of broader global concern that requires all regions to contribute to solving e.g. the world-wide reduction in mangroves.

- Note, it is likely that the consultations will also identify some important National Issues that may not be included in the TDA. It is important to distinguish between transboundary issues and national issues.

- The consultations leading up to this TDA have likely already considered many of the national issues; however, the current consultation can also serve to record various current national concerns for consideration in other (Federal/State) fora.

NEXT STEPS 2011

- National consultations until June
- Review of the updated TDA considering the comments from national consultations
- Finalisation of the TDA
- Adoption of the TDA by the Project Steering Committee
- Development of the Strategic Action Programme

National consultations – expectations:

- Review / challenge / verify the information in the TDA
- Note errors, note points that might need verification, and recommend deletions/additions
- Assess the information and conclusions from a transboundary perspective and decide whether, on balance, this TDA is an appropriate basis for the development of the Strategic Action Programme
- Conclude consultations by June 2011

www.boblme.org
Annex-4

Slides on the presentation of TDA (draft) documents (vol.1 & 2) by Dr. Md. M. Maruf Hossain, NF, BOBLME TDA, Bangladesh

What is TDA?

The GEF Operational Strategy recommends that nations sharing an LME begin to address coastal and marine issues by jointly undertaking strategic processes for analyzing science-based information on transboundary concerns, their root causes and by setting priorities for action on transboundary concerns. This process is referred to as a Transboundary Diagnosis Analysis (TDA).

- The TDA is a scientific, technical and analytical document to identify priority environmental and fisheries issues that are transboundary in nature. Along with SAP, the TDA is the main pillar of projects under the International Waters (IW) Operational Programme of the Global Environment Facility (GEF).
- It provides a useful mechanism to foster participation of policy makers, scientists, management experts, stakeholders and civil society at local, regional, national and international level of interest. Countries then determine the national and regional policy, legal, and institutional reforms and investments needed to address the priorities and based on the strategies prepare and initiate an LME wide Strategic Action program (SAP).

LME & Five LME Modules

Countries engaged in the TDA process have already begun to scientifically characterize the LME by applying widely accepted five modules with indicators (Fig.), to identify the root causes of trends in LME biomass yields and most pressing transboundary characteristics of coastal pollution, damaged habitats and depleted fish stocks, in order to prioritize these issues (Buda and Sherman 2002).

64 designated LMEs of the World

Large Marine Ecosystems of the World and Linked Watersheds

Linkages between TDA/SAP & 5 LME Modules:

<table>
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<tr>
<th>LME Module</th>
<th>TDA</th>
<th>SAP</th>
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<td>1. Productivity</td>
<td>TB issue, threats, root cause analysis</td>
<td>Regional &amp; national reforms to maintain productivity</td>
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<tr>
<td>2. Fish resources and fisheries</td>
<td>TB issue, threats, root cause analysis</td>
<td>Regional &amp; national reforms to sustain fisheries</td>
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<tr>
<td>3. Pollution &amp; Ecosystem Health</td>
<td>TB issue, threats, root cause analysis</td>
<td>Regional &amp; national reforms to reduce pollution and sustain ecosystem</td>
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<td>4. Socioeconomics</td>
<td>Socioeconomic impact analysis, incl. prioritization of issues</td>
<td>Economic instruments, investments, etc. as tools for SAP implementation</td>
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<tr>
<td>5. Governance</td>
<td>Governance analysis; stakeholder analysis</td>
<td>Legal, policy &amp; institutional reforms; stakeholder involvement (PS &amp; civil society)</td>
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History on the development of BOBLME TDA

History of Transboundary Diagnostic Analysis

- Date: 2005
  - First Regional Workshop, Patong, Thailand
  - Development of marine living resources
  - Degradation of mangrove forests
  - Limitation status of pelagic
  - TDA and SAP
  - GBM 2005
  - 1st Draft
  - 1st Technical Consultation
  - Preliminary TDA Draft

- Date: 2004
  - Second Regional Workshop, Colombo, Sri Lanka
  - SAP Draft
  - GBM 2004

- Date: 2003
  - Preliminary TDA Draft
  - First Round Consultations
  - Preliminary TDA Draft

- Date: 2000
  - Consultations initiated

- July, August 2001
  - Consultations continue
  - Preliminary TDA (draft)

- May 2001
  - Consultations conclude

- July 2001
  - Consultations continue
  - Preliminary TDA (draft)

- August 2001
  - Consultations conclude

Regional Workshop on TDA, Dhaka
2002, National TDA workshop, Dhaka
**Boundary and general characteristics of the BOBLME**

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<td>740</td>
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<td>Myanmar</td>
<td>3,000</td>
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<tr>
<td>Bangladesh</td>
<td>730</td>
<td>1,300</td>
<td>5.6%</td>
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<tr>
<td>India</td>
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<td>Maldives</td>
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<td>Total</td>
<td>9,386</td>
<td>5,280</td>
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Source: [SAUR, 2018](#)

**Diagram showing the logic of the Causal Chain Analysis**

1. Overexploitation of Marine Living Resources
2. Degradation of Critical Habitats
3. Pollution

- a. Trans-boundary nature of issues
- b. Proximate Causes
- c. Specific Root causes

**Priority Transboundary Issues and their Causal Chain Analyses**

1. Overexploitation of Marine Living Resources

- Many fish stocks shared among BOBLME countries either through transboundary management or direct fishing activities.
- Sharing common national parks, such as mangrove and coral reefs.

**Priority Transboundary Issues and their Causal Chain Analyses (cont.)**

2. Degradation of Critical Habitats (Mangrove) & (Coral Reef)

- 25% of global mangrove beds are BOBLME countries.

**Degradation of Critical Habitats (Mangrove)**

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<tr>
<td>Myanmar</td>
<td>8,515</td>
<td>5,524</td>
<td>3,001</td>
<td>35.3%</td>
<td>14</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>4,451</td>
<td>4,385</td>
<td>65</td>
<td>2.1%</td>
<td>3</td>
</tr>
<tr>
<td>India</td>
<td>8,744</td>
<td>8,977</td>
<td>234</td>
<td>2.6%</td>
<td>11</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>280</td>
<td>104</td>
<td>176</td>
<td>59.4%</td>
<td>7</td>
</tr>
<tr>
<td>Maldives</td>
<td>n/a</td>
<td>0.9</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>21,008</td>
<td>16,600</td>
<td>4,408</td>
<td>21.0%</td>
<td>15.1</td>
</tr>
</tbody>
</table>

Sources: [Dai et al., 2000](#)

**Degradation of Critical Habitats (Coral Reef)**

- 90% of global coral reefs in BOBLME countries.

**Degradation of Critical Habitats (Coral Reef)**

<table>
<thead>
<tr>
<th>Country</th>
<th>1975</th>
<th>Present</th>
<th>Area Loss</th>
<th>% Loss</th>
<th>Annual Rate (M²/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>1,012</td>
<td>603</td>
<td>409</td>
<td>40.8%</td>
<td>11</td>
</tr>
<tr>
<td>Malaysia</td>
<td>929</td>
<td>706</td>
<td>223</td>
<td>24.0%</td>
<td>7</td>
</tr>
<tr>
<td>Thailand</td>
<td>2,095</td>
<td>1,689</td>
<td>406</td>
<td>19.4%</td>
<td>14</td>
</tr>
<tr>
<td>Myanmar</td>
<td>8,515</td>
<td>5,524</td>
<td>3,001</td>
<td>35.3%</td>
<td>14</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>4,451</td>
<td>4,385</td>
<td>65</td>
<td>2.1%</td>
<td>3</td>
</tr>
<tr>
<td>India</td>
<td>8,744</td>
<td>8,977</td>
<td>234</td>
<td>2.6%</td>
<td>11</td>
</tr>
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<td>Sri Lanka</td>
<td>280</td>
<td>104</td>
<td>176</td>
<td>59.4%</td>
<td>7</td>
</tr>
<tr>
<td>Maldives</td>
<td>n/a</td>
<td>0.9</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>21,008</td>
<td>16,600</td>
<td>4,408</td>
<td>21.0%</td>
<td>15.1</td>
</tr>
</tbody>
</table>

Sources: [Dai et al., 2000](#)
1. Information gaps for marine living resources

Examples of the types of data that would be useful in future include:

- Better stock assessments of the BOBLME Project key species, based on country collaboration in data collection and an independent stock assessment expert;
- Better information on the access agreements that exist among countries so that the transboundary nature of fishing can be better qualified;
- Better information and information exchange on IUU fishing;
- More detailed reporting of fishing activities and catches, especially in Bangladesh and Myanmar;
- Better systems of analysing statistic data to make them more useful to science (e.g. catch and effort data at the boat level);
- More broad-scale information on the socio-economic context of fishing (now collected at local level by many NGOs and agencies) but not shared;
- Better understanding of market chains and market dynamic; and
- Better understanding of incentives (including perverse incentives) that control and influence decision making in fisheries.

2. Information gaps for critical habitats

The main information gaps for critical habitat degradations are:

- Areal extent and environmental status of the seagrass beds of the BOBLME as a whole, including any historical analyses of changes in seagrass extent and quality and the status of the associated biodiversity and productivity in the BOBLME;
- Quantitative data on the causes of coral reef loss and degradation around the BOBLME, especially for Myanmar;
- An update of the extent and quality of mangroves around the BOBLME;
- Valuation of goods and services provided by the mangrove, coral reef and seagrass ecosystems;
- The relationship between mangroves and commercial fish species, and between seagrass and commercial fish species in the BOBLME; and
- The existence and relevance of traditional ownership and customary use systems associated with the critical habitats.

3. Information gaps for pollution

Information gaps for pollution include:

- Insufficient quantitative information on the levels, distribution, or effects of pollutants in the BOBLME, and consequently insufficient information to:
  - Identify and prioritize the relative importance of pollution threats;
  - Identify and prioritize priorities "hot spots" including a lack of objective criteria;
  - Determine the importance of contamination by POPs and PTFs in the BOBLME;
  - Evaluate the relative importance of land-based and ocean-based sources of pollution;
  - Evaluate the importance of floods and other episodic events;

- Information on emissions of most contaminants by source;
- Information on human health impacts of contamination by sewage-borne pathogens and toxic chemicals;
- Valuation of the pollution attenuation services provided by, in particular, the mangrove and seagrass critical habitats;
- Information on appropriate and affordable clean production technology and best practices. Kally (2004) identifies this specifically as a perceived lack of essential information as defined above;
- Insufficient information to establish acceptable limits for discharges of pollutants.

Transboundary Diagnostic Analysis
(Background Assessment Volume-2)

by Dr. Md. M. Maruf Hossain
Professor, Institute of Marine Sciences and Fisheries University of Chittagong & National Facilitator, BOBLME TDA
Presented in National Stakeholders Consultation Workshop on the BOBLME TDA on 31 May, 2011 at CIREDAP Auditorium, Dhaka, Bangladesh.

Biophysical characteristics-
Sea surface temperature and primary productivity

Figure: Bay of Bengal LME annual mean SST (left) and SST anomalies (right), 1957-2006, based on Hadley climatology. Source: (Berkin, 2009).
### Stock Assessments

| Country | Potential Yield (PY) | Landing | Peak Landing | Landings | Landing - Landings | Difference
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>135.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>155.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>165.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Myanmar</td>
<td>175.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>185.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>India</td>
<td>195.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>205.5</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>66.5</td>
<td>133.5</td>
<td>406.5</td>
<td>375.0</td>
<td>32.0</td>
</tr>
</tbody>
</table>

### Status of Coral Reefs in Countries around the BOBLME

<table>
<thead>
<tr>
<th>Country</th>
<th>% World</th>
<th>% BOBLME</th>
<th>Area km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>0.7%</td>
<td>8.2%</td>
<td>1,848</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.1%</td>
<td>1.3%</td>
<td>264</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.3%</td>
<td>3.8%</td>
<td>853</td>
</tr>
<tr>
<td>Myanmar</td>
<td>0.9%</td>
<td>11.3%</td>
<td>2,559</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>-</td>
<td>0.0%</td>
<td>-</td>
</tr>
<tr>
<td>India</td>
<td>2.6%</td>
<td>32.7%</td>
<td>7,362</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>0.3%</td>
<td>3.8%</td>
<td>853</td>
</tr>
<tr>
<td>Maldives</td>
<td>3.1%</td>
<td>39.0%</td>
<td>8,813</td>
</tr>
<tr>
<td>Total</td>
<td>8.0%</td>
<td>22,602</td>
<td></td>
</tr>
</tbody>
</table>

### Coral Reef Status in Bangladesh

- **Site**: St. Martin's Island (Narikel Jinjira)
- **% live coral cover**: 76% coverage on SE coast
- **Major threats**: Coral mining, sedimentation, destructive and uncontrolled tourism practice, anchoring, overfishing, pollution from sewage and waste.

### Seagrass

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
<th>Species Reference</th>
<th>Major Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Falty, West, Sunda Strait</td>
<td>M. indica</td>
<td>Illegal fishing, pollution</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Vast, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
<td>Illegal fishing, pollution, habitat destruction</td>
</tr>
<tr>
<td>Thailand</td>
<td>Falty, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
<td>Illegal fishing, pollution, habitat destruction</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Falty, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
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</tr>
<tr>
<td>Bangladesh</td>
<td>Falty, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
<td>Illegal fishing, pollution, habitat destruction</td>
</tr>
<tr>
<td>India</td>
<td>Falty, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
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<td>Sri Lanka</td>
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<td>Falty, West, Sunda Strait</td>
<td>Cymodocea serrulata</td>
<td>Illegal fishing, pollution, habitat destruction</td>
</tr>
</tbody>
</table>

### Pollution

- **TDA of pollution in the BOBLME** is based on the following contaminant categories:
  - Sewage-borne pathogens
  - Organic load
  - Solid waste/marine litter
  - Nutrients
  - Oils (hydrocarbons)
  - Sediment mobilization
  - Persistent organic pollutants (POPs) and Persistent toxic substances (PTSs)
  - Heavy metals
Legal, Administrative, Political Context and Constraints

1. International and domestic legal context
2. Institutional arrangement
3. Constraints to implementing BOBLME activities.

Gaps
- International convention on preventing land-based pollution.
- Environmental pollution laws.
- Out of date sectoral legislation
  - Ecosystem approach
  - Precautionary approach

Constraints
- Poor implementation of law and regulation
- Complex overlapping laws and jurisdictions across national and local level.
- Poor harmonization across BOBLME countries
- Limitations for stakeholder participation under existing laws.

Legal, Administrative, Political Context and Constraints

Table: Adoption of International and National Plans of Action by BOBLME Countries

- Indonesia
- Malaysia
- Thailand
- Myanmar
- Bangladesh
- India
- Sri Lanka
- Maldives

- for the IPAs column indicate participation during the 22nd and 24th FAO Committee on Fisheries meetings when the IPAs were adopted.

Thanks to all
Annex-5

Slides on the recommendations by the group presenters (A & B)

Transboundary Diagnostic Analysis (TDA) (con.)
- Bangladesh urges that the boundary problem with India and Myanmar should be solved in equity basis.

Regarding the continental shelf claim
- Bangladesh put her continental shelf claim to commission on the limits of the continental shelf of UN on 25, February 2011. It is expected that our claim will be accepted to UN very soon.

For this reason the areas shown in the slide for Bangladesh territorial water Transboundary Diagnostic Analysis (TDA) can not be accepted as concrete basis.

- Extreme events: Natural Disaster, Cyclone, Tsunami, Storm Surges, Earthquake should be monitored and damage assessment study is necessary with BOBLME countries.
- Coast line area (710 km) should be updated with satellite data.
- Operational monitoring system Oceanographic data with buoy should be set up.
- NODC (National Oceanographic Data Centre) should be introduced in NIO.

Climate change issues and sea level rise, salinity intrusion and food security should be incorporated.
- Pollution: Internal and external sources of pollution such as, dumping of wastes, oil spills, ship breaking sources should be monitored.
- Degradation of critical habitats (Mangrove) of Bangladesh may be reviewed.

- Shoreline changes (accretion and erosion) of our coast should be updated.
- Environmental and social responsive shrimp farming necessary in our coasts.
- Intensive coastal afforestation and conservation is needed.
National Stakeholders Consultation Workshop on BOBLME Group Discussion on TDA

Group 2: Fisheries Issues

Suggestions & Recommendations

Coordinator: Dr. Saleh Uddin Ahmed
Rapporteur: Dr. M. Jalilur Rahman

Overexploitation of the Living Marine Resources

The Major Issues

Issue One: Instead of saying ‘Decline in overall availability of fish resources’ the statement should be rewritten as ‘The total fish catch is increasing, but the catch per unit effort (CPUE) is declining.’

Issue Two: The issue should be rewritten as ‘Percentage composition in the total fish catch is changing remarkably in terms of species contribution and species diversity.’

Issue Three: OK

Issue Four: The words ‘especially through’ should be replaced by the word ‘and’, so the whole sentence would be ‘Changes in marine biodiversity and loss of vulnerable and endangered species’

The Transboundary Nature of the Major Issues

1st One: The word ‘fish’ should be replaced by ‘fish and other species’, so, the whole sentence would be ‘Many fish and other species shared among BOBLME countries either through transboundary migration of young & adult or drifting of larvae of fish and other species’

2nd & 3rd issues are OK

4th One: At what extent the contribution is significant should be mentioned.

The Root Causes of the Issues

All the causes mentioned in the document under the heading ‘The root causes of the issues’ should be retained as such.

That is all

Thank you all
List of Acronyms

BFRI = Bangladesh Fishery Research Institute
CPUE = Catch per unit effort
DOM = Dissolved organic matters
EEZ = Exclusive Economic Zone
GMB = Ganges –Bharamaputra-Meghna
NIO = National Institute of Oceanography
NORI = National Oceanographic Research Institute
PAHS = Poly aromatic hydrocarbons
POPs = Persistent organic pollutants
PTS = Potentially toxic substances
SAARC = South Asian Association for Regional Cooperation
SPM = Suspended particulate matters
TBSs = Tri-butylin substances
SPARRSO = Space Research and Remote Sensing Organization