



Report on the Proceedings of the 1st Bangladesh-India Joint Consultation on Sustainable Development of Inland Waterways Transport and Fish Biodiversity Conservation

2 – 3 November 2016, Dhaka, Bangladesh





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1 Background information

1.1 The BRIDGE GBM Project and the Objectives of the Dhaka Consultation

The BRIDGE GBM or 'Building River Dialogue and Governance (BRIDGE) for the Civil Society Organizations (CSO) in the Ganges-Brahmaputra-Meghna (GBM) River Basins' is a project funded by The Asia Foundation and facilitated by IUCN. The project is aimed at strengthening civil society engagement in water resource management and trans-boundary cooperation in the GBM basins. One of the objectives of the project is to facilitate development of a roadmap for the integrated and inclusive management of two water-related economic sectors, Inland Water Transport (IWT) and fishing-based community livelihoods, with a focus on Bangladesh and India.

To develop the roadmap, the first Bangladesh - India joint consultation was organised at Dhaka (Bangladesh) on 2-3 November 2016, to discuss and gather CSO inputs.

Following this consultation, the project will facilitate the publication of a report on the hydromorphological aspects of IWT, with a focus on transboundary navigation routes identified by Bangladesh-India Protocol on Inland Water Transit and Trade. Consultations will also be organised with communities living close to these Protocol Routes (PR), to gather their perspectives and inputs. The second and final joint consultation will be organised in May-June 2017, to complete the roadmap based on the inputs received at each step in the process.

It is expected that this roadmap will serve as a guidance document for decision makers and water managers dealing with issues related to IWT and environmental sustainability, particularly those who are responsible for preparing relevant riverine environmental and navigation plans, programs and projects.

Objectives of the 1st consultation workshop

The 1st CSO consultation was facilitated by IUCN at Dhaka, Bangladesh with the following objectives:

- Provide a networking space and an experience-sharing platform for CSOs working on water governance issues in Bangladesh and India
- Develop understanding and consensus for integrated management of IWT and fishing based livelihoods
- Provide inputs for the development of a roadmap for integrated management of two sectors, through the identification of a goal (vision), outcomes and intervention strategies (activities)
- Validate the project's activities and identify follow-up steps

1.2 Inland Navigation between Bangladesh and India

India and Bangladesh share a boundary of 4,096 km, which is criss-crossed by 54 rivers. Many of these are navigable, providing connectivity to the remotest villages not connected through other means. Four inland water routes between India and Bangladesh are currently operational: Kolkata-Pandu (in southern Assam) via Bangladesh; Kolkata-Karimganj (in

southern Assam) via Bangladesh; Rajshahi (in Bangladesh)-Dhulia (in southern Assam); and Karimganj-Pandu-Karimganj via Bangladesh.

These waterways have been operational since 1972 and are renewed from time to time under the Protocol on Inland Water Transit and Trade between the two countries. There are also four ports of call in each country through which inter-country trade via inland waterways can take place. These are: Narayanganj, Khulna, Mongla and Sirajganj in Bangladesh and Kolkata, Haldia, Karimganj and Pandu in India.

To save time and costs, the government-owned Indian enterprises, the Food Corporation of India (FCI) and Oil and Natural Gas Corporation Limited (ONGC), have been using the Bangladeshi waterways to transport goods to the north-eastern parts of India. In 2012, Bangladesh allowed ONGC to ferry heavy machinery, turbines and over-sized cargo through Ashuganj port for the 726-MW Palatana mega power project in southern Tripura (India). The Government of Bangladesh spent several million rupees to develop the Ashuganj port and related infrastructure for this purpose.

To improve and facilitate the development of inland transportation between the two countries, a Standing Committee (SC) has been established. The SC includes representatives from the ministries of shipping, road transport and finance as well as representatives of the inland waterways authorities and customs departments of the two countries. From the private sector, two representatives from the vessel operators (one from each country) have also been included in the SC. However, there is no representation from local communities or civil society. The scope of the Protocol is also very narrow, in that it covers only issues related to trade and commerce. The agreement was also negotiated without any civil society involvement.

Although inland navigation is cost-efficient compared to other modes of transport, it can have a significant influence on river ecosystems and aquatic biodiversity. There is also a need to understand the potential conflict and trade-offs between IWT and fisheries-based livelihoods and how the involvement of local communities could be a lever to solve some of these problems.

1.3 Participants' Profile

The workshop was attended by 23 participants, mostly representatives of CSOs working on nature conservation and water governance in the GBM basins at national and regional level. There were also participants from the government sector, such as the Central Inland Fisheries Research Institute (CIFRI) based in Kolkata, India and the Bangladesh Inland Water Transport Authority (BIWTA). The participation of a representative from the Bangladesh Engine & Bulkhead Boat Owners' Association ensured private sector engagement in the consultation process. The academic sector was represented by the Indian Institute of Technology (IIT), based in Guwahati, and the Bangladesh University of Engineering and Technology (BUET), based in Dhaka. The participation of the Indian Environmental Law Organisation (IELO) provided an important legal perspective.

(Please see Annex 2 for the full list of participants and their organisational affiliations.)

2 Proceedings of the workshop

The consultation workshop was divided into four sessions. A series of presentations during Session 1 introduced participants to the BRIDGE GBM project objectives and design and also helped build understanding of the current status and linkages of the two water dependent livelihoods sectors – inland waterway and fisheries. The group exercises during Sessions 2 and 3 gathered participants' inputs for the development of the vision and roadmap. During Session 4, field activities and the modalities for joint research planned under the project were discussed with participants and realigned. (Please see Annex 1 for the workshop's detailed agenda.)

2.1 Welcome and Introduction

The opening speech was delivered by Mr Ishtiaq Uddin Ahmad (Country Representative, IUCN Bangladesh). He welcomed the participants and thanked them for making the time to attend the workshop. His speech highlighted the need for ecologically sound development of inland waterways. He mentioned that the objective of the workshop was to have a dialogue and to create a platform for the exchange of ideas among representatives from many different sectors and organizations. Mr Ahmad added that the workshop would seek to identify a set of common goals, outcomes and activities, and to initiate the development of a roadmap for the future.

A round of self-introductions followed, revealing that participants had a very wide range of experience, and are involved in activities such as, community capacity building, payment for ecosystem services, citizen science, water museums, and disaster risk reduction.

2.2 Understanding the Context: Integrated Management and the Conflict between IWT and the Fisheries Sector

Presentation Abstracts:

A series of presentations on the ecological and legal aspects of inland navigation was delivered by different organisations. These provided a better understanding of the constraints to the sustainable and integrated management of IWT and the fisheries sector. The presentations by Mr Arun Roy (Former Chief Engineer, IWA India) and Mr Syed Monowar Hossain (Former Secretary and Director, Ports and Traffic, BIWTA) highlighted that in both Bangladesh and India, inland navigation and fisheries are two critically important sectors that are linked to each other. The presentation from Dr B K Das (Director, CIFRI, India) reviewed the impact of vessel movements on aquatic biodiversity in the River Ganga in India. A legal perspective on the integrated development of the two sectors was provided by Mr Shawahiq Siddiqui (Partner, Indian Environment Law Organisation). Mr Aich Dipankar (Programme Officer, IUCN Bangladesh) provided a summary of the situation analysis of inland navigation carried out under the "Ecosystems for Life" project in 2012. The abstracts of these presentations are given below.

The discussions following the presentations emphasised the need to conduct legal policy research to adequately understand the current policy landscape in Bangladesh and India. It was suggested that the outcomes of this research could feed into the consultation process for the development of the roadmap, by providing recommendations on the ways to develop convergence between the current laws linked to IWT and aquatic biodiversity conservation.

2.2.1 Sustainable Water Ways Transport – Perspectives from India

Mr Arun Roy (Consultant to the Inland Waterways Authority of India and Technical Expert, IIT Guwahati)

Most of the remote areas and villages located in the Bangladesh-India transboundary area have no exposure to industrialisation or access to urban infrastructure, and thus the people of these areas solely depend on existing waterways transport and fishery-based livelihoods. Unfortunately, even though the two sectors are the mainstay of local livelihoods, they still depend on primitive methods/infrastructure; navigation is done mostly by wooden country boats, and fishing carried out either through fixed nets or floating nets. There are often conflicts between the two sectors. The fishermen have little control over their nets (especially the floating nets), which often drift and cover the entire navigable area of the channels. The boat operators, in turn, are often at risk of straying beyond the navigable channels and running aground, because of the poorly marked and poorly maintained navigation routes.

Therefore, the navigable channels need to be carefully maintained and marked for the smooth movement of boats/vessels. Appropriate marking would also assist fishermen in ensuring that their nets are not cast too close to the navigable channel. Special care also has to be taken to ensure that chemicals and effluents are not discharged into the rivers without treatment, as a decline in water quality will affect fish populations greatly. Similarly, there should be a requirement to ensure that all dredging projects dispose of their spoil in a way that does not lead to a deterioration of fishing locations or water quality.

2.2.2 Sustainable Water Ways Transport – Perspectives from Bangladesh

Syed Monwar Hossain (Ex-Secretary and Director (Ports and Traffic), Bangladesh Inland Water Transport Authority (BIWTA))

Fisheries and inland navigation are the two main sectors in Bangladesh. Fish production in inland open waters (rivers, estuaries and flood plains) has been estimated at 0.096 million MT in FY 2013-14, which is 27.79% of the total production. Currently, 17.80 million people (about 11% of the total population) are engaged in fishing, with 1.40 million women (8.50% of fishing employment). Furthermore, Protocol Route 1 shares about 12% of the total inland open water production.

On the other hand, about 12,000 big inland ships and as many as one million mechanized country boats provide transport services. The combined transport output of this fleet has been estimated at 15 billion passenger-km (modal share 12% of passenger traffic) and 5.50 billion ton-km (modal share 21% of cargo traffic). In terms of transport in Bangladesh, inland navigation is so important and indispensable, approximately 6.70 million persons are directly employed in IWT, of which only 0.02% are women providing support in loading-unloading of cargo.

However, fishing and inland navigation conflict with each other due to the removal of sand bars and pools through dredging. Heavy traffic and underwater noise also reduce fish productivity and migration. The indiscriminate setting of nets leads to the narrowing of navigational channels, threatening accidents. On the other hand, the two sectors also support each other, as the increased availability of water for navigation facilitates also facilitates fish movement and increases the feeding area.

Co-existence strategies for the two sectors can only be ensured if: (I) inland navigation is regulated by navigational and environmental laws; (II) fishing activities stay away from designated navigational channels; (III) more coordination is fostered among statutory authorities dealing with fishing and inland shipping, (IV) bathymetric surveys are carried out prior to dredging activities; (V) regulations are developed barring fishing in the designated navigational channels; and (VI) low noise engines are installed in inland vessels.

2.2.3 Impact of Inland Water Transport on Aquatic Biodiversity: A Case Study of the River Ganga, India

Dr B.K. Das (Director, ICAR-Central Inland Fisheries Research Institute, Barrackpore, 700120 Kolkata, India)

Inland Water Transport uses relatively less fuel and releases smaller quantities of harmful gases than other forms of transport, making it an economically sustainable and safe transport option. In the European Union and China, the government has accorded importance to developing this mode of transport. In India, the National Waterway No.1 (NW-1) starting from Sagar Island to Allahabad along the river Ganga-Bhagirathi-Hooghly was declared in 1982; however, only the lower 150 km stretch was under regular traffic. In the last two years, transportation in the stretch up to Farakka (560 km from Sagar) has picked up. A study on the impact of inland water transport on aquatic biodiversity in the Sagar to Farakka stretch was initiated at ICAR-Central Inland Fisheries Research Institute, Barrackpore. Emphasis has been given to assessing impacts on the plankton, benthos and fish communities. The studies revealed that the thrust of the propeller causes physical injury to the plankton cells and a significant proportion of damaged plankton cells were recorded (found significant at 1% level). In the shallow navigation channels and in the river bank/shoreline areas, an increase in water turbidity was recorded which has potential to impact on biotic communities. It was observed that fish larvae availability was generally less in the navigation channels with respect to the near bank – shallow areas of the river. Availability of sufficient water depth (5 m or more) is preferable for inland transportation and also for the escape / movement of fishes (including Hilsa) and the Gangetic dolphins present in the studied system. Although studies have been initiated, there is need to develop a better understand of the long term impact of inland transportation on the biotic communities, including their behaviour and population.

2.2.4 Towards Integrated and Ecologically Sustainable Inland Water Transport between BBIN-C: A Legal Perspective

Mr Shawahiq Siddiqui (Partner, Indian Environment Law Organisation, New Delhi, India)

Inland Water Transport through the shared rivers in the Ganges and Brahmaputra basins has great potential to foster sustainable economic development and cooperation among South Asian countries. In the case of the Ganges River, this has two major implications: (I) development of IWT will have serious implications for the international rights and obligations of countries riparian to the Ganges basin and other shared river systems; and (II) there will be ecological and livelihood impacts of developing infrastructure on rivers to support IWT. The key questions therefore are : Is the existing legal and institutional framework geared up to support sustainable IWT in the international basins? And does it adequately take into account the conservation aspects and ecosystem services provided by fresh water ecosystems?

This requires an in-depth analysis of not only the bilateral instruments on water, trade, transport and environment between the riparian countries, but also, an understanding of national and sub-national regimes in the basin countries. The existing formal water cooperation instruments between India and Nepal on the Kosi, Gandak and Mahakali river systems do talk about navigational benefits to Nepal emerging due to the understanding on the shared management of different river systems. However, these benefits are conditional and subject to the technical feasibility to be determined by the Indian side and therefore are illusory. The key water sharing instrument between India and Bangladesh – the Ganges Treaty of 1996 - does not talk about navigation as one of the areas of cooperation between the two countries. However, navigation between India and Bangladesh is the subject of a trade regime that does not necessarily look at or address river systems from an ecological or conservation standpoint. It is therefore important that these regimes be adequately understood and analysed so as to pave the way for sustainable IWT and ecological conservation in the Ganges basin and other shared river systems in South Asia.

2.2.5 Situation Analysis on Inland Navigation (E4L 2012) and the Recommendations of the Joint Dialogue

Mr Dipankar Aich (Programme Officer, IUCN Bangladesh)

Ecosystems for Life: A Bangladesh-India Initiative (E4L) was implemented by IUCN from 2010 to 2014. In 2012, the project developed a situation analysis on inland navigation between the two countries, based on the outcomes of a joint dialogue between Bangladesh and India involving a multi-stakeholder group. The situation analysis identified that the navigability of inland waters needs improvement, e.g. through installation of night navigation equipment and regular dredging. Dredging operations need proper, integrated, preparatory studies, taking into account river morphology, ecosystems and the management of the dredged material. All physical interventions to improve and maintain navigability should be within an IWRM framework.

The dialogue identified priority research areas to improve navigability across borders. The identification of the causes of the deteriorating conditions of the river, the impact of climate change and the preparation of a joint action plan for mitigation and adaptation would support the development of inland navigation in sustainable manner. The dialogue also emphasised the need to identify tangible socio-economic benefits for local communities from the development of cross- border Inland Waterways Transport. The participation of local communities and the private sector in policy formulation and decision making processes would make the process more inclusive and participatory. It was also recommended that both countries should exchange technologies both at the government and non-governmental level, for better management of navigation routes.

2.3 SWOT Analysis and Identification of Roadmap Goal

The results of a SWOT analysis and the consolidated vision statement developed through group discussions are summarised below.

2.3.1 Results of SWOT analysis

a) Strengths

The history and geography of the region are favourable. Traditionally, IWT thrived in the Bangladesh, Bhutan, India and Nepal (BBIN) region. There are networks of rivers and water channels connecting remote villages, which are otherwise very difficult to reach (eg, by road). For example, India and Bangladesh share 54 rivers between them. Therefore, it will be important to develop an understanding of, and to learn from, the history of navigation in the region in order to revive this sector at regional level.

Compared to the road sector, IWT is more environmentally friendly. There is less carbon emitted per unit weight of cargo carried through the waterways. Furthermore, IWT can contribute to the health of river due to the requirements of maintaining minimum flows for the movement of boats.

IWT as a sector has potential to expand livelihoods opportunities, particularly for river bank communities living in the remotest areas, by providing low cost connectivity and opportunities for the development of economic sectors, such as ecotourism, at specific sites along the Protocol Routes between India and Bangladesh.

The development of IWT will contribute to reduced pressure on roads. Furthermore, the development of IWT-related infrastructure has limited land requirements and is cheaper.

b) Weaknesses

Sustainable IWT development is only possible if there is engagement and cooperation among countries, and the involvement of diverse stakeholder groups, including local communities. Currently, there is a low level of cooperation among the BBIN countries and a complete absence of China from the discourse. On the other hand, it was recognised that engagement of multiple stakeholder groups with conflicting interests, such as local fisher folk and large vessel owners, is a challenge to the consensus building process. It is also not clear how CSOs can engage and contribute to policy change, particularly at the regional level.

Currently, road and rail infrastructure development is attracting more investment from both the government and the private sector. Competition from these two sectors has put IWT on the back foot.

Weak institutional capacity, poor decision support systems and the absence of integrated basin level approaches for development and management of IWT are a constraint in achieving integrated management of the two sectors.

Data and information gaps are another constraint. There is a lack of baseline data as well as inadequate technical and time series data on the impacts of IWT on biodiversity. There is a need to conduct cost-benefit analyses and to understand the carrying capacity of river vis-à-vis IWT. Another impediment is that the currently available data is widely dispersed.

c) Threats

Skewed legal frameworks at the bilateral level and a plethora of regulatory frameworks at the national and sub-national level are a constraint. There is a need to harmonise policies

through institutional mechanisms in order to ensure the integrated management of IWT and the fisheries sector.

As a sector, IWT is operating in the absence of **environmental safeguards**. Currently, there is no clarity on the requirements for strategic/cumulative EIAs for IWT projects, even though the sector requires development of multiple logistics and regular dredging for the maintenance of protocol routes.

Hydrology itself is a threat for the sector, particularly in the Brahmaputra basin. Both the sudden changes in the water availability (flooding, drought etc.) and the huge sedimentation load of the GBM rivers could lead to a reduction in river navigability. Climate change and a lack of holistic planning and unplanned infrastructure development further add to the complexity. It is important to remember that any infrastructure development in the upper parts of the river can have impacts downstream.

d) Opportunities

The favourable geopolitics at the present time offer an opportunity: There is a policy thrust from India and interest in the BBIN countries. This is an opportunity for CSO engagement in dialogue and deliberation, and an opportunity to develop strategies for the removal of current political and legal bottlenecks.

IWT is currently an unexploited sector. It has the potential to simultaneously contribute to the expansion and enhancement of trade across borders as well as to livelihood enhancement of river bank communities.

IWT is an efficient and low carbon mode of transport. As such, IWT can be developed in a socio-ecologically sustainable manner.

IWT could be a vehicle for the adoption of basin level management approaches and the fostering of regional cooperation on transboundary water management. It will encourage other issues to be resolved.

There is a need to leverage existing national policies and those under development, as an opportunity to integrate biodiversity concerns into IWT. One example is the aquatic resources conservation policy which is under development in India. On the other hand, Bangladesh already has a National Aquatic Policy and opportunities should be explored to review and update this policy in light of current understanding of the impacts of IWT on aquatic biological resources.

2.3.2 Results of Group Work: Roadmap Vision

Participants were divided into four groups. Each group was asked to work on the development of a vision statement for the roadmap, based on the results of the SWOT analysis above. A timeframe of ten years was set as a realistic timeline for the achievement of the vision.

Each group presented its vision statement, which was discussed and consolidated into one vision statement (please see below). Amongst other considerations, the groups felt that the vision should capture the following ideas: Economically and politically saleable; equitable;

multi-stakeholder engagement; ecosystem services; conservation of biodiversity; protection of local livelihoods; and regional cooperation.

Consolidated Vision - Where do we want to be in 10 years from now?

“Inclusive, transboundary water governance frameworks, institutions and mechanisms are in place and supporting the development of economically sustaining, ecologically sound and equitable IWT development, benefitting both people and nature.”

2.4 The Road to the Roadmap: Identification of Outputs and Activities to Achieve the Vision

After the consolidated vision had been agreed, a set of outputs and activities that could help to achieve the vision was identified through group work. The consolidated results of the group work are given below:

Output 1: The voices of IWT stakeholders (including the private sector) and fishing communities are adequately accommodated in policies and bilateral agreements

Activities

- Conduct local level surveys and generate data, on topics such as: the variety of trade taking place across borders; opportunities for local community involvement in cross-border trade; and conflict between inland navigation and fisheries under the current scenario. Use this data to carry out socio-economic analyses and to build the case for inclusive and sustainable development of the two sectors.
- Identify stakeholders, particularly marginalized groups, and involve them in the dialogue process. Organise dialogues at different levels, involving local governments, communities and the private sector, to sensitize them, build their understanding of the various conflict issues and develop consensus on the need for integrated development of inland navigation for the protection of the river biodiversity and associated livelihoods.

Output 2: Environmental protocols and guidelines for the development of ecologically sound IWT

Activities

- Review existing literature on ecological factors and their condition along the protocol routes; identify gaps and research areas. For example, research on pollution indicators along the protocol routes would help in the development of recommendations for pollution mitigation and management.
- Use the research outputs to develop communication materials and capacity building modules for local IWT entrepreneurs on ecologically sound development and management of inland navigation.
- Carry out a study on the carrying capacity of the river for ecologically sound IWT development and prepare guidance documents (eg, Carbon foot print).

- Draft an integrated framework for economic and ecologically viable IWT.

Output 3: Advocacy tools and mechanisms developed and tested on different themes

Activities

- All the groups identified the need to design tools and conduct focused and theme-based advocacy, based on gaps identified through the dialogue and research conducted under the above two outputs. Some of the themes for advocacy as indicated by group work included: the easy availability of permits for small boat owners and IWT players to engage in the cross border trade; the need for data sharing and joint research by Bangladesh and India; and the need for harmonization of laws at regional level. Advocacy is also required for the development of policies enabling private sector investment in IWT and for the development of environmental protocols to guide sustainable IWT development.

Output 4: Strengthened institutions to support regional cooperation for integrated development of IWT and Fisheries

Activities

- Conduct mapping of regional and local players and identify relevant stakeholders for inclusion in the dialogue process and capacity building events. Bring together all the bilateral and regional mechanisms, such as the South Asian Association for Regional Cooperation (SAARC).
- Review existing policies at national and regional level linked to inland navigation. Develop recommendations for the harmonization of laws and the integration of environmental concerns into existing mechanisms, such as the 'protocol for inland water transit and trade' between Bangladesh and India.
- Conduct joint research as a strategy to build trust and consensus among the stakeholders on specific issues and concerns identified through the multi stakeholder dialogue process.
- Develop a roadmap for a bilateral agreement between Bangladesh and India on the development of ecologically sustainable and inclusive inland navigation, with the involvement of relevant stakeholders.

2.5 Validation of BRIDGE GBM Project Activities and Next Steps

Following the identification of the above outputs and activities, a facilitated discussion was held to gather feedback and to better align two major project activities: the joint paper on hydro-morphological aspects of navigation routes; and the community consultations. Both activities are planned to take place before the 2nd joint consultation in May 2017.

Joint paper on hydro-morphological-ecological aspects of IWT

2.5.1 Presentations from BUET, Bangladesh and IIT, Guwahati

Dr A.K.M Saiful Islam (Professor, Water and Flood Management, Bangladesh University of Engineering and Technology)

Sustainable transboundary inland navigation and fisheries management are crucial for a country like Bangladesh to achieve the Sustainable Development Goals (SDG). Identification of the key issues related to transboundary cooperation is also essential. Climate change poses additional threats to the two, water-based economic sectors. Considering all these aspects, a joint research study by IIT-G and BUET has been proposed to determine the major issues that exist currently and will occur in the future. The primary objective of this research will be to assess the impact of climate change on the fisheries and navigation of the Brahmaputra-Jamuna River through hydro-morphological analysis with a focus on Protocol Route 1, as identified by the Bangladesh-India trade agreement of 2015. The study will: 1) Assess the implications of the floods or low flow changes due to climate change on both fisheries and navigation of the river; 2) Carry out an analysis of the Brahmaputra-Jamuna river using satellite images of study sites in Bangladesh and India, to identify the vulnerable, erosion-prone areas of the river.

The outcomes of this research will help in developing a better understanding of the socio-economic implications of river bank erosion and IWT-based infrastructure development on fisheries and navigation of the rivers. Dhubri in India and Chilmari in Bangladesh have been selected as the study sites for stakeholder consultations and focus group discussions.

Dr Chandan Mahanta (Professor and Scientist, Indian Institute of Technology, Guwahati, India)

There are clear benefits of joint inland navigation between India and Bangladesh via the Brahmaputra. Cargo transportation, particularly to north-east India through the Sundarbans in Bangladesh, is the shortest route compared to rail or road transport. During natural calamities, such as floods, IWT provides a way to transport food grains and other basic commodities when other channels of transport are disconnected. It can also boost social and economic development in the hinterland and inaccessible areas of both countries, through initiatives such as the development of a tourism circuit between Guwahati-Kaziranga via Tezpur and a corresponding increase in allied trade and commerce. However, to achieve this, there is a need to develop all-season routes and associated infrastructure, adopt channel protection measures and understand the impacts of climate change on sustainable IWT development.

Against this background, IIT G will undertake a study to understand the impacts of climate change on the fisheries and navigation of the Brahmaputra-Jamuna river, through a hydro-morphological analysis based primarily on secondary data. The study will identify the current and expected trends in rainfall and flooding patterns, the anticipated impact of these trends on water levels in the Brahmaputra river system, and the implications for both fisheries and navigation. A profile of Protocol Route 1 will be developed, with key descriptions and a map showing the location of ecologically sensitive areas such as fish spawning zones and deep pools. The study will make use of relevant secondary GIS data (digital base charts based on LISS, PAN images and bathymetric inputs etc.). IUCN will provide specific inputs for the

development of this report through community consultations and a questionnaire survey along the Dhubri-Chilmari stretch, capturing information on local consumption patterns and natural resource use by communities, among other factors.

Discussion

The discussions that followed the presentations confirmed that the study should assess trends in rainfall and flooding patterns, their expected impact on water levels in the Brahmaputra-Jamuna river systems in light of climate change, and the implications for both fisheries and navigation.

It was also noted that it would be helpful if the report could provide information on the anticipated hydro-morphological alterations that are likely to result from an increase in cargo volume (say a doubling of traffic compared to current levels) and ensuing navigation-related infrastructure development. The report should also contain recommendations on possible engineering options/solutions to avoid/minimize these alterations and conserve the ecological integrity of aquatic ecosystems.

Although the report should be evidence-based, participants emphasised that the aim should not be to produce a piece of original scientific research. Rather, because of time and budget constraints and the necessity of relying on secondary data, the primary objective should be to use the report as a tool to help guide the consultations and the roadmap development process. The report is also expected to help with the identification of entry points for civil society engagement on specific issues. Participants recognised that the report may not be reflective of the entire protocol route, as local geological conditions and practices vary.

2.5.2 Location and strategies for community consultations

To develop the roadmap for the sustainable development of inland navigation and fisheries, the BRIDGE GBM project will facilitate a series of Focused Group Discussions and Key Informant Interviews in Bangladesh and India with local communities. Two of the key locations for these consultations were identified during the inception phase: Dhubri (Assam, India) and Chilmari (Bangladesh).

The Dhaka consultation was useful in generating CSO support for the community consultations and identified four additional locations as well as the strategies and partnerships for organising the consultations at all the six locations were also discussed.

Important criteria for site selection were: closeness to the international border; location along the protocol routes between Bangladesh and India; high population density and poverty; the degree of local involvement in navigation and water-based livelihoods; location on the right or left bank; and the perceived vulnerability of the location to natural and man-made hazards.

The final list of the sites selected and a description of the partnership arrangements for facilitating the community consultations is given below:

Bangladesh:

- **Chimari (Bangladesh):** Co-organised by IUCN and Oxfam Bangladesh.

- **Sirijanj (Bangladesh):** Co-organised by Manab Mukti Shagstha (MMS) and IUCN.
- **Khulna (Bangladesh):** ActionAid, Bangladesh will conduct Focussed Group Discussions with local fisher folk and provide a report on the outcomes of the consultation.
- **Rowmari (Bangladesh):** The Riverine People, Dhaka (Bangladesh) will conduct Focused Group Discussions and Key Informant Interviews and report on the outcomes, identifying those issues that could be integrated into the roadmap. The site is located close to Chilmari, but on the left bank of the Protocol Route on the Bangladesh side. The outcomes of the Rowmari consultation will help to develop an understanding of the differences in the challenges and opportunities for local communities as a result of their location (right or left bank) along inland navigation routes.

India:

- **Dhubri (India):** IUCN and CUTS International (India) will collaborate and co-organise these consultation in partnership. Rashtriya Gramin Vikas Nidhi (RGVN), Guwahati (India) will be the local partner and will support the consultations through community mobilisation and the arrangement of local logistics.
- **Kumirmari (India):** The conflict between inland navigation and local fisheries was an important criterion for the selection of this site. IUCN will facilitate the consultation process, with support from the Nature Environment & Wildlife Society (NEWS), Kolkata (India).

Stakeholders: The groups to be involved in the consultations include local boatmen, farmers and fisher communities, local traders, lessees, local district authorities (eg, customs department, boat authorities and border security officials).

3 Conclusions and next steps

The Dhaka consultation was useful in developing a better understanding of the conflict issues between inland navigation and fisheries-based livelihoods among the participating CSOs. It also helped identify the goal and intervention strategies for the development of a roadmap towards the integrated management of the two, water-based livelihoods sectors.

The consultation helped build consensus on the following issues:

a) The geopolitics of the region are favourable for the development of cross-border inland navigation, as there is a policy thrust from India and interest in BBIN to improve connectivity at a regional level. This is an opportunity for CSO engagement in dialogue and deliberation, aimed at developing strategies for the removal of current politico-legal and capacity bottlenecks hindering the sustainable development of cross-border inland navigation.

b) IWT has the potential to simultaneously contribute to expansion of trade across borders and livelihoods enhancement of river bank communities.

c) Due the requirements of minimum flows, the development of cross-border IWT could be a vehicle for the adoption of basin-level management approaches and the fostering of regional cooperation on trans-boundary management in the GBM.

As a follow-up to the Dhaka consultation, IUCN will facilitate joint research on hydromorphological aspects, with a focus on the selected Protocol Routes for cross- border inland navigation between Bangladesh and India. The project will also facilitate a series of community consultations.

The outcomes of the joint research and the community consultations will feed into the second Bangladesh-India joint consultations planned in May 2017 to finalise the roadmap and a strategy for its implementation.

Annex 1: Agenda

Time	Day 1 (2 November 2016)
8:30 – 9:00	Registration
Session 1: Introduction, Networking and CSO Activities in the GBM Basin	
09:00 – 09:10	Welcome by Mr Ishtiaq Uddin Ahmad (Country Representative, IUCN Bangladesh Country Office)
09:10 – 09:30	Introduction to the objectives and agenda (by IUCN team)
09:30 – 10:15	Introduction of participants and activities on water governance in the GBM
10:15 - 10:45	Presentation: The BRIDGE GBM Project and IUCN TBWG Work (by IUCN team)
10:45 – 11:00	Coffee break and group picture
11:00 – 13:00	<p>Understanding the Context: Integrated Management of IWT and the Fisheries Sector</p> <p>Screening of E4L documentary on Inland Water Transportation</p> <p>Conflicts between IWT and fisheries-based livelihoods</p> <p>Perspectives from India - Mr Arun Roy, Advisor, IWAI, Ministry of Shipping</p> <p>Perspectives from Bangladesh - Mr Syed Monowar Hossain, Former Secretary and Director (Ports and Traffic) of BIWTA</p> <p>Impact of Inland Water Transport on Aquatic Biodiversity: A Case Study from the River Ganga, India - Dr. B.K. Das Director, ICAR – Central Inland Fisheries Research Institute, India</p> <p>Existing legal frameworks and opportunities for integrated and ecologically sound development of IWT - Mr Shawahiq Siddiqui, IELO, New Delhi, India</p> <p>Inland Navigation and Integrated Water Resources Management: Lessons Learned from the IUCN E4L Project - Mr Dipankar Aich, IUCN</p>
13:00 - 14:00	Lunch break
Session 2: Long-term Goal (Vision) and Outcomes for the Roadmap	
14:00 – 15:30	SWOT analysis: understanding challenges and opportunities for integrated management of IWT & fishing
15:30-17:30	<p>Group activity: Identify the roadmap goal/vision (Small group discussions followed by presentation from each group)</p> <p>Facilitated discussions to validate and refine the Vision (30 mins)</p> <ul style="list-style-type: none"> • Does it encompasses the needs of all groups and will it help in sustainable development of the community? • Is the vision clear enough to be operationalized? • What could be the broad strategy to achieve the vision?
19:00 – 21:30	Networking dinner

Day 2 (3 November 2016)	
Session 3: The Road to the Roadmap: Defining Strategies/Interventions	
09:00 – 09:30	Recap of Day 1
09:30 – 11:15	Group Work: Identification of outcomes and activities for the roadmap vision/goal
11:15 – 11:30	Coffee break
11:30 – 12:30	Presentation by each group and discussion
12:30 – 13:30	Lunch break
Session 4: Validation of Project Activities and the Next Steps	
13:30 – 14:30	<p>Joint study on hydromorphological-ecological aspects of IWT Presenters: Dr. Saiful Islam, BUET, Dhaka, Bangladesh <i>and</i> Dr. Chandan Mahanta, IIT, Guwahati, India</p> <p>Discussion (30 mins):</p> <ul style="list-style-type: none"> • Will the study help in identifying entry points and issues for civil society to engage and influence transboundary cooperation with respect to inland waterways transport and fisheries management? • Any suggestions for refining the study design and reporting?
14:30 – 15:30	Plenary: Location and strategies for the community consultations
15:30 – 15:45	Coffee break
15:45 – 16:15	Workshop wrap up and next steps
16:15 – 16:30	Vote of thanks + workshop evaluation

Annex 2: Participants List

S no.	Title	Participant's name	Organisation	Location
Participants – India				
1	Ms	Ajanta Dey	Programme Director, NEWS (Nature Environment & Wildlife Society)	Kolkata, India
2	Ms	Aneeta Dutta	Assistant Director, RGVN (Rashtriya Gramin Vikas Nidhi)	Guwahati, India
3	Mr	Arun Roy	Consultant to Inland Waterways Authority of India and Technical Expert, Indian Institute of Technology (IIT) Guwahati	Kolkata, India
4	Dr	B. K. Das	Director, ICAR-Central Inland Fisheries Research Institute	Kolkata, India
5	Dr	Chandan Mahanta	Indian Institute of Technology (IIT) Guwahati	Guwahati, India
6	Mr	Dipayan Dey	CHAIR (Research & Planning), SAFE (South Asian Forum for Environment)	Kolkata, India
7	Ms	Veena Vidyadharan	Policy Analyst, CUTS International (Consumer Unity & Trust Society)	Jaipur, India
8	Dr	Partha J Das	Head, Water, Climate & Hazard Division, Aaranyak_(A Scientific and Industrial Research Organisation of India)	Guwahati, India
9	Mr	Prithviraj Nath	Associate Director, Head, CUTS Calcutta Resource Centre	Kolkata, India
10	Dr	Saswati Sen	Director, WWF India (West Bengal office)	Kolkata, India
11	Mr	Shawahiq Siddiqui	Partner, IELO (Indian Environment Law Organisation)	New Delhi, India
Participants - Bangladesh				
12	Mr	AK Enamul Haque	Director of Research, Executive Director, Asian Center for Development	Dhaka, Bangladesh
13	Dr	AKM Saiful Islam	Professor, Institute of Water and Flood Management (IWFM) and Bangladesh University of Engineering and Technology (BUET)	Dhaka, Bangladesh

14	Mr	Md Khalid Hossain	Economic Justice Resilience Programme Manager, Oxfam Bangladesh	Dhaka, Bangladesh.
15	Mr	M. Mokhlesur Rahman	Executive Director CNRS (Center for Natural Resources Studies)	Dhaka, Bangladesh
16	Dr	Maminul Haque Sarker	Deputy Executive Director, Center for Environmental and Geographic Information Services (CEGIS)	Dhaka, Bangladesh
17	Mr	Md Habibullah Bahar	Director, Manab Mukti Shagstha (MMS)	Sirajgonj, Bangladesh
18	Mr	Mohammad Mohsin	Acting President, Bangladesh Engine & Bulkhead Boat Owners Association	Dhaka, Bangladesh
19	Mr	Shafiqul Haque	Director, Port and Focal of Joint-Protocol, Bangladesh Inland Water Transport Authority (BIWTA)	Dhaka, Bangladesh
20	Mr.	Shamsher Ali	Senior Office NRM and Water, ActionAid Bangladesh	Dhaka, Bangladesh
21	Mr	Sheikh Rokon	Secretary General, Riverine People	Dhaka, Bangladesh
22	Mr	Syed Monowar Hossain	Former Secretary and Director (Ports and Traffic) of BIWTA (Bangladesh Inland Water Transport Authority)	Dhaka, Bangladesh
23	Mr	Zahir-ul-Haque Khan	Director Port and Estuary Management Division, Institute of Water Modeling (IWM)	Dhaka, Bangladesh
IUCN Staff				
24	Ms	Archana Chatterjee	National Coordinator, Mangroves For the Future (MFF)	Delhi, India
25	Mr	Dipankar Aich,	Programme Officer (Water Diplomacy Project)	Dhaka, Bangladesh
26	Mr	Jos van Der Zanden,	Coordinator, Biodiversity & Conservation	Dhaka, Bangladesh
27	Mr	Vishwa Ranjan Sinha	Programme Officer, Natural Resources Group	Bangkok, Thailand