Ecosystems for Life: A Bangladesh–India Initiative

External Review Report

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EXECUTIVE SUMMARY

The Ecosystems for Life: A Bangladesh – India Initiative (Dialogue for Sustainable Management of Trans-boundary Water Regimes in South Asia) is an attempt to develop a neutral platform among key elements of civil society for discussing the management of the Ganges, Brahmaputra and Meghna (GBM) rivers shared by both countries. The Ecosystems For Life (E4L) Project commenced in 2010, and received its entire USD 6.4 million budget from The Minister for Development Cooperation of the Netherlands. The project was scheduled initially to run from February 1, 2010 until July 31, 2014; however, in November 2013, the project requested and was granted a five months extension to December 31, 2014. Through IUCN-facilitated collaborative deliberations, the PAC chose to focus on five major thematic areas: food security, water productivity and poverty; impacts of climate change; environmental security; trans-boundary inland navigation; and biodiversity conservation.

The E4L project used four tools to achieve its goal and objectives: creation of formal dialogue opportunities; facilitating joint research; development of a shared knowledge base on water related resources; and capacity-building through training, exposure visits, communication, publications and dissemination.

The external review process engaged a three-person team of independent consultants who had no prior direct or indirect involvement with E4L. The review process involved a combination of interviews with E4L project staff and E4L participants in both Bangladesh and India , as well as review of the project documentation.

At a general level, the external review had the following objectives:

1. Assess E4L's progress and performance.
2. Identify factors which make policy dialogues successful.
3. Provide lessons, insights and direction to donors especially in relation to how initiatives such as this can lay foundations for longer-term cooperation.

In ascertaining the overall progress and performance of the E4L process, the Review Team focused on the effectiveness of the key tools used by the E4L Project to achieve its goal and objectives. The E4L Project has focused on structured dialogue processes, joint research studies and capacity development founded on the principle of building trust between a broad range of civil society stakeholders representing the two countries.

FINDINGS

While E4L is only one among the many initiatives promoting integrated management in the GBM, the project has already made a valuable contribution to the knowledge base. It has also been catalytic in widening the thinking of the many scientists and practitioners involved in joint research studies, helping them to embrace the ecosystem-based approach to river management, as well as creating productive institutional links between Bangladesh and India that, in some cases, have already resulted in additional opportunities for cooperation beyond E4L

The E4L Process, by design, efficiently engaged a large number of senior civil society representatives who have direct connections to government and senior decision-makers; and

who, in many cases, are also consulted with by Track II and Track I resource managers and policy-makers. These high level decision-makers have also had access to research outputs and knowledge products from E4L. Their participation in international exposure trips and conferences further served to influence Track 1 and Track II dialogues. E4L has also been commendable in recognizing and constructively engaging with media sources in both India and Bangladesh, as well as advancing grass roots outreach through the novel use of participatory filming.

The various governance and implementation arrangements set up within E4L have contributed to an effective, iterative process that other initiatives could take valuable lessons from. The E4L Project Advisory Committee (PAC), comprising of the members of the two National Advisory Committees (NACs), has made a valuable contribution to guiding the process. In general, the Bangladesh-India research studies have also been jointly planned, implemented and reviewed well, leading to increased cooperation and understanding among research partners at both institutional and personal levels.

The E4L project set out to collect and synthesize existing information and carry out strategic research within the context of five priority theme areas and a further six sub theme areas within Environmental Security, The joint research studies conducted by E4L represent major outputs from the project, as well as the corpus of scientific, evidence-based knowledge being used to support policy-relevant dialogue, capacity-building and information dissemination.

A highly effective process was followed for developing and applying shared research methodologies. The project has produced a substantial documentation on the research undertaken within each of the five selected themes. However, the research reports are uneven in quality and in a number of cases they fall short of being “joint” in the sense that they have not integrated the work done in Bangladesh and India into a single review document.

In coverage, the studies range for being highly selective thematically or geographically, to being much broader; some studies have been reported only in the form of separate papers from Bangladesh and India. The themes themselves also seem to have been managed rather differently, which is not surprising given the wide diversity of institutions involved; and this may explain much of the variation in the quality and styles evident in the documentation. Before the end of the project period considerable work still needs to be done: completion of the remaining studies; further editing and formatting of a number of draft reports of varying quality and completeness; consolidation and synthesis of the many recommendations for further research, and/or management interventions, presented in the individual reports and papers.

E4L is a project involving joint research and development activities that emphasize the central role of research, around which dialogue, cooperative understanding, capacity-building and policy influencing activities can be built. The Review Team found that the project’s stakeholders generally share this understanding, which is already in itself a significant “communications achievement”.

E4L identified and recognized, at the outset, the strategic importance of knowledge management in delivering the project goals. A detailed and well thought out communication strategy has been developed to guide these efforts. Knowledge products and informal hubs are integral elements, with websites and databases serving as support mechanisms, rather than as primary drivers. As the project enters its final months, more thought needs to be given to how the substantial and growing E4L knowledge base should be managed and how to best establish an E4L knowledge hub?

Recent internal discussions within E4L appear to converge on the thinking (which the reviewers support), that hubs are not just about managing information. Knowledge hubs can also be understood as linked networks of people, with common interests and a shared agenda, connecting with one another, across disciplines and geographic boundaries with access to common resources (e.g. database, websites). E4L should work in future to match knowledge supply with the demand and need for knowledge in a more effective manner.

E4L should play a proactive knowledge-brokering role in order to make the connections to decision-makers and to promote well-targeted knowledge flows. Designating senior level, focal point persons in strategic positions in various institutions should be considered as an important component of the above strategy to make knowledge delivery more targeted and effective. The focal points could then constitute a consultative group well-positioned to help E4L deliver knowledge through key entry points into the government decision-making machinery.

Given E4L's commendable progress to date, and the numerous collaborative activities scheduled before the project closes, the Review Team believes that significant progress towards an agreed joint Vision can be achieved by E4L's concluding meeting in Dhaka in late November, at least in the form of a Vision Statement setting out clearly the longer term desired-for changes in the GBM socio-ecological system. How the vision can be achieved through integrated trans-boundary management by Bangladesh and India can then become a fruitful area for discussion to support the planning of a possible second phase of E4L.

The E4L Project's decision to use the concept of the "ecosystem" to frame discussions, rather than as a "trans-boundary" issue was a subtle, yet important, change made early in the project's implementation. An integrated systems approach to research and management in the GBM region is likely to pay dividends in the longer term through better-informed decision-making about trans-boundary and cross-sectoral issues.

Between now and the formal end of the funded portion of the project in December 2014, E4L will be completing a number of critical program elements**.** The review team is supportive of the view held by key informants, including the PAC, that E4L should be continued into a Phase 2 to take advantage of established dialogue processes and momentum to "seize the moment" so to speak. The pace at which major resource management decisions are being made in the Ganges, Brahmaputra and Meghna Rivers region is accelerating. E4L has proven its effectiveness at tangibly and meaningfully influencing natural resource policy in a very short time frame. The project should be encouraged to seek a continuation which will reinforce Track III initiatives; and at the same time target theme-based policy influence in the most critical areas to promote rational, ecosystem service-aware policy development. The review concludes with a number of recommendations covering: project management; dialogue, joint research, knowledge base and dissemination; and capacity development.

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **I**

1. PROJECT BACKGROUND **6**

1.1. E4L Goal and Objectives 6

2. E4L PROJECT EXTERNAL REVIEW PROCESS **8**

3. PROJECT STAFFING HISTORY AND ORGANIZATION **9**

4. PROJECT CONTRACTING **9**

5. THE ROLE AND RELEVANCE OF THE INITIATIVE **9**

5.1. Role and Relevance In Relation to Other Initiatives in the Region 11

5.2. E4L Track III Diplomacy as a Bridge to Track II and Track I Discourse 14

6. EFFECTIVENESS OF THE E4L PROCESS **14**

6.1. Achievement of Objectives 15

6.1.1. E4L Objective 1 Performance Assessment 15

6.1.2. E4L Objective 2 Performance Assessment 18

6.1.3. E4L Objective 3 Performance Assessment 35

7. CONCLUSIONS **38**

7.1. Lessons Learned and Way Forward 39

7.2. Options for Post E4L Continuity 40

7.3. Factors Which Make Natural Resource Policy Dialogues Effective 42

8. RECOMMENDATIONS **43**

8.1. E4L Management 43

8.2. Dialogues (Track III, II, I) 44

8.3. Joint Research 44

8.4. Knowledge Base and Dissemination 45

8.5. Capacity Building 46

8.6. Institutionalizing E4L's Impacts and the Way Forward 47

LIST OF TABLES

Table 1. Other regional initiatives relevant to E4L. 11

Table 2. Dialogue mechanisms employed by the E4L Project and associated outputs. 16

Table 3. E4L Phase 1 forward action items to be closed out by December 2014. 41

LIST OF FIGURES

Figure 1. Ecosystems for Life: An example of its integrated processes and activities. 7
Figure 2. Biodiversity Conservation – processes and outputs 20
Figure 3. Climate Change – process and outputs 21
Figure 4. Food Security, Water Productivity and Poverty – processes and outputs. 22
Figure 5. Inland navigation – processes and outputs. 24
Figure 6. Environmental Security – Documentation Structure. 26
Figure 7. Knowledge hub – processes and outputs. 33
Figure 8. Shared understanding – processes and outputs. 34
Figure 9. Capacity Building – processes and outputs. 37

LIST OF APPENDICES

Appendix A. National Advisory Committee and Project Advisory Committee 50
Appendix B. E4L External Review - Review Team and Scope Of Work 51
Appendix C. Key Informants Interviewed During E4L Project Review. 58
Appendix D. Listing of Main Publication Outputs 62
Appendix E. E4L Staffing 2010 - 2104 64
Appendix F Bangladesh Civil Societies, NGOs, Community Organizations and Research Institutes Contracted for E4L Project 66
Appendix G Indian Civil Societies, NGOs, Community Organizations and Research Institutes Contracted for E4L Project 72
Appendix H Independent Contractors On E4L Project 76
APPENDIX I. Results Framework For E4L 77
Appendix J. List of Meetings, Workshops and Conferences Organized 84
Appendix K LISTING OF MEDIA BRIEFS AND FACT SHEETS PRODUCED 89
Appendix L . Media Persons and Fellows Engaged/ Contracted For E4L Project 90
Appendix M List of E4L Field Visits 94
Appendix N Media Coverage and Engagement 97
Appendix O List of Universities Engaged 98
Appendix P. Potential Format Outline for Information Briefs 99

1. PROJECT BACKGROUND

The Ecosystems for Life: A Bangladesh – India Initiative (Dialogue for Sustainable Management of Trans-boundary Water Regimes in South Asia) is an attempt to develop a neutral platform among key elements of civil society for discussing the management of the Ganges, Brahmaputra and Meghna (GBM), rivers shared by both countries. The Ecosystems For Life (E4L) Project commenced in 2010, and received its entire USD 6.4 million budget from The Minister for Development Cooperation of the Netherlands. The project was scheduled initially to run from February 1, 2010 until July 31, 2014; however, in November 2013, the project requested and was granted a five months extension to December 31, 2014. The project involved establishment of a nine member National Advisory Committee (NAC) in each of India and Bangladesh, which came together annually and semi-annually as an 18 member co-management Project Advisory Committee (PAC); see **Appendix A**). Early in the project's inception phase, the PAC, in consultation with IUCN, shifted the dialogue to focus on (GBM) water issues from the perspective of a shared "Ecosystem" rather than being focused only on "trans-boundary" water-related issues. This was felt to be more appropriate in terms of both IUCN's mandate; and as a more productive way to help move the trans-boundary dialogue forward more constructively.

Through IUCN-facilitated collaborative deliberations, the PAC chose to focus on five major thematic areas: food security, water productivity and poverty; climate change; environmental security; trans-boundary inland navigation; and biodiversity conservation. Energy was included as a sub-theme under Environmental Security. The E4L project used four components, or tools, to achieve it's goal and objectives: creation of formal dialogue opportunities; facilitating joint research; development of a shared knowledge base on water connected resources; and capacity-building through training, exposure visits, communication, publications and dissemination.

A chronology of E4L activities since 2010 is shown in **Figure 1**.

1.1. E4L Goal and Objectives

The stated goal of the E4L Project was:

> "*Improved, integrated management of trans-boundary water regimes in the shared rivers of the GBM Region*"

The stated objectives of the E4L Project were:

> "*1. To develop a multi-stakeholder forum, through which civil society groups can engage in constructive and informed dialogue under the Track III approach for managing trans-boundary water regimes.*
>
> *2. To develop a comprehensive knowledge base on integrated Water Resources Management (IWRM) issues in the management of trans-boundary water regimes involving scientists, research institutes, universities and civil society organizations in the region.*
>
> *3. To develop capacities and foster mutual learning between civil society organizations and act as bridge between similar processes in the region for enhancing participation in multi-stakeholder dialogue processes and for better management trans-boundary water resources in the region."*

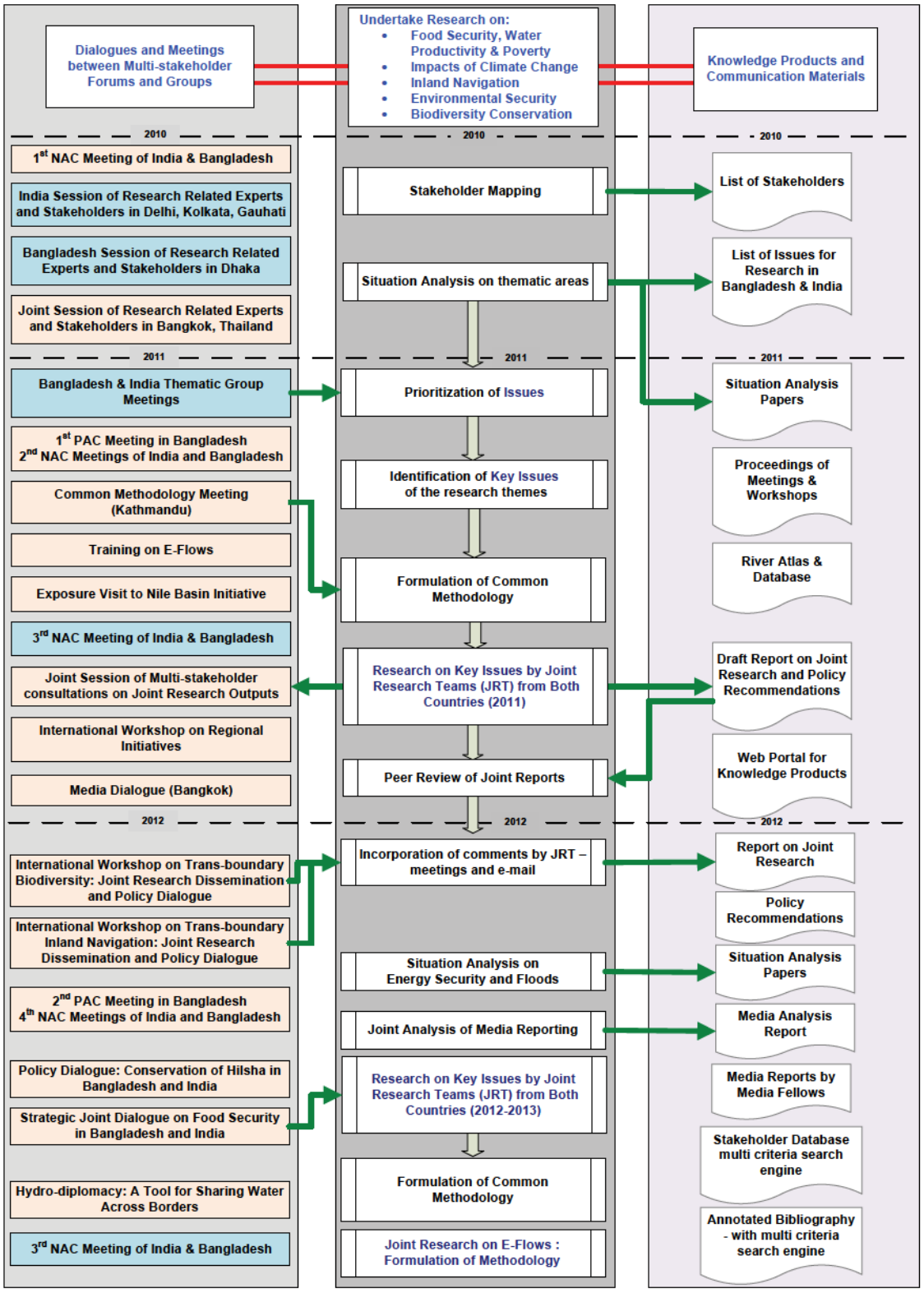

Figure 1. Ecosystems for Life: An example of its integrated processes and activities.

2. E4L PROJECT EXTERNAL REVIEW PROCESS

The external review engaged a three-person team of independent consultants who had no prior direct or indirect involvement with E4L. These consultants were selected based on their extensive experience with resource management initiatives in Asia and elsewhere; they were provided with a Scope of Work for the review (**Appendix B**). The review process involved a combination of interviews with E4L project staff and E4L participants in both Bangladesh and India (**Appendix C**), as well as review of the project documentation (**Appendix D**).

At a general level, the project review had the following objectives:

4. Assess E4L's progress and performance.
5. Identify factors which make policy dialogues successful.
6. Provide lessons, insights and direction to donors especially in relation to how initiatives such as this can lay foundations for longer-term cooperation.

In ascertaining the overall progress and performance of the E4L process, the Review Team focused on the effectiveness of the key components/tools used by the E4L Project to achieve its goal and objectives, namely:

- Dialogues
- Joint Research
- Development of a Knowledge Base
- Capacity-Building

In addition, the review team also examined the overall management of the project. The review was not intended to provide a financial audit, or to materially assess the project's cost-effectiveness.

In evaluating the E4L Project's development and use of the four primary E4L tools, the Review Team applied the following methodologies:

- Review of all E4L project documentation;
- meetings with key E4L informants (participants/stakeholders), including representatives from the E4L National Advisory Committees (NACs) and Project Advisory Committee (PAC);
- consideration of E4L's impacts in the light of its aims and objectives, outputs and activities; and in comparison with other similar initiatives;

Field visits to interview a broad cross section of E4L stakeholders/participants were undertaken in both India and Bangladesh, scheduled over a 10 day period from 27th July to 5th August 2014. In total, 39 key informant interviews were conducted.

The key informant interviews focused on the following questions:

- Did the project-supported joint studies under each of the five themes produce valuable, evidence-based results to support the trans-boundary dialogue process?
- Has the project resulted in new communications and collaboration with colleagues across the border?

- Did the E4L process result in significant progress with regard to opening dialogue on trans-boundary water issues?
- Has the project reasonably promoted capacity development?
- What should be the focus of an E4L Phase 2?
- Would a neutrally facilitated process like Phase 1 also be appropriate for a Phase 2?

3. PROJECT STAFFING HISTORY AND ORGANIZATION

The E4L project headquarters in New Delhi is currently staffed by a total of 12 dedicated staff split between India (5) and Bangladesh (7) (**Appendix E).** Project staff turnover has involved 3 Project Director positions (including one interim Project Director), 1 Project Manager, 1 Operations Manager, 3 Dialogue Coordinators, 1 Logistics Officer, 1 Project Assistant, and 1 Communications Officer. These turnovers did, to some extent, slow the early stages of project implementation; however, the project staffing stabilized from early 2013 once the current Project Director was in position, and since then, the E4L team has largely been able to catch up with the proposed implementation schedule.

4. PROJECT CONTRACTING

Project outsourcing was used to obtain needed outside expertise. The manner in which this was organized has also allowed the project to significantly extend societal project awareness and engagement across multiple local and national civil society sectors. In Bangladesh, the project contracted a total of 77 participants from civil society (NGOs, community organizations and research Institutes) (**Appendix F**). In India, the project contracted 53 groups from among these same sectors (**Appendix G**). In addition, a further seven independent and expatriate contractors were contracted to further support the joint efforts (**Appendix H**). These efforts have: generated useful project resource material; expanded dialogue amongst practitioners; and increased the appreciation of the GBM as an ecosystem with interconnected sectors.

5. THE ROLE AND RELEVANCE OF THE INITIATIVE

The E4L Project's Goal is *Improved, integrated management of trans-boundary water regimes in the South Asian Region.*

The project's contribution to this goal relates specifically to cooperation between Bangladesh and India to improve trans-boundary management of the Ganges-Brahmaputra-Meghna (GBM) region. These three rivers and their tributaries make up the second largest hydrological regime after the Amazon Basin. Covering almost 1.75 million km^2, and comprising of land areas in Bangladesh, Bhutan, China, India and Nepal, the food security and livelihoods of the vast human population living in the GBM region are intimately linked to water.

As the human population continues to increase, the demand for water and other natural resources in the GBM region is intensifying, making it even more necessary to safeguard the vital linkage between its natural ecosystems and human livelihoods and food security. Currently, some 680 million people, or about 10% of the World's population, depend on

ecosystem services from the GSM. Food, livelihoods, and personal security are also threatened by the frequent floods, droughts, storm surges, and cyclones, that affect this region. Moreover, these periodic events are becoming more extreme due to climate change, with the additional threat of sea level rise as another serious consequence of the changing climate.

E4L builds on a history of water-sharing agreements between the two countries, beginning from 1972 when a Joint Rivers Commission was formed; and especially since 1997, when a treaty about water-sharing by India and Bangladesh, in relation to water flows from the Farakka Barrage, was signed. While E4L is only one among the many initiatives promoting the concept of integrated management in the GBM, the project has already made a valuable contribution to the knowledge base. It has also been catalytic in widening the thinking of the many scientists and practitioners involved in joint research studies, helping them to embrace the ecosystem-based approach to river management, as well as creating productive institutional links between Bangladesh and India that, in some cases, have already resulted in additional opportunities for cooperation beyond E4L.

The E4L Project has focused on structured dialogue processes, joint research studies and capacity development founded on the principle of building trust between a broad range of civil society stakeholders representing the two countries. In particular, an important and innovative role played by E4L has been the involvement of the Press.

A consultative process was followed in 2010 to identify five themes for joint trans-boundary research. These themes, and their intended aims, are as follows:

- ***Food security, water productivity and poverty*:** Exploring issues and links between food security and water productivity for poverty alleviation.
- ***Environmental security:*** Understanding the linkages between economic development and environmental security.
- ***Biodiversity conservation:*** Addressing conservation needs of indicator species such as Hilsa, the Gangetic Dolphin and other riverine biodiversity.
- ***Inland navigation*:** Conducting research on economic, social and environmental benefits considering the Integrated Water Resources Management principle.
- ***Impacts of climate change:*** Conducting research to develop a common understanding on the impacts of climate change, adaptation methods and mitigating strategies.

As a good indicator of E4L's relevance as a trans-boundary initiative, it is worth noting that the NAC's for Bangladesh and India were asked to consider the needs of the region and to identify a list of priority topics separately, before deciding on the final selection together as the PAC; the two lists were almost identical. Based on our own regional experiences, and the views of the wide cross section of stakeholder representatives interviewed in both India and Bangladesh (**Appendix C**), the Review Team considers that the project-identified themes and priorities were timely, appropriate and highly relevant to the GBM region.

The first three themes address the most important aspects of ecosystem-based management in riverine systems. Inland navigation represents a major economic sector with multiple interactions within the riverine social-ecological system; while climate change impacts have significant economic, social and environmental implications for the GBM, which are also cross-cutting in relation to the other themes.

5.1. Role and Relevance In Relation to Other Initiatives in the Region

Based on review of project documentation and key informant interviews, the E4L Project has resulted in valuable progress in establishing significant new and ongoing bilateral dialogue. Most importantly, the E4L process has demonstrated that properly structured, facilitated and executed collaboration can provide a constructive path to the development of meaningful policy changes that can result in improvements to the management of shared resources.

E4L has also generated, synthesized and analyzed a substantial amount of resource data about the GBM region, which will have value to many other initiatives operating in the region. A summary of other developmental initiatives most relevant to E4L is presented in **Table 1**.

Table 1. Other regional initiatives relevant to E4L.

Name	Period	Focus area	Countries
South Asia Water Initiative (SAWI)	Since 2006 Abu Dhabi Dialogue Current planning horizon to 2017	Greater Himalayas; regional cooperation on rivers, water resource development Funded by UK , Australia, Norway & World Bank)	Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Pakistan
Bay of Bengal Large Marine Ecosystem Project (BOBLME)	01/04/2009 - 31/03/2014 (likely to be extended)	Bay of Bengal; marine ecosystems and protected areas; integrated coastal management; livelihood enhancement; fishery	Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka, Thailand
CGIAR Challenge Program on Water and Food Consultative (Group on International Agricultural Research)	Since 2002	Resilience of social and ecological systems; food security; land degradation; adaptive management; sustainable livelihoods	River Basins of Andes Basin systems, Ganges, Limpopo, Mekong, Nile, Volta
Delta Alliance	Since 2011	International cooperation on river deltas; resilience	Argentina, Bangladesh, Brazil, China, Egypt, Indonesia, Netherlands, US, Viet Nam,
High Noon Research Project	01/05/2009 - 01/05/2012	Northern India, Ganges Basin, Himalayan glaciers, monsoon, Climate Change impacts and adaptation	India
ICIMOD Initiatives on	Centre was	Hindu-Kush-Himalayan	Afghanistan,

Name	Period	Focus area	Countries
floods, climate change and glacio-hydrology (International Centre for Integrated Mountain Development)	established in 1983, various projects since; currently 14 different projects For example 05/2013 - 12/2016 (Brahmaputra-Salween Landscape Conservation and Development Initiative - BSLCDI) 12/2009 - 12/2014 (Regional Flood Information System in the Hindu Kush Himalayan region - HKH-HYCOS)	region; Climate Change impacts and adaptation; mountain ecosystems; food security; flood management; flood warning systems. CC adaptation; knowledge sharing; traditional ecological; knowledge; poverty alleviation; capacity and policy building; Data and information sharing; building of technical capacity; flooding; resilience; livelihoods	Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan Eastern Himalayas; China, India, Myanmar Bangladesh, Bhutan, China, India, Nepal, Pakistan
IWMI's projects (International Water Management Institute)	Established in 1984, currently 26 different projects For example 15/04/2012 - 30/04/2016 (Adaptation to Climate Change in Andhra Pradesh and Tamilnadu) 01/02/2013 - 15/12/2013 (Food Security in West Bengal) 30/04/2011 - 30/04/2014 (impacts of external drivers on Ganges waters)	Groundwater; river basin management; irrigation; urban farming; CC adaptation; wetland protection. Improve adaptive capacity of the agriculture and water sectors CC impacts on agriculture; food security; trans-boundary river systems; sustainable livelihoods Ganges; flooding; CC impacts; sedimentation; water availability;	India, Nepal, Pakistan, Sri Lanka India (Andhra Pradesh, Tamilnadu) India (West Bengal) India
Mangroves for the Future (MFF)	Since 2006	Indian Ocean region; coastal ecosystem conservation; livelihood sustainability; fishery capacity building	Bangladesh, India, Indonesia, Maldives, Pakistan, Seychelles, Sri Lanka, Thailand, VietNam
South Asian Consortium for	Since 2000, currently 9 different	South Asia; capacity building; hydropower;	South Asian countries

Name	Period	Focus area	Countries
Interdisciplinary Water Resources Studies (SaciWATERs)	projects For example Transnational Policy Dialogue for Improved Water Governance of Brahmaputra River	Climate Change impacts; ecosystems; health; gender; education. Joint management of the Brahmaputra River; collective information and knowledge; capacity building	Riparian countries of the Brahmaputra River Basin (Bangladesh, Bhutan, China, India, Myanmar, Nepal)
South Asian Water Initiative (SAWI)	01/01/2009 - 31/03/2015	Brahmaputra, Ganges and Indus Basin; Sundarbans; regional cooperation; capacity building, water resource development	Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Pakistan
The Third Pole		Platform for information, knowledge sharing and discussion about the water crisis in Himalaya and the Tibetan Plateau	Himalayan countries, South Asia
Water Mondial, Partners for Water	2010 - 2015	Knowledge and expertise sharing; cooperation and capacity building; flood management; Climate Change Impacts	Bangladesh, Egypt, Indonesia, Mozambique, Netherlands, Vietnam
WWF-India's Conservation Initiatives on Key Landscapes	Since early 2000s	Protected Areas (wildlife sanctuaries, national parks, tiger reserves); biodiversity; cultural integrity; deforestation; habitat degradation; CC impacts	India

E4L has established cooperation with several other related initiatives that include Bangladesh and India within their broad regional foci. These include the Bay of Bengal Large Marine Ecosystem Project (BOBLME), Mangroves for the Future (MFF) and the South Asia Water Initiative (SAWI). BOBLME and MFF have overlapping objectives and interests with E4L with regard to coastal and marine ecosystem management in the Bay of Bengal, coastal fisheries and alternative livelihoods for traditional fisher communities. Specific examples are research on Hilsa by BOBLME and MFF funded projects in the Sundarbans in both Bangladesh and India. A joint E4L/MFF *Symposium on Coastal Community Resilience* was held in Dhaka in March 214. E4L has also developed direct working relations with Action Aid Bangladesh, and WWF India, as implementing partners for the Flood Early Warning System and Alternative Livelihoods for Fishers joint research studies, respectively. In addition, the International Water Management Institute (IWMI) was a partner in the Food Security joint study.

SAWI, a large and ambitious multi-donor partnership involving the World Bank and the governments of Australia, Norway and UK, has the greatest overlap and potential

complementarity with E4L. SAWI's overarching objective is to *"increase regional cooperation in the management of the major Himalayan river systems in South Asia to deliver sustainable, fair and inclusive development and climate resilience".* SAWI's focal areas include improving the shared understanding and management of the Ganges and Brahmaputra river basins, and operationalized joint management of the Sundarbans. BOBLME, MFF and SAWI also share common interests with E4L in capacity building. Other regional initiatives highly relevant to E4L include the International Centre for Integrated Mountain Development (ICIMOD), with various projects that include Bangladesh and India dealing with ecosystems, food security, flood management, climate change adaptation and resilience building; and similar projects being carried out by the South Asian Consortium for Interdisciplinary Water Resources Studies (SaciWATERs). Information exchange and technical cooperation has also been developed between E4L and the CGIAR Challenge Program on Water and Food, which includes the Ganges Basin; and The Third Pole, a platform for information exchange among the Himalayan and South Asia countries.

5.2. E4L Track III Diplomacy as a Bridge to Track II and Track I Discourse

The E4L Process, by design, engaged a large number of senior civil society representatives who have direct connections to government and senior decision makers; and who, in many cases, are also consulted with by Track II and Track I resource managers and policy-makers. These high level decision-makers have also had access to research outputs and knowledge products from E4L. Their participation in international exposure trips and conferences further served to influence Track II and Track I dialogues. Proof of the success of E4L's strategy and implementation mechanisms in providing an effective bridge to Track II and towards Track I dialogue is evidenced in the expedient manner that a new policy and supporting regulations were implemented with regard to Hilsa conservation in West Bengal. As we understand from the sequence of events, this highly significant policy outcome was entirely a result of the E4L process.

Further analysis of the effectiveness of the E4L process is provided below.

6. EFFECTIVENESS OF THE E4L PROCESS

The various governance and implementation arrangements set up within E4L have contributed to an effective, iterative process that other initiatives could take valuable lessons from. The E4L Project Advisory Committee (PAC), comprising of the members of the two National Advisory Committees (NACs), has made a valuable contribution to guiding the process. In general, the Bangladesh-India joint research studies have also been jointly planned, implemented and reviewed well, leading to increased cooperation and understanding among research partners at both institutional and personal levels. One scientist explained that he was apprehensive at first, but found a warm relationship from the start in his research collaboration. Further analysis of the joint research studies process is provided in section 6.1.2.1.

Others interviewed, who already had previous experience of trans-boundary cooperation between Bangladesh and India, commented that E4L had increased the level of interaction and expanded their thinking beyond just water-sharing. Thus, within each country, there is

now a better understanding among engineers and other disciplines about the broader environmental importance of the river systems.

Overall, an important contribution to the effectiveness of the E4L process has been the country-to-country balance in the composition of the PAC and NACs; this balance is also reflected in the structure of the project team; among the partners selected by E4L for the joint studies;, and among the participants invited to attend workshops, training courses, etc.

E4L has three expected Outcomes to support its Purpose and Goal. The Review team's assessment of the effectiveness of the Outcomes, and E4L's progress towards achieving them, are summarized below. As a general observation, it should be noted that, despite the project's title and its focus on a better understanding of ecosystem services in the Bangladesh-India sub-region of the GBM, the term "ecosystem" does not appear in any of the Outcome statements. Overall, the project did not have the benefit of a well-constructed logical framework, or theory of change model.

6.1. Achievement of Objectives

The subsections which follow highlight the extent to which the E4L project has achieved its objectives. A tabular framework of results is provided in **Appendix F**

6.1.1. E4L Objective 1 Performance Assessment

E4L's first objective was:

"*To develop a multi-stakeholder forum, through which civil society groups can engage in constructive and informed dialogue under Track III approach for managing trans-boundary water regimes."*

The primary E4L Objective 1 performance measure was the following outcome:

- A shared vision for addressing food, livelihood and water security issues developed.

To achieve this objective the E4L project established a working platform comprised of two National Advisory Committees comprised of nine members each from India and Bangladesh and an overall Project Advisory Committee comprised of the combined NAC memberships.

These committees had representation of a broad and appropriate cross section of civil society with direct connections and backgrounds related to water resource use and or management ranging from end users to cross border diplomacy (**Appendix A**).

The project used an effective combination of workshops, technical meetings, joint research collaboration, information dissemination, and media and societal outreach programs to open new and better-informed dialogues. The number of engagements and outputs are summarized in **Table 2**. Details on the topics addressed in technical meetings, workshops and conferences are summarized in **Appendix G**.

Key informants within most theme areas indicated that through E4L they had been able to engage in substantive, cross border technical discourse that had not been happening previously. They also indicated they had, in many cases, benefited from the multi-disciplinary nature of the E4L process. There was also a strong sense that the dialogues and progress made in certain particular areas (e.g. water modeling technology transfer,

Table 2. Dialogue mechanisms employed by the E4L Project and associated outputs.

Dialogue Mechanism	Number of Engagements and Outputs
Facilitated meetings, workshops, and conferences (Nov 26, 2010 – May 21, 2014)	45 (included participation by 561 Nationals from Bangladesh, 475 from India and 154 from other countries)
Theme-based data syntheses and joint research projects	18 situation analyses reports 5 research reports (completed) 6 joint research reports (in progress)
Media briefing materials	1 media training module 24 media briefs (70 media articles (engaged 65 journalists) 5 fact sheets

Hilsa conservation, Environmental flow studies, recognition of the role of alternative livelihoods, wetland to river connectivity) the E4L structure and process had helped to reduce the barriers to trans-boundary water management discourse.

Moreover, all the key informants interviewed expressed enthusiasm and optimism around the potential for a further phase of E4L. The Review Team found no evidence of disinterest, or of project "fatigue"; on the contrary, several members of the JRTs mentioned their motivation to publish scientific papers from their research results to date and to follow on with other joint research initiatives. For example, the review team was informed that E4L had stimulated additional positive technical dialogues leading to a new India-Bangladesh-Delft University link on climate change studies; and new research initiatives emerging from the Ford Foundation and McCarthur Foundation).

From the perspective of establishing processes for policy advocacy, E4L, showed that properly facilitated, well-structured and implemented collaborative bilateral studies and dialogue can be effective in rapidly building policy support and adoption.

6.1.1.1 Outcome 1 "Shared vision" Performance Assessment

This most desirable outcome should be regarded as both a key result and an indicator of the effectiveness of the project. While this is still a "work in progress", a shared vision (or visions) is achievable by the project end date, provided this receives more focused attention. E4L's numerous activities in support of establishing informed dialogue and information exchange in the areas of food security, environmental security, biodiversity, inland navigation and climate change in the GBM area is an essential step towards

developing a shared vision, or visions, in these sectors. In total, by July 2014, 18 Situation Analyses and five joint research studies have been completed with six more in preparation (**Appendix D).** The effectiveness and impact of these research studies is assessed in the next section of this review concerning Objective 2, but it is important to note here that an important contribution to achieving Outcome 1 above has been the development of agreed common methodologies for the studies. In several cases this has also involved transfer of methodologies between the two countries, supported by cross-country visits and training activities, as well as a significant and deliberate effort made at better informing the national media in both countries.

6.1.2. E4L Objective 2 Performance Assessment

The second objective of the E4L initiative was to:

" To develop a comprehensive knowledge base on integrated Water Resources Management (IWRM) issues in the management of trans-boundary water regimes involving scientists, research institutes, universities and civil society organizations in the region."

The primary E4L Objective 2 performance measure was the following outcome:

- Multi-stakeholder knowledge hub on food, livelihood and water security issues related to trans-boundary water management established.

The E4L project set out to collect and synthesize existing information and carry out strategic research within the context of five priority theme areas and a further six sub theme areas within Environmental Security, as follows:

1. Biodiversity
2. Food Security
3. Inland Navigation
4. Climate Change
5. Environmental Security
    - Wetland Connectivity
    - Valuation of the Tista River Ecosystem Services
    - Flood Early Warning System
    - Methodology Framework for Assessing Ecosystem Services of Chars
    - Joint Methodology for Environmental Flow Assessment of the Sundarbans
    - Energy Security

The project further undertook to develop additional knowledge products and to begin to disseminate these. A critical review of the processes and outcomes of the joint research studies is provided in the sub-sections, which follow.

6.1.2.1 The Situation Analyses and Joint Research Process

The joint research studies conducted by E4L represent major outputs from the project, as well as the corpus of scientific, evidence-based knowledge being used to support policy-relevant dialogue, capacity-building and information dissemination. As such, it was very important for E4L to follow a well-defined process to identify, design, conduct and report on the selected studies.

A highly effective process was followed for developing and applying shared research methodologies. The process began with consultations to identify the five Research Themes. A Situation Analysis was then conducted by experts from both countries to scope the topic at both national and trans-boundary levels. The Situation Analysis was then presented at a workshop, at which a joint research team (JRT) made up of experts and institutions from both Bangladesh and India was identified. Members of the JRT then met to develop an agreed common methodology and approach to the research work, before conducting research activities in their respective countries. After completing the study, the research findings were presented at a consultation and dissemination meeting, typically involving researchers from both countries. Once the research results were disseminated, a regional-

level meeting (in Bangladesh, India, or a third country) was convened to give more specific consideration to each study's recommendations and policy implications.

6.1.2.2 The Joint Research Studies

Since the joint research study reports are among the major outputs from E4L, the Review Team considered it very important to assess their effectiveness in supporting the project's three Outcomes covering 1) a vision and dialogue on food, livelihood and water security; 2) a knowledge base on these subjects; and 3) capacity development among civil society stakeholders. This assessment is provided below.

The project has produced a substantial documentation on the research undertaken within each of the five selected themes. However, the research reports are uneven in quality and in a number of cases they fall short of being "joint" in the sense that they have not integrated the work done in Bangladesh and India into a single review document, or provided common recommendations. In coverage, the studies range for being highly selective thematically or geographically, to being much broader; some studies have been reported only in the form of separate papers from Bangladesh and India. The themes themselves also seem to have been managed rather differently, which is not surprising given the wide diversity of institutions involved; and this may explain much of the variation in the quality and styles evident in the documentation.

Before the end of the project period considerable work still needs to be done: completion of the remaining studies; further editing and formatting of a number of draft reports of varying quality and completeness; consolidation and synthesis of the many recommendations for further research, and/or management interventions, presented in the individual reports and papers.

Biodiversity Conservation

The knowledge base developed for the biodiversity theme is illustrated in Figure 2. This potentially wide theme relating to trans-boundary biodiversity conservation actually focused almost entirely on a joint study of the large, herring-like fish *Tenualosa ilisha* – the ilisha, or Hilsa. The Hilsa is a migratory species that moves from the sea into the trans-boundary river system to breed (like a salmon). It contributes significantly to capture fisheries in both Bangladesh and India, with more than two million people in Bangladesh alone being dependent directly or indirectly on employment linked to the fishery. Hilsa are therefore highly relevant to food and livelihood security, but their abundance and migratory patterns are vulnerable to fishing pressure, to other human activities affecting the rivers, and to climate change. Thus, it was highly appropriate and relevant to focus on this iconic trans-boundary species, which also exemplifies why an ecosystem-based approach to management of the GBM region is so necessary. To quote the joint study report*: "Hilsa (Tenualosa ilisha, Hamilton) is the most important fish species that links not only the trans-boundary ecosystem of India and Bangladesh but also the life and culture of the two neighboring countries."*

The joint study on Hilsa involved several institutions and, after a preliminary survey, the research was focused on the Hilsa's important migratory route through the Padma-Ganges river system. The study had clear objectives and the JRT has produced a good report that is well integrated regarding the field studies carried out in Bangladesh and India. Considerable attention was given to GIS mapping of water quality measured in the Padma-Meghna and Hooghly-Bhagirathi rivers during the Hilsa spawning migration period in 2011.

However, the findings are rather inconclusive and it appears that migration is much more dependent on water flow and water depth, than on water quality.

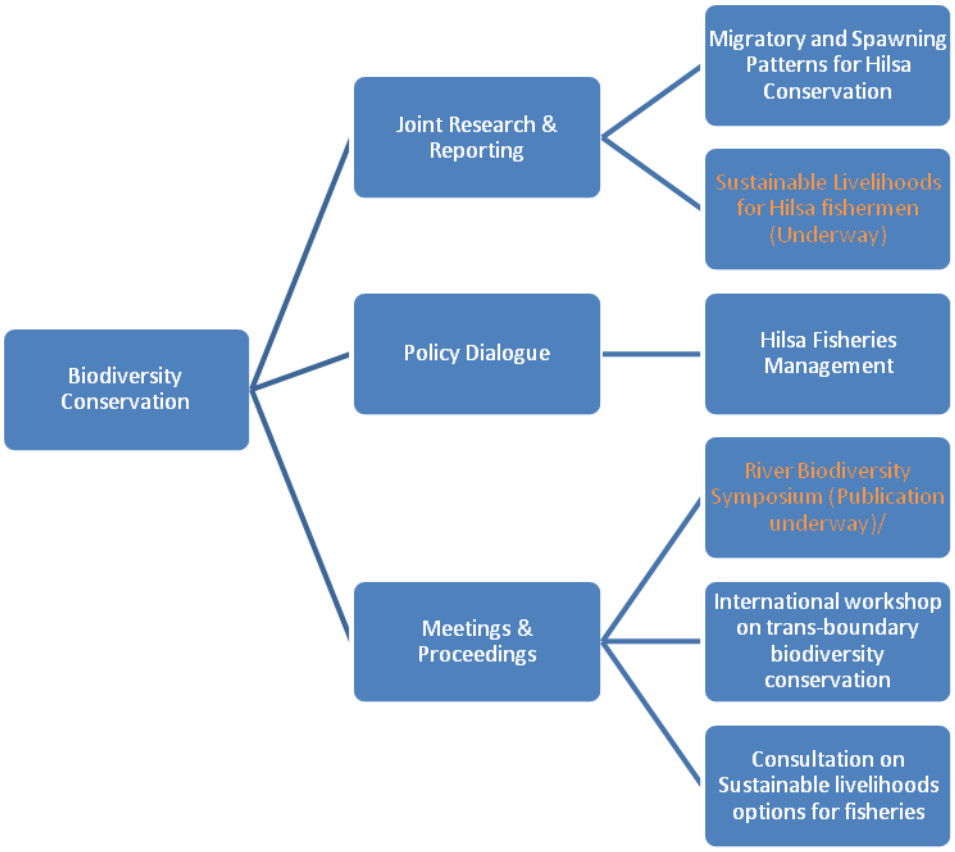

Figure 2. Biodiversity Conservation – processes and outputs

Beyond the research as such, the Hilsa joint study was highly effective in sharing knowledge and experience on fisheries management, especially about the regulations in place in Bangladesh to protect sanctuaries in the Padma River where Hilsa spawn. The peak spawning period of Hilsa is highly seasonal, being around the full moon in October. A law bans catching of Hilsa on the full moon day and during the five days before and after the full moon. There is another regulation prohibiting the catching of juvenile Hilsa (known as *jatka*) in the rivers from November to May inclusive. But to compensate the fishermen affected by this ban, rice has been provided to each fisher household for four months during the closed period. An alternative income-generating program has also been implemented. In Bangladesh, although these fishery regulations and incentive programs have not worked perfectly since they were initiated from 2003/4 and strengthened from 2008 (mismanagement of the food subsidies and failure to identify only true fishers being examples), the Hilsa fishery in Bangladesh has shown signs of a recovery.

As a result of the Hilsa joint study, which included exchange visits between the researchers and government staff in Bangladesh and West Bengal, the Department of Fisheries of West Bengal has now instigated similar regulations to those in Bangladesh. Two recent Notifications (April 2013) have amended the fisheries legislation to ban fishing for Hilsa on

11 days around the peak spawning period in September/October; declare Hilsa sanctuaries along the Hoogly-Bhagirathi River system; and prohibit the catching of juvenile Hilsa. (Because the presence of *jatka* is less seasonal in West Bengal than in Bangladesh, the regulation on catching juveniles in the state is based on size - not less than 23 cm - rather than on a closed season.)

West Bengal has even gone beyond these new regulations to establish a dedicated institution, the Hilsa Conservation & Research Centre (inaugurated September 2013), with the intention that it becomes a National Center of Excellence with a mission to achieve a "Sustainable Hilsa fishery with an ecosystem approach". This initiative clearly resulted from the opportunity that E4L afforded West Bengal to see the research and management efforts on Hilsa conservation in Bangladesh; and the realization that the stocks can only be conserved effectively if their management is both trans-boundary and ecosystem-based.

Climate Change

The E4L processes and outputs for the Climate Change theme are illustrated in Figure 3. The Climate Change theme is reported on in a published Situation Analysis and a large draft final report: "The Impact of Climate Change and Adaptation Strategies" -155 pages. This study report includes the methodology and data used in both Bangladesh and India, as well as results from a study site in Bangladesh (five villages in Gaibandha District), and a site in Assam (thirteen villages in four districts); these sites were chosen because of their vulnerability to natural hazards, including flooding. After reaching a main conclusion that the collective focus of effort should be on building disaster-resilient communities through longer term adaptation to climate change, the report offers only a list of possible structural and non-structural measures to build adaptive capacity, without prioritizing or evaluating them. The measures are presented separately for Bangladesh and India without any prioritization, recommendations, or other further analysis. The draft report would benefit from a thorough revision and reformatting, especially of the tables. Much of the copious information about the Bangladesh study site has been taken from previous studies (BCAS and Oxfam-Novib, 2010; BCAS, 2011) and should be reduced and better integrated within the E4L report.

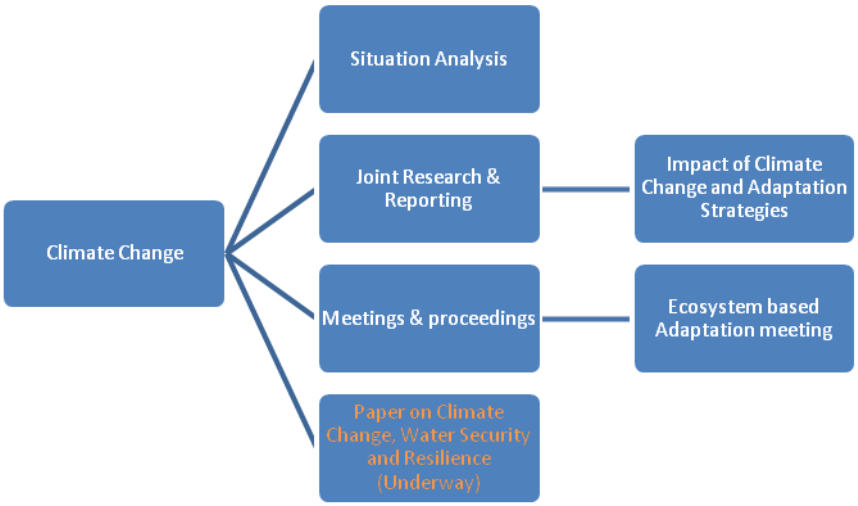

Figure 3. Climate Change – process and outputs.

Food Security

The E4L knowledge base developed for the Food Security theme is illustrated in Figure 4. The Food Security theme is documented in a published Situation Analysis and a joint report "Food Security, Water Productivity and Poverty"), which is a comparative study undertaken in India (three districts in West Bengal) and Bangladesh (four districts in the Southwest), representing neighboring regions in both countries with similar agro-ecological characteristics strongly influenced by the Ganges. The report is well structured and therefore easy to navigate through, despite being 107 pages long. The objectives and methodology of the study are clearly explained; there is a Lessons Learned section in the Executive Summary, and a comprehensive Conclusions section, which summarizes the main findings; provides policy recommendations and identifies the way forward, including key researchable issues. This should in fact, be considered a "model" report, which the other studies would do well to emulate.

However in a potential Phase 2 of the E4L Project, more effort should be made to detail food and livelihood dependencies as they relate to riverine ecosystems, biodiversity and climate change. Food security is a defining factor influencing community responses to conservation efforts in Asia. As part of this, the current focus of E4L on alternative livelihoods (when there is conflict with conservation) deserves to be expanded. In order to achieve the most effective results in the area of food security, additional engagement of national agriculture research institutions already working on issues such as salinity, drought and flood tolerance should be undertaken.

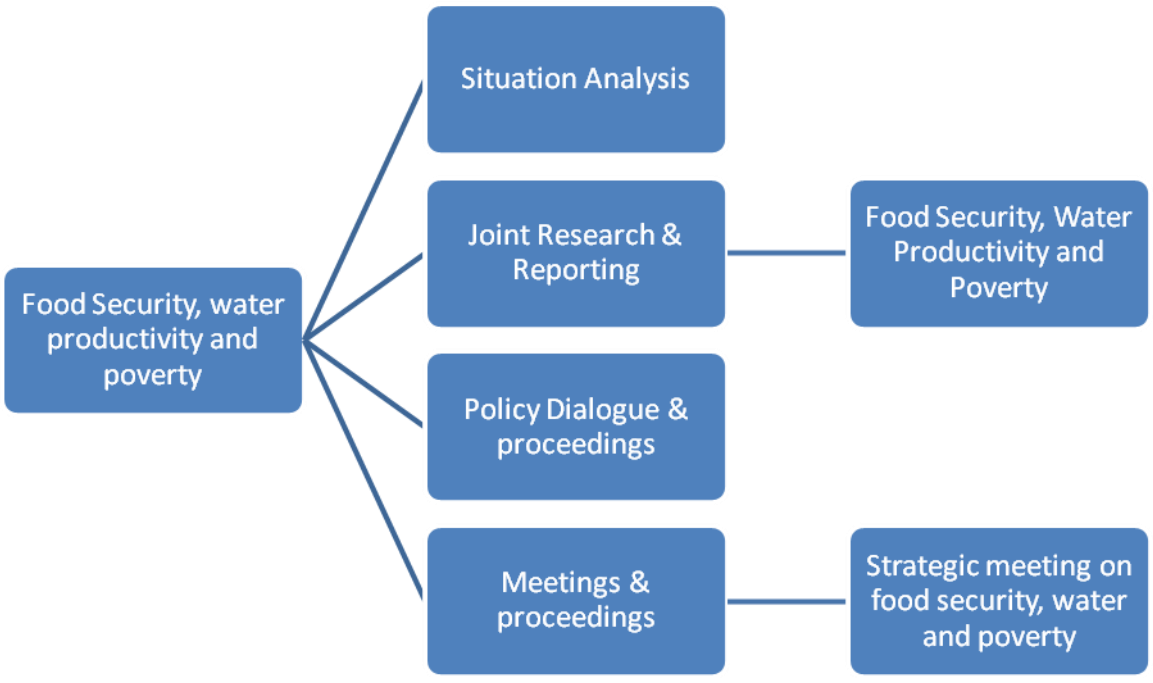

Figure 4. Food Security, Water Productivity and Poverty – processes and outputs.

Inland Navigation

The E4L process and outputs for the Inland Navigation theme are illustrated in Figure 5. This is another example of a theme with a published Situation Analysis and one joint study report. Although one of the earlier project study reports (December 2011), it is still in draft form. This report certainly should be finalized, as it fulfills the purpose of being a well-written, joint trans-boundary study. It may, however, require updating in relation to any impacts from proposed engineering works on the Kalni-Kushiyara River.

The Inland Navigation study describes the history of the river passage from Assam to Kolkata which was so important in the British time, and which subsequently became a protocol route under the Protocol on Inland Water Transit and Trade (2009) between Bangladesh and India, which is renewed every two years. The study then focuses on the sustainability of inland transportation along the Ashuganj to Karimganj section of the route, which involves mainly the Kalni-Kushiyara River. The JRT worked collaboratively to identify the constraints involved regarding the physical characteristics of this river and the policy barriers to making this a sustainable route. Navigability has deteriorated due to changes in the Kushiyara River's course over the past 30 years and the river carries a high sediment load, which may cause frequent channel cut-offs or avulsion of the river courses.

A conceptual model developed by CEGIS (the Bangladesh partner) was used to help identify the causes of the deterioration in navigability and to predict future scenarios based a) on the river's expected behavior only; and b) with projected impacts from human interventions (a dam and other engineering works), and from climate change (an assumed SLR of 100 cm and increase in rainfall, and flood flow and sediments, of 20%), included. Although the conclusions regarding sustainable navigation center around dredging the river, the study does consider the wider integrated water resources management (IWRM) picture with regard to sustainability; some references to impacts on agriculture and fisheries, and managing dredge spoil, are included, plus the important need to monitor morphological processes in the river by conducting regular hydrographic surveys. However, the study should have given more insight into the IWRM aspects, especially as the report is titled "Convergence of Inland Navigation and Integrated Water Resources Management".

The goals of IWRM are defined, but not how to achieve them in the context of the trans-boundary inland navigation route studied. Annex 1 of the report is a blank questionnaire entitled "Convergence of Inland Navigation and Integrated Water Resources Management Goals", but it is not described in the text and the questions listed are mainly specific to transportation *per se*, and not to its convergence with IWRM.

Public safety is addressed through a recommendation to make it mandatory for both countries to install night navigation equipment, while public-private joint ventures are suggested as a means of increasing investment in vessels and transportation route infrastructure.

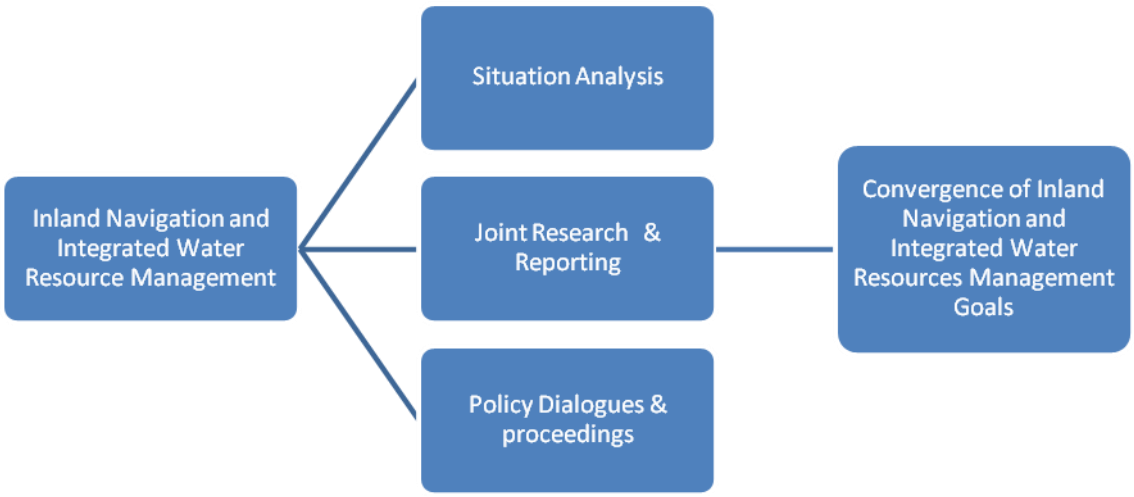

Figure 5. Inland navigation – processes and outputs.

Environmental Security

The E4L knowledge base developed for the Environmental Security theme is illustrated in Figure 6. The Environmental Security theme differs greatly from the other themes in that it addresses a number of diverse sub-themes covering Flood Early Warning Systems (FEWS), wetland to river connectivity, ecosystem services of chars, valuation of Tista River ecosystem services, physical assessment of the Brahmaputra Basin, as well as methodologies for assessing environmental flows. Each of these sub-themes has resulted in at least one study report. Collectively, this represents a large amount of information, but it lacks a focus and synthesis. There are also three Situation Analyses, covering Environmental Security, Energy Security, and Floods and Flood Management. It would have been better to have separated the ecosystem services studies (on chars and the Tista River) into their own theme "Valuing Ecosystem Services", while the wetland connectivity study could just as well been placed within the Biodiversity theme in order to give a more balanced weighting of studies across the themes.

Physical Assessment of the Brahmaputra River Basin

This was one of the earliest E4L joint studies to be completed (December 2011). Conducted by the Bangladesh Institute of Water Modeling (IWM) and Indian Institute of Technology (IIT) in Assam, it provides a descriptive account of the Brahmaputra River Bain based on earlier literature. The results of climate change simulations, using various GBM models to assess potential climate change impacts on water availability in the Brahmaputra River, are also presented. Due to predictions that indicate increasing rainfall and snowmelt rates, plus greater runoff from the snowmelt catchment areas, the models suggest that there will be a net increase in river water flow over the next 50 to 100 years. Rainfall will be lower in the winters, on average compared to present, but more rain will fall during the monsoon seasons. There is no discussion in the report on how these predicted changes, may affect sectors like agriculture and fisheries, or the implications for flood risk, but there are some useful recommendations on future trans-boundary research; for example:

- *Incorporate a broad range of climate change scenarios (and impacts) in modeling studies will help identify more robust adaptation measures.*
- *Include water demand projections into the basin model. This will require population projections, future irrigation needs, hydropower demands, possible land use changes, etc.*

Wetland Connectivity

Many of the wetlands in Bangladesh and India have open connections to the trans-boundary river systems via inlet and outlet channels. This river-wetland connectivity is important to the ecological functioning of the wetlands; and, therefore, any natural or man-made changes to their connectivity may have serious consequences for the health of the wetlands and the livelihoods of the large numbers of wetland-dependent people. Wetlands in both countries are vital for biodiversity conservation (e.g. as fish breeding sites, habitat for migratory birds), important local fisheries, other food and natural products, transportation routes and recreational use, as well as providing freshwater and critical water storage capacity as a buffer against wet season flooding.

This joint study, involving the Institute of Water Modeling (IWM) and Centre for Natural Resources Studies (CNRS) in Bangladesh, and Aaranyak (a Scientific and Industrial Research Organization) in Assam, had as its goal to demonstrate the linkages in hydrological regimes with wetland services and the well-being of communities. This goal was supported by two objectives: a) to provide reliable, policy-relevant information on wetland ecosystems; and b) to stimulate trans-boundary dialogue on this issue.

Initially, two wetlands in Assam (Deepar Beel and Maguri-Motapung Beel) and Charan Beel in Tangail District of Bangladesh were selected for study. These three wetlands have connectivity to the Brahmaputra/Jamuna River shared by India and Bangladesh. After an initial one-year study period to October 2013, it was decided to focus on hydrodynamic modeling of Deepar Beel and Charan Beel in a second phase of the research to June 2014.

Valuable and effective technology transfer has been achieved in the form of training for Aaranyak staff in the use of a hydrological model for wetlands developed by IWM. The wetlands team members met in Assam were very appreciative of this capacity development opportunity for Aaranyak and of the other benefits this joint research work has provided to them. The review did not have any interaction with Aaranyak's counterparts in Bangladesh, and only the reports on the Assam wetlands component of this joint study were available in July. (However, a joint dissemination to present the wetland connectivity study is scheduled in Dhaka in August, which will lead to a joint final report for this sub-theme.)

The second report by Aaranyak: a case study of Deepar Beel, contains valuable policy-relevant findings on change in this wetland's water area, catchment area and water/habitat quality over the past two decades. Built-up areas surrounding the wetland have increased, while forested land and agricultural areas have decreased. The beel's water area, depth and water quality have declined, with a resulting intense growth of water hyacinth. Untreated municipal waste dumping is highlighted as the chief source of pollution. The report also includes highly relevant observations on how the livelihoods of villagers living around the wetland have been affected, especially by the significant decline in fish catches. These findings are then linked to management issues of importance to the dialogue process; e.g. reducing fishing pressure and the use of certain types of net; controlling waste dumping, and opening the sluice gate on the western connection of Deepar Beel at times during the wet season when there is no flood risk, to allow fish from the Brahmaputra to

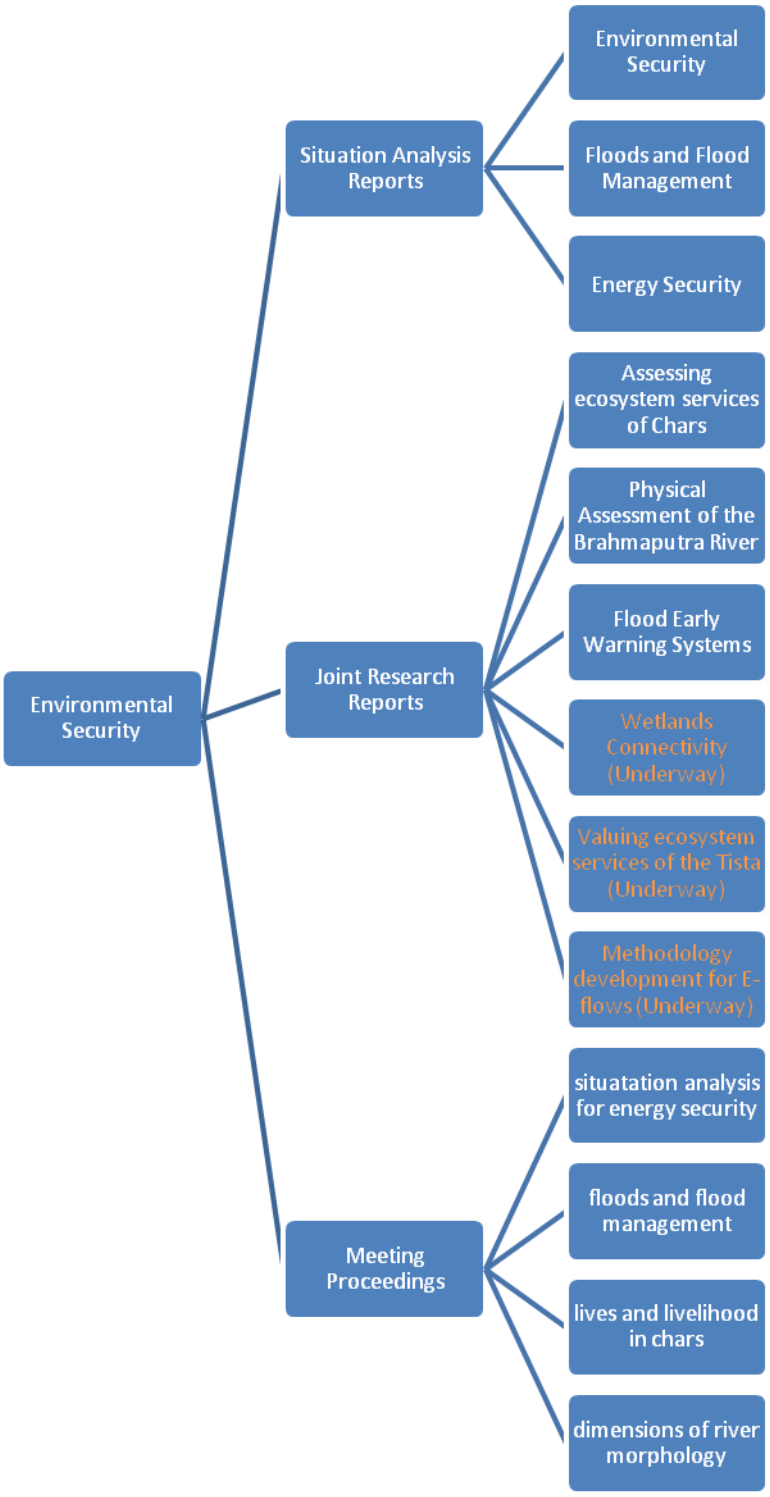

Figure 6. Environmental Security – Documentation Structure.

enter the wetland. The report also contains recommendations on strengthening the legal framework to protect Deepar Beel, and on setting up a separate management agency capable of adopting an integrated, watershed-based management system for this important wetland.

Valuation of the Tista River Ecosystem Services

This study is incomplete at the present time. There is a draft report covering the within India part of the Tista River system, which discusses methodologies for valuing ecosystem services and gives a largely descriptive account of environmental conditions, human culture and environmental interactions, and economic activities at several selected locations, mainly within Sikkim. The research proposal was prepared by Sikkim University and there does not appear to have been a Bangladeshi partner institution involved, or any particular consideration given to trans-boundary issues?

Flood Early Warning System

This study was designed with a common purpose – to discover gaps and eventually to identify an effective national and local mechanism to reduce the gaps- in the Ganges Basin of Bangladesh and India to provide easily accessible and affordable warning generation and dissemination systems to communities who have little or no access to reliable flood information. Scoping studies in each country were to be implemented first, followed by action research in both Bangladesh and India.

The aim of the action research is to use existing flood forecast systems, plus other information from government and Internet sources, to generate locally relevant warnings. This approach is highly relevant, because local people cannot readily receive and interpret official flood warnings unless they are disseminated and explained in the local context. The study findings and mechanisms adopted by the action research to date have been effective in a) identifying gaps in the existing flood early warning system; and b) introducing some simple ways to help local people to better informed (e.g. predicted river floodwater levels in meters are much better understood if they are converted to local units of measurement, or related to marks on a pole displayed in a village).

The scoping studies from Bangladesh and India are still at a draft stage. They contain valuable accounts of local knowledge about peoples' understanding and responses to floods, as well as recommendations on improving the flood warning system in each country. Many of the recommendations are relevant to both Bangladesh and India (e.g. marking flood danger levels at key local points that people can recognize; performing mock drills to familiarize people with planned flood response mechanisms); other recommendations, especially those relating to local institutional roles and capacity building, are more relevant to the national and local context.

Both scoping studies require further editing and development into a common format. The final joint workshop should be used to also finalize a set of common findings and recommendations for both countries. Although the study addressed flood early warning systems specifically, it also identified a number of mitigation and adaptation measures to flooding based on indigenous knowledge that are highly relevant to climate change more generally (e.g. planting trees around houses to reduce soil erosion during floods). This could be a productive area for further action research (i.e. FEWS combined with climate change mitigation/adaptation) when considering a second phase of E4L.

Methodology Framework for Assessing Ecosystem Services of Chars

This is an important joint study to assess the ecosystem services provided by chars (river islands, or land within rivers still connected to the riverbank) and to develop a framework for assessing their ecosystem values. It has involved organizations in Bangladesh, Assam and West Bengal, which met in Nepal in August 2011 to develop a common approach and methodology for the study. The approach follows that advocated by the Millennium Ecosystem Assessment. The draft study report (undated) also includes outline descriptions of three case studies involving nine chars: Malda-Murshidabad chars in the Ganges, West Bengal; Morigaon-Noagaon chars in the Brahmaputra (Assam), and Prabna-Sirajgonj chars in the Jamuna, Bangladesh.

The report available is only a first step towards achieving the study's stated objectives, which include *"Using evidence-based examples, identify approaches for better incorporating the value of ecosystem services into [the] decision-making process which will serve as [a] tool for raising awareness among policy makers and the general public about the linkage between char ecosystem, the services they provide, human well-being and sustainable livelihood."*

It is recommended that all the results from this study are documented before the end of the project; and that they are used to a) draw out policy-relevant issues; and b) to help plan the further research required to complete the valuation of char ecosystem services, which should be included as a component in a second phase of E4L. The importance attached to these recommendations stems from the fact that chars are intimately associated with the trans-boundary river system and support at least one million marginalized people in both Bangladesh and India. Chars also provide diverse ecosystem services, including highly productive agriculture and fisheries; but these services are highly sensitive to upstream activities in the river system, as well as being vulnerable to seasonal changes and natural hazards.

Joint Methodology for Environmental Flow Assessment of the Sundarbans

"Environmental flow" describes the quantity, timing, and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems (definition from the Brisbane Declaration, 2007; IUCN uses a very similar definition). It is therefore a key principle of the ecosystem-based approach to managing the GBM region advocated by E4L. This sub-theme is also important because it focuses on the Sundarbans, the largest mangrove ecosystem in the world. Not only is the Sundarbans a shared trans-boundary ecosystem (about 40% within India and 60% in Bangladesh), it also receives all the water discharged from the GBM and functions to protect the common coastline and regulate saltwater incursion into the freshwater zone.

This joint study, by CEGIS, Bangladesh and Jadavpur University, India, involved the development of common methodology in preparation to conduct an assessment of environmental flow as the second phase of the research, which is on-going. The first phase, on methodology has clear objectives and is well documented in a detailed report (final draft April, 2013). A careful step-by-step approach was adopted through consultation meetings involving experts and stakeholders, which first identified issues affecting the Sundarbans ecosystem. Agreed methodology for the environmental flow assessment was then developed after reviewing methods reported by previous environmental flow studies in countries such as Australia and South Africa, and assessing their potential for practical application in Bangladesh and India.

Based on the phase 1 methodology study, the major components of environmental flow in the Sundarbans being assessed in phase 2 are: forest composition, fisheries, aquatic diversity, connectivity (floodplain to river system), navigation, pollution and sedimentation. These diverse components not only illustrate the wide range of the ecosystem services provided by the Sundarbans, but also they match perfectly with the other E4L themes of Food Security, Biodiversity Conservation, Inland Navigation and Climate Change, which apply mainly to the freshwater zones of the GBM.

Given the importance of environmental flows as a management principle to support the ecosystem-based approach, and the immense significance of the Sundarbans ecosystem to both Bangladesh and India, it is recommended that more research (monitoring of the e-flow components listed above) should continue in a second phase of E4L in order to build a strong policy-relevant data set. And it will definitely take a significant amount of time to bring the results from the e-flow study into a policy-relevant form. The impact of mangrove degradation on saltwater intrusion and loss of fisheries potential, and the responses of the Sundarbans ecosystem to climate change, are particular issues that should be included in future policy dialogues.

Energy Security

This Situation Analysis consists of two comprehensive papers that review energy security in the GBM region from the perspectives of Bangladesh and India, and to a degree also jointly. Both papers give good accounts of their respective energy sectors and they both describe bilateral energy agreements and trade between the two countries, as well as their future estimated energy needs and the potential for further cooperation over energy supplies. Both countries face significant future energy shortages, but the India paper concludes, "*The scope to leverage each country's strengths and positions in the region to develop successful and mutually beneficial energy trade relations, both bilaterally and regionally is immense*". The two papers also offer well-structured recommendations, including many proposals for future joint research.

Of particular relevance to E4L, and especially in the context of considering priorities for a project second phase, is the importance of energy at all levels, from trans-boundary agreements, to national policies on energy generation and consumption, to energy needs and their socio-economic impact at local community level. In this sense, both energy and water are fundamental to human and national development, and the two are intimately related. Thus, "energy for subsistence and "energy for growth" define the diverse levels at which dialogues on access to energy and energy security must operate. The energy sector also faces immense technological and economic challenges regarding, for example, exploration for energy, improving energy efficiency and distribution, developing alternative energy systems, and in negotiating and financing international energy supply contracts.

E4L must decide where the project should be positioned within this complex sector. This is a key issue that will require careful consideration in the remaining period of E4L phase 1, aided by the recently published situation analysis. The Review Team's view is that E4L should play a carefully targeted role - one centered around "energy and environment" and the roles that civil society can play in safeguarding socio-ecological integrity as part of environmental security, but without compromising energy needs. There are some valuable recommendations in the situation analysis for future joint research that can be considered on this point, for example:

- Opportunities for ecological engineering of hydropower projects between the two countries, in particular, and the region as a whole.
- Studying environmental and social impacts of hydropower project development particularly in the GBM region.
- And joint studies to:

  -assess gender sensitivity of energy policies and programs;

  -identify pro-poor policies and programs;

  -assess the prospects of harnessing wave power and tidal energy to meet the energy demands of coastal regions.

Communication and Dissemination

E4L is a project involving joint research and development activities that emphasize the central role of research, around which dialogue, cooperative understanding, documentation and policy-influencing activities can be built. The Review Team found that the project's stakeholders generally share this understanding. Such understanding is already in itself a significant "communications achievement".

E4L identified and recognized, at the outset, the strategic importance of knowledge management in delivering the project goals. A detailed and well thought out communication strategy has been developed to guide these efforts. Communication is viewed not merely as gaining visibility, but, also as a mechanism for nurturing a highly interactive network (face to face platforms). Knowledge products and informal hubs are integral elements, with webs and databases, serving as support mechanisms rather than as primary drivers. E4L also has a separate and fairly elaborate dissemination strategy as key component of its wider communications strategy. The purpose, target audience and proposed dissemination methods have been identified for each of the knowledge products e.g. Dialogue itself is viewed as dissemination platform for reports and studies. However, there is a need for urgent attention to develop materials and methods targeted to policy-makers, especially Track II audiences, as well as for furthering the Track III policy dialogue.

Case study materials, such as those from Tanguar Haor. Chilka, Tonle Sap, Songkha Lake and the Sunderbans that have been featured in E4L's work can serve as valuable training and educational materials. The review team believes that case study materials would have a special value for the training of government administrators and policy-makers. Thus, in a new phase of E4L, more attention should be given to developing case study materials for use in formal training of high-level officials

The example of the participatory video (Chars) was a particularly innovative effort to bring the 'insiders' view to decision makers in a powerful unusually creative way. Video-based case material can be used for deepening the dialogue by bringing community perspectives to the training classroom.

The idea of engaging media in the project arose during early project consultations. The project made deliberate efforts to reach journalists in both countries (65 journalists were reached, directly or indirectly, by the project (**Appendix L**). Over the last three years over 70 articles were published in 11 national dailies in India, 12 national dailies in Bangladesh, 10 Indian regional newspapers and three regional newspapers in Bangladesh (**Appendix M**). TV channels also covered project activities (six in Bangladesh, five in India). The project

generated a total of 24 media briefs (**Appendix K**). This has been a considerably effective engagement of media in support of the project objectives.

Frequent reference is made in project documents to policy briefs but none were made available during the review. However the reviewers were consistently reminded of the need for E4L to shift to addressing the needs of policy makers. There was an agreement that the term 'policy briefs' should not be used; instead 'information briefs' or 'fact sheets' was suggested. There was also a suggestion that policy adoption might be more successful where prospective policy advisors or makers have a role in the final review and validation of potential Track II and Track I information briefs, or fact sheets (to enhance ownership). Information brief round tables/write shops might be relevant to speed up the production of these briefs in these last months of the project. A team can be asked to summarize key findings with focus on generating policy relevant information succinctly in key areas. More than one brief can be derived from a joint research effort (See **Appendix P** for a format of a Track I Information brief). A second category of briefs can be targeted to wider audiences engaged in programs and practice: these would be a concise synthesis of research findings and recommendations. This second category of briefing materials would represent succinct summaries targeted to wider audiences. A third category of information brief would be one, which targets the broader research and technical communities.

6.1.2.3 Outcome 2 "Knowledge Hub" Performance Assessment

This outcome is worded more like an output - a "knowledge hub established". A more desirable outcome would have been that the hub is used effectively to better inform policy-makers, river management bodies, resource users and other stakeholders about the GBM's ecosystem values beyond water flows.

The supporting E4L processes and outputs associated with this outcome are summarized in **Figure 7**. There are different views on the concept of the knowledge hubs. As the project enters its final months, more thought needs to be given to what constitutes a hub. More recent internal discussions within E4L, however, appear to converge on the thinking (which the reviewers support), that hubs are not just about managing information. Knowledge hubs can also be understood as linked networks of people, with common interests and a shared agenda, connecting with one another, across disciplines and geographic boundaries with access to common resources (e.g. database, websites,). The way in which information sharing occurred within E4L is illustrated in **Figure 8**. The project has already demonstrated the effectiveness of this form of interactive communication, but E4L should work in future to match knowledge supply with the demand and need for knowledge in a more effective manner.

To achieve this aim, E4L should play a proactive knowledge-brokering role in order to make the connections to decision-makers and to promote well-targeted knowledge flows. Designating senior level, focal point persons in strategic positions in various institutions should be considered as an important component of the above strategy to make knowledge delivery more targeted and effective The focal points could then constitute a consultative group well-positioned to help E4L deliver knowledge through key entry points into the government decision-making machinery.

Given E4L's substantial outputs in terms of scientific studies covering the GBM's broader ecosystem services (food, livelihoods, biodiversity support and environmental security), it is clear that the hub, as a corpus of knowledge, has already been created. It remains for E4L to develop this knowledge into the most appropriate usable forms for different stakeholder groups to ensure that the knowledge hub does provide outcome level benefits. In addition to the Situation Analysis, Scientific Studies and Stakeholder Consultation reports already produced (see listing at Appendix D), a book on Hydro-diplomacy has been published; three policy-relevant films have been made (on Hilsa conservation, Chars – river islands, and inland river navigation); and a River Atlas and book about the Brahmaputra River are in preparation. A trans-boundary knowledge base is available through a web portal http://www.iucn4l.org (accessed by 8,244 visitors since February 2013).

A Policy Brief (now to be termed simply as "briefs", on each of the five Research Themes will also be produced within the next two to three months.

Before the end of the project, and in preparation for proposing a possible second phase, E4L should consider further the intended audiences for each of these diverse knowledge products; whether additional target audiences/knowledge products need to be identified in order to achieve the aim of informing "multi-stakeholders"; and what would be the best (effective and efficient) mechanisms of knowledge delivery in each case?

Figure 7. Knowledge hub – processes and outputs.

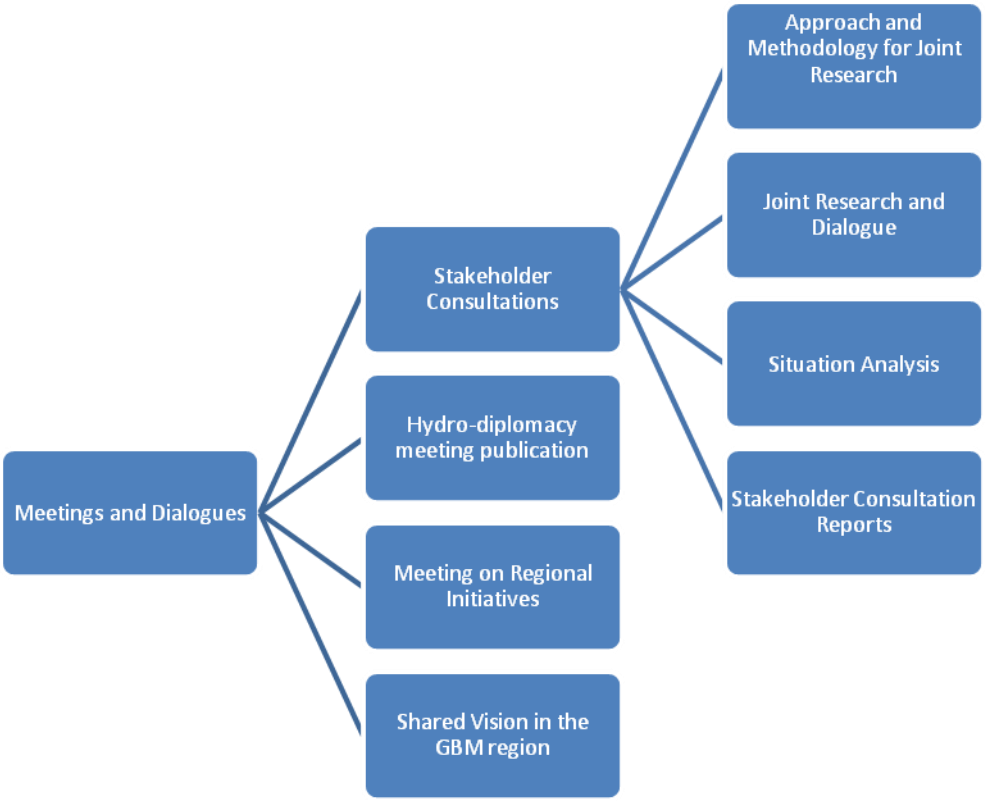

Figure 8. Shared understanding – processes and outputs.

6.1.3. E4L Objective 3 Performance Assessment

The third objective undertaken by E4L was:

" To develop capacities and foster mutual learning between civil society organizations and act as bridge between similar processes in the region for enhancing participation in multi-stakeholder dialogue processes and for better management trans-boundary water resources in the region."

The primary E4L Objective 3 performance measure was the following outcome:

- Improved capacity of civil society stakeholders to address food, livelihood and water security issues.

The E4L process and output structure associated with capacity development are presented in **Figure 9**. Capacity development occurs through increasing the ability to apply and develop new knowledge to the achievement of desired objectives (in this case a more ecosystem mindful approach to trans-boundary water management). Capacity development has been a logical consequence of E4L dialogue promotion (**Appendix I**), contracting (**Appendices F-H**) and joint research initiatives undertaken by the project (**Appendix D**). More formalized capacity building activities that were successfully implemented by the E4L project were:

- Engagement of two Bangladesh and seven Indian universities (**Appendix O**).
- Four PhD candidates and two Research Fellows engaged in Hilsa studies, Jadavpur University, Kolkata.
- Aaranyak Institute, Guwahati acquisition of wetland modeling capacity from the Institute of Water Management, Dhaka.
- Established Hilsa Conservation and Research Institute (Diamond Harbour W. Bengal).
- Established Assam Water Resources Management Institute, Guwahati (modeled on Bangladesh IWM)
- Jadavpur University, Kolkata leveraged two additional research projects with help of E4L.
- Participation of two groups of young professionals (India and Bangladesh) in "Water Futures" program.

The review team believes E4L's diversity of research, dialogue and validation processes, and targeted capacity development has contributed substantially to strengthening the capacity of participating individuals to engage in research, communicate, contribute to resource management and provide better informed input applicable to policy development.

E4L partners have started to use and apply the common methodologies developed. For example, the Joint River Commission, under the Government of Bangladesh, Ministry of Water Resources, is using the joint research team approach, including dialogues, joint methodology development and analysis, for studying specific trans boundary issues.

Representatives of the Aaranyak scientific and industrial research organization in Guwahati, India referenced E4L facilitated significant improvements in their water modeling capability as a project technology exchange. The project experience has also helped partners to learn to work collaboratively and in a more interdisciplinary way.

The Water Futures Program (WFP), developed by E4L, is a specific capacity development initiative directed at young professionals who have the potential to become future leaders in water resources management. Through the WFP, 40 young career professionals from Bangladesh and India met and set up an informal platform for joint learning, visited each other countries, discussed and analyzed issues and drew lessons. The fact that this project was jointly conceptualized, led and implemented by local universities (Jamia Milia Islamia in New Delhi and the University of Dhaka), and not by IUCN, should be highlighted as an important achievement. Indeed this program has the potential to contribute to creating a critical mass of future champions for change. Moreover the WFP experiment offers a new mechanism (methodology) for advancing cooperation and partnerships.

Similarly, the deployment of 10 young professionals as interns in various project activities is a useful mechanism to influence future professionals. The involvement of 10 universities (two in Bangladesh and eight in India) in the research process, their improved access to research tools, reports and networks, may also influence teaching and research practice (**Appendix O**). These impacts on teaching and research in universities however need to be tracked in order to assess capacity development outcomes.

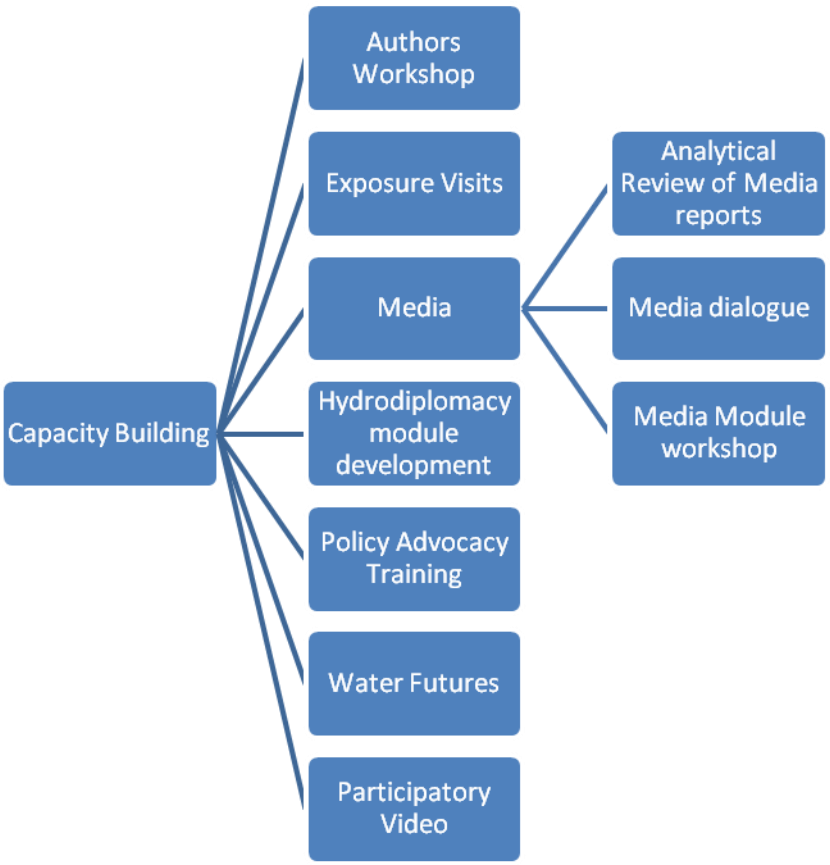

Figure 9. Capacity Building – processes and outputs.

The E4L engagement in structured, short training courses has been strategic. Instead of offering a wider array of courses, the project focused on developing a few, select new courses, such as hydro diplomacy and media reporting. Other courses focused on environmental flows and methods for policy advocacy. Such courses gave due attention to learning from the realities on the ground (the E flows course in Bangladesh and India took participants to the Sunderbans, other courses brought researchers to wetlands in both India and Bangladesh). Some workshops started with field visits providing a strong experiential element to courses. These courses were not pre-determined by the project but were responses to needs that arose in the course of project implementation.

Exposure trips for senior officials were widely valued. They served as mechanisms to achieve broader goals of cooperation, establish informal networking with their peers while also providing new learning opportunities. Two high level events must be noted: trips the Mekong River Commission and the other to the Nile Basin. From direct accounts both were greatly valued by senior officials. After every trip, reflection and synthesis was undertaken, thus greatly enhancing the educational value of such events.) A listing of major events has been provided in the Appendix M). E4L has done a commendable job targeting audiences to educational activities. At least twenty field visits of different kinds over the project life

The E4L joint sponsorship and participation of many of its key partners at the Hydro Diplomacy international event in October 2012 in Bangkok was a milestone event. That exposure event provided a new and more holistic understanding of how to deal with and address river water issues. The workshop brought 120 participants from 25 countries, including key stakeholders from the E4L. The need for capacity development was one of its recommendations. Subsequently, a consultation workshop done in July, with a smaller group from the Mekong and South Asian countries was organized. Here, the relevant content for a hydro diplomacy module for professionals from South Asia was developed. Social, ecological and cultural elements were strengthened in the module in order to promote “softer” diplomacy and confidence building. This module is nearing completion and ready for testing in January 2015. While there is considerable interest from universities in the region, the potential use of this module in administrative colleges in the region should also be explored.

E4L has highlighted the need to help journalists to do a better job in their coverage of water resource issues. Media in the region (it was said) is known for polarizing and sensationalizing issues, thus often deepening the cross-boundary divide. To better understand these issues, E4L arranged for a media analysis to understand how local media reports water issues. The media analysis indicated that reporting during the period analyzed was mostly episodal, lacked detailed contextualization and, rarely provided correct information. The study also pointed out that media provided “equal weight” to unidentified sources as compared to identified sources. This study resulted in a recommendation for a joint training, for both Indian and Bangladeshi journalists. A systematic and organized effort with the help of a Calcutta based research group has led to the design of a three-day course/module. This module was field tested with a group of journalists from both countries and revised based on feedback. A media resource package will also soon be available for wider use and further adaptation. Through its emphasis on improving capacities of media to report factually and based on evidence, E4L is helping create a cadre of journalist that contribute constructively to the discourse and debate on river water issues.

On the specific need to build capacity for advanced trans-boundary research in the GBM, it is clear that the choice of five Research Themes has been instrumental in building capacity for research at the ecosystem level, where water management is just one component within the multi-disciplinary approaches needed to gain a better understand of how the complex socio-ecological systems in the GBM region should be managed.

7. CONCLUSIONS

The Review Team concludes that the E4L Project has met its goal of contributing to "*improved, integrated management of trans-boundary water regimes in the shared rivers of the GBM Region*" and has made commendable progress towards meeting its three objectives. There is strong evidence that a Phase 2 program bridging to Track II dialogue is appropriate and timely and that continuation of Track III engagements and activities that have worked well to date would also be beneficial.

The Review Team noted that food security and livelihoods are mentioned in all the outcomes and most of the outputs. The review considers that this theme was reasonably well covered, given the time and resources available, and the multiple other themes examined. However, given the priorities of the South Asian region (the largest pocket of hunger and malnutrition in the world), there is significant need for more work to directly consider/explore the linkages between food security/livelihoods and climate change, biodiversity and ecosystem services in the GBM region.

Similarly, with regards to livelihoods, most of the focus appears to be from the perspective of alternative livelihoods i.e. to address the needs of livelihoods only when there is a conflict with conservation. This is an important, but narrow, way of looking at livelihoods given the central importance allotted by the project to food security and livelihoods. By taking a broader view of the importance of livelihoods, it is more probable that the full support and engagement of local communities can be achieved regarding the broader ecosystems perspective that the project is advocating. E4L's work on the chars (river islands) is probably the best example of the project having dealt with livelihood in a holistic manner. Food security and livelihood analyses need to not only focus on alternatives, but also to consider opportunities to protect, strengthen and diversify, especially given the problem of floods, storms and other natural hazards that the region faces almost annually.

It was very apparent to the reviewers, and confirmed by the key informants, that the limited grass roots level, community contacts significantly benefited the project, and vice versa. The Review Team's view is that any future phase of E4L should include an expanded community engagement. This could include identifying a few demonstration sites where communities get directly involved in '*proof of concept'* research and adaptive management. Information from these efforts can be a very powerful way for the project to influence policy makers as well as make positive improvements in environment and community well being.

Regionally relevant examples of this include community forestry in Nepal; community fisheries in Bangladesh; and micro watershed program in India; started off as local initiatives and slowly spread (horizontally) and then became the basis for policy to be

derived. Examples like '*The Great Rivers Partnership'* also illustrate a number of examples, which could be considered for the GBM management area.

7.1. Lessons Learned and Way Forward

The E4L Project's decision to use the concept of the "ecosystem" to frame discussions, rather than as a "trans-boundary" issue was a subtle yet important change early in the project implementation. An integrated systems approach to research and management in the GBM region is likely to pay dividends in the longer term through better-informed decision-making about trans-boundary and cross-sectoral issues.

The design use of a neutral, credible and trusted third party like IUCN seems to have been able to establish a particularly productive and positive forum to bring civil society participants together around integrated water management issues. The review team also heard how, at very least, in the GBM region, bilateral engagements such as used by E4L, may be the more politically acceptable and practically efficient means of advancing dialogue in shared resource concerns.

In common with many other development projects, E4L experienced a high level of staff turnover, especially in its early stages, yet the project team still managed to implement E4L more or less on schedule. An analysis of how this was achieved, and any other lessons to be learned from the staffing history would be valuable, not only for E4L, but also for other projects. The analysis should also focus on safeguards to ensure retention of the current E4L staff, as well as offering guidance on any future recruiting in a second phase.

The E4L structure, tools and processes have provided a unique and efficient means of identifying bilateral priorities, designing and conducting collaborative research that in turn has been and can further be, used in generating evidence for policy, programming and practice. The central role that civil society has played in E4L means that it is likely to be of special interest to potential donors in a second phase. Wider promotion of the projects achievements, outcomes and research outputs within the wider donor community will help.

In our view, if the E4L were to be able to make stronger connections between food security and related livelihoods with the other core themes of E4L it might be able to diversify the range of potential donors. Climate change is largely a determining factor for lives and livelihood and long-term environmental security in the region, and will be of increasing interest to the donor community. Given that climate change will weigh heavily on the GBM ecosystem and its many users, E4L should attempt to leverage climate change related funding to enable critical follow-up work on shared ecosystem services in the region.

The GBM area can be expected to experience extreme climatic events (flooding and droughts), which will have significant impact on the GBM region and its associated human populations. Future programming, such as that undertaken by E4L, will need to be sensitive to the increasing pressures from natural hazards.

Focusing on trans-boundary ecosystem components (e.g. highly valued migratory species like Hilsa) and common human activity components, which are strongly flow regime-dependent (e.g. river transportation), are also likely to be among the most productive areas for near term policy advancement.

Between now and the formal end of the funded portion of the E4L project in December 2014 the E4L project will be completing a number of critical program elements (**Table 3).** The review team is supportive of the view held by key informants, including the PAC, that E4L should be continued into a Phase 2 to take advantage of established dialogue processes and momentum to "seize the moment" so to speak. The pace at which major resource management decisions are made in the GBM region is accelerating. E4L has proven its effectiveness at tangibly and meaningfully influencing natural resource policy in a very short time frame and should be encouraged to seek continuation into a Phase 2 which reinforces Track III initiatives and at the same time targets theme-based policy influence in the most critical areas to promote rational, ecosystem service aware, policy development.

Given E4L's progress to date, and the numerous collaborative activities scheduled before the project closes (Table 3), the Review Team believes that significant progress towards an agreed joint Vision can be achieved by E4L's concluding meeting in Dhaka in late November, at least in the form of a Vision Statement setting out clearly the longer term desired-for changes in the GBM socio-ecological system. How the vision can be achieved through integrated trans-boundary management by Bangladesh and India can then become a fruitful area for discussion to support the planning of a possible second phase of E4L.

7.2. Options for Post E4L Continuity

Informal dialogue and exchanges between researchers, media and civil society partners will continue but at a reduced level particularly in terms of issues and levels of engagement. While the policy influence of research is likely to continue on an ad hoc basis, the optimum use of research outputs will only occur if the project was extended and efficient, facilitated processes are continued.

Embedding theE4L process in one or more existing national institutions in the near term, and possibly long term, would in our view, run the risk of politicizing the agenda, and compromising the effectiveness of resource allocation, which does not occur when it is embedded in a respected neutral agency, like IUCN, that advocates for adoption of the 'ecosystem" concept.

Table 3. E4L Phase 1 forward action items to be closed out by December 2014.

Date	Task	Location
September		
5-8	Launch of **Participatory video** co-created by young adults of Chars of Ganga and Brahmaputra/Jamuna	Kolkata & Dhaka
8-11	**Hilsa Exposure Visit** for officials from Government of West Bengal Fisheries department and fisherman from the fishing cooperative to see Hilsa fishing ban in operation in Bangladesh	Bangladesh
12-15	Pilot testing of **Media Module** developed by Development Media Limited and Manirban Calcutta Research Group	Kathmandu
18-19	2 day training workshop on Benefits of Cooperation for Shared Ecosystems by Hague Institute	Bangkok
21-22	**Wetlands Connectivity** Dissemination Dialogue to share research findings of the JRT (Aaranyak and Institute of Water Modeling) with policy makers and relevant experts; identify research gaps, needs and scope for future activity	Kolkata
October		
10	Methodology development for E-flows JRT meeting to synthesise findings of Jadavpur University and CEGIS	Delhi
14	Ecosystem Services of Teesta National Consultation to present findings of research for feedback from relevant experts	Dhaka
15-17	**Sustainable Livelihoods for Hilsa Fishermen** National Consultation to present the findings of PPRC at a national level and get feedback from relevant experts	Dhaka
15-17	**Sustainable Livelihoods for Hilsa Fishermen** National Consultation to present the findings of WWF at a national level and get feedback from relevant experts	Kolkata
20-21	2 day Workshop for **Hydro-diplomacy** module development for core group	Delhi
20-21	Authors workshop for JRT (Sikkim University and ACD) of **Teesta Ecosystems Services**	Delhi
26 - 31	**Water Futures II**: A Dialogue for Young Scholars and Professionals	Kolkata
November		
1-7	**Water Futures II**: A Dialogue for Young Scholars and Professionals	Saabar (Bangladesh)
4-5	Methodology development for **E-Flows** in Sundarbans National Consultation to present findings of JRT at a national level	Dhaka

Date	Task	Location
5-6	Methodology development for **E-Flows** in Sundarbans National Consultation to present findings of JRT at a national level	Kolkata
6-7	**Sustainable Livelihoods for Hilsa fishermen** Dissemination Dialogue to share research findings of the JRT (WWF and PPRC) with policy makers and relevant experts; identify research gaps, needs and scope for future activity; Involve IIED	Kolkata
12	Launch of **Inland Navigation film** and photo contest prize distribution ceremony	Guwahati (India) and Dhaka
14	National dissemination workshop for action research undertaken on a Community Based **Flood Early Warning System**	Patna (India)
Last week Nov	E4L Concluding Meeting (final dissemination workshop)	Dhaka
Last week Nov.	PAC Meeting	Dhaka

7.3. Factors Which Make Natural Resource Policy Dialogues Effective

The E4L Review Team examined the elements and chain of events that led to the project's most significant tangible policy outcome (i.e. a Hilsa conservation policy in West Bengal, supported by regulations and a dedicated Hilsa conservation and research center) to identify factors, which can be important in having effective policy dialogues. The Hilsa example is instructive in that what started out as a civil society, Track III dialogue, rapidly moved through Track II and Track I discourse phases and resulted in policy changes. Our findings indicated the following critical elements:

- All parties to dialogue benefit from conservation of the resource
- Neutral facilitation
- Adequate, accurate, concise "facts", background data, including case studies showing proof or failure of concept, Opportunities to observe and study first hand other similar efforts
- Easily accessible and relevant documentation and reports
- Convening dialogues in close proximity to issue of relevance
- Bringing in people with prior experience with related activity
- Exposure visits
- Engaging people with access to policy makers or who have had prior exposure to policy making
- Participation by civil society, including NGO's.

8. RECOMMENDATIONS

The following recommendations from the E4L External Review are presented under five main headings: E4L Management; Dialogues (Track III, II, I), Joint Research; Knowledge Base and Knowledge Dissemination; and Institutionalizing E4L's Impacts and the Way Forward.

8.1. E4L Management

The E4L initiative has been well-managed and at this late in the project implementation period, the following recommendations are mainly intended as guidance to help the project team complete some of the key outputs.

a. Arrange roundtable write-shops involving policy makers to facilitate the speedy finalization and validation of briefs for decision-makers. Two categories of materials might be considered: for policy and for programming/practice for each of the five major themes and related subthemes.

b. Better identify the locations, and factors influencing the locations, of spawning areas for important food fishes. Conservation planning should consider the need to build resilience into the system by preserving habitat availability for species to utilise for optimum site selection for critical life-cycle processes.

c. There are various joint studies and consultation workshops to complete before E4L ends. The Project Team has prepared a well-planned schedule for the remaining work but, in addition, every effort should be made to finalise all the joint research reports from the five selected themes. This will require a considerable amount of further editing and formatting, since there are still a number of draft reports and these are of varying quality and completeness.

d. In addition, E4L should ensure as far as possible that, in their final form, the reports have a near-standard structure, which should include *inter alia* an Executive Summary and a set of recommendations covering both trans-boundary and national to local research needs.

e. E4L should also undertake a complete review of the many recommendations for further research, and/or management interventions already provided in the individual reports and papers, with the purpose of producing a consolidated set of recommendations that can serve not only as an additional output from E4L phase 1, but also as valuable reference material to support the planning of a phase 2.

8.2. Dialogues (Track III, II, I)

a. Identify, develop and test innovative pathways, and new points of access, to reach policy-makers and other decision-makers through more targeted and direct approaches in a second phase. (The activities to develop dialogue pathways and access points can include more direct approaches to ministers or ministerial secretaries; and alternative mechanisms, e.g. theory of change, that are tested in consultation - and with inputs from decision-makers themselves).

b. Given the increasing need for environmental awareness at the local level, E4L should collaborate strategically with other NGOs in the next phase, especially in the areas of livelihood, biodiversity conservation and climate change.

c. Public awareness campaigns, e.g. to inform fishers, buyers and fish consumers about the regulations protecting Hilsa stocks, should be considered in a Phase 2 as a means to gain popular support for policy initiatives.

d. Maintain existing dialogue linkages among E4L participants into an E4L Phase 2. This may involve simply ensuring new E4L information is shared with past participants and or involve more direct participation on future initiatives. The important thing is to keep the project momentum up so new policy development water in the GBM area is adequately informed and supported.

8.3. Joint Research

a. Continue with the five themes from Phase 1, but re-visit their focus and add a sixth theme, socio-ecology and trans-boundary ecosystem benefits. It is imperative that decision-makers have a full understanding of the nature of benefits arising from GBM ecosystem services. The cultural history and ecology of the river systems should form an important component of this additional theme.

b. Undertake gap analysis of the joint research reports and situation analyses. The strategic joint research program for E4L has contributed appreciably to understanding the GBM ecosystem in certain areas. Prior to implementing new research, E4L should review both the recommendations contained within the situation analyses and joint research reports to determine where critical gaps exist (especially those most important for informing policy-makers).

c. Continue strategic research on Hilsa, particularly its ecological and E4L theme linkages. This will help ensure that critical elements of Hilsa ecology are not being overlooked.

d. Broaden the scope of ecosystem research to include other species, including keystone species, contributing to GBM biodiversity and ecosystem services. Future research should include qualitative and quantitative investigations into various climate- and land use-related scenarios on ecosystem services and ecological

linkages. Linkages would include those between species and between species and their habitats e.g. wetlands-species relationships.

e. Identify, designate and support a select number of 'proof-of-concept' sites featuring community lead/participatory engagements where evidence is accumulated and used to influence policy makers (see Section 7 above).

f. Consider further the cost-benefit analysis of contiguous year round river navigation corridors vs. fragmented or seasonal corridors.

g. Identify, prioritize, implement and or support GBM ecosystem monitoring. Ecosystem monitoring is essential to: validate models and predictions; detect and efficiently respond to change; and to provide feedback to managers and policy-makers.

h. Comparative review by E4L of the successes and failures of water treaties that apply to, or are applicable to, the GBM rivers. This valuable “case study” information would help managers and policy-makers to have more informed discussions and decision-making based on analyzed results of previous policy-making.

i. Assess wetlands-local livelihood linkages. Wetlands in the GBM are believed to have a range of livelihood-related interactions of socio-economic importance. Investigation of this in relation to the present and various future scenarios (eg. climate change, flow regime change) would enlighten resource management decisions.

j. Comparative analysis of media reporting of Tipaimukh Dam using the same methodology as the Teesta/Tista Treaty analysis. This research would provide insight into the way E4L has impacted media messaging and have policy influence.

8.4. Knowledge Base and Dissemination

a. E4L should make maximum use of the various upcoming consultation workshops/ meetings scheduled until the end of the project, to share results and experiences from the E4L joint studies.
b. Further pursue E4L’s strategic approach using multiple pathways:
    - media outreach;
    - dissemination to institutions;
    - web-posting;
    - invitations to review or provide input to fact sheets and other documents;
    - training modules;
    - briefing/information notes, fact sheets.

    These resources will build awareness and enhance the capacity of policy-makers, researchers, development administrators, academia, media, local communities, and other civil society members (Tracks III, II and I).

c. Use the existing and any future E4L data to develop up to three, distinct, condensed information briefs targeting:

- Track I policy makers and policy approvers;
- Development administrators and civil society, NGOs, local governments; and
- Research and academic community.

d. Better use of Phase 1 research outputs through a research-utilization approach to address the needs of policy, program and practice.

e. Consider the inclusion of web-based virtual resource centers, stories from the field and face-to-face interactions into the E4L knowledge management tool kit.

f. Apply more knowledge integration and synthesis to support dialogues and policy support processes. The review believes there is still a considerable amount of existing data (including newly generated data) that needs to reviewed, analyzed and applied to support GBM basin management needs.

g. The E4L knowledge dissemination strategies need to identify a process, which can cope with the phenomenon of high and regular turnover of senior government officials. The personnel occupying positions with Track II and Track I responsibilities are changed with some regularity due to government staff transfer policies.

8.5. Capacity Building

a. E4L should also look into the mechanisms already developed by BOBLME and MFF for sharing capacity development activities; these include short courses on scientific writing and presentation skills, and project cycle management, which may be of direct value in a future phase of E4L.

b. Continue to promote capacity development of mid-career researchers, media professionals and young professionals (via the Water Futures Program) through creative engagement in project activities, over and above workshops and training courses.

c. Develop a strategic approach for dissemination of project information to key stakeholders and public. (See also Knowledge Base recommendations in 8.4 above.)

d. Develop new teaching modules focusing on key elements of the various E4L themes (following the hydro diplomacy model).

e. Expand the number of young professionals inducted into the "Water Futures" program. The review team endorsed key informant suggestion that for this program to have the best chance of having significant long-term impact it needs reach a larger critical mass of inductees.

f. Incorporate well thought out, exposure visits (including cross border) to support Track II dialogue and other Phase 2 components. The review team received strong support for these from several key informants.

g. Consider research methodology workshops: deepening the quality of research through (methodological) training, including, incorporation of QA/QC activities.

8.6. Institutionalizing E4L's Impacts and the Way Forward

a. The E4L is a strongly process-based initiative, with the aim of facilitating a common understanding of the socio-ecological conditions, water management issues and climate change impacts affecting millions of people dependent on the trans-boundary ecosystems of the GBM sub-region shared by Bangladesh and India. E4L remains a highly relevant initiative towards meeting the immense challenges involved and a second phase is clearly needed in order to consolidate results from the five thematic research areas and to continue to use the evidence-based knowledge gained to support policy dialogue, capacity development and information dissemination.

b. The project has built consensus via a step-wise, iterative approach, which has afforded flexibility in its engagements with government and civil society. This process-based approach should remain the hallmark of E4L in a second phase, while the process itself – and the achievements realized from it – should be disseminated widely before the end of the project and in a Phase 2 inception period.

c. In addition to documenting E4L's process-orientated approach and lessons learned, this valuable experience should also be presented at seminars and training workshops. These learning opportunities should be made available to institutional leaders over and above those mainly involved in E4L to date (including Business and Management Schools, Chambers of Commerce, Research and Development Foundations). This exposure to E4L would also create potential opportunities to leverage further funding for expanded work.

d. Before the end of the project, and guided by the PAC, E4L should formulate a vision and a revised goal for a second phase of E4L. The new goal should articulate the ecosystem-based approach to trans-boundary management in the GBM region.

e. E4L should continue to promote an "agenda of cooperation" that focuses on areas of collaboration, including sharing of ecosystem services, where both parties can receive mutual benefits.

f. In a second phase of the project, E4L would benefit from embracing a broader definition of livelihoods and livelihood-ecosystem linkages.

g. The project should also do more in future in relation to the issue of natural resource conservation in the GBM region and its links to food and livelihood, through stronger engagements with the agricultural and fisheries sectors. These sectors also merit further joint research in the context of the economic valuation of ecosystem services, which is another aspect of E4L's research coverage that should be expanded in a phase 2.

h. Related to the above recommendation, further joint research should be designed on the economic valuation of char ecosystem services as a component of a second phase of E4L. (Only a preparatory study on char ecosystem valuation methodology was completed during phase 1.) Chars provide diverse ecosystem services, including highly productive agriculture and fisheries, but they are highly vulnerable to impacts from upstream developments, annual seasonal changes and natural hazards. Char-dwellers are also marginalised in society and feel neglected. Thus, further joint research on chars would enable E4L to adopt a broader livelihood-ecosystem focus (as recommended above) in the context building resilience among char-dwellers living in one of the most fragile socio-ecological systems of the GBM region.

i. Following the research to policy success of the Hilsa joint research study, it is recommended that similar joint research on other riverine fish species be considered in an E4L Phase 2. There are many other large food fish species that are now scarce (carps, catfishes, feather backs), while other species may prove to be key indicators of ecosystem health, even if they are considered to be less valuable commercially.

j. In addition to expanding the fisheries-related studies, E4L should give more focus in a second phase to ecosystem monitoring in general, with the aim of identifying simple but reliable indicators of ecosystem health/environmental change that could offer sound, evidence-based information for policy advocacy.

k. E4L should be proactive in consulting with complementary organizations/Programs, especially the South Asia Water Initiative (SAWI), to identify specific areas of practical collaboration that could be designed within a second phase of E4L, including possible co-financed joint activities.

l. E4L should take notice of the co-financing mechanisms developed by BOBLME and MFF for sharing their capacity-building activities (e.g. scientific writing training). The capacity-building aspects of E4L's work also have good strategic potential for co-

financing and for leveraging additional funding in a Phase 2, especially considering that a solid base of scientific knowledge has already been created by the project.

m. Regarding governance of E4L, the equal roles afforded to each country in representation (of the PAC/NACs and JRTs), decision-making, research and knowledge sharing, was instrumental to the success of E4L. So too, was the facilitation role and support, played by the IUCN Bangladesh and India country offices, and the IUCN Asia Regional Office in Bangkok. The governance structures and mechanisms developed by E4L should be carried forward with little change into a further phase, except that consideration should be given to expanding the membership of the PAC/NACs to broaden the range of expertise, experience and links-to-government within these bodies.

n. Consideration should also be given to involving serving government staff in a more structured manner. While seminars/workshops, field exposure visits, briefs for policy-makers and the other policy advocacy mechanisms adopted by E4L each have their merits, more formal links to Track II and Track I processes should be investigated when planning a second phase.

Appendix A. National Advisory Committee and Project Advisory Committee

Name	Affiliation/Background
NAC, Bangladesh	
Dr Qazi Kholiquzzaman Ahmad – NAC Chairperson	Chairman, Palli Karma-Sahayak Foundation (PKSF)
Ms Sultana Kamal,	Exceutive Director, Ain O Salish Kendra, Bangladesh
Dr Monowar Hossain	Executive Director, Institute of Water Modeling (IWM)
Dr. AKM Atiqur Rahman	Executive Director, Bangladesh Centre for Advanced Studies (BCAS)
Dr. Mahabub Hossain	Executive Director, BRAC
Mr. C.M. Shafi Sami	Former Foreign Secretary, Government of Bangladesh
Prof A M S Arefin Siddique	Vice Chancellor, Dhaka University
Dr M.A. Quassem	Chairman, National Disaster Management Advisory Committee
Dr K. B. Sajjadur Rasheed	Professor, Department of Geography and Environment, Dhaka University
NAC, India	
Prof Ashok Jaitly – NAC Chairperson	Retired officer, Indian Administrative Services (IAS) and Distinguished fellow, The Energy Resources Institute (TERI)
Prof A. K Gosain	Professor & Head, Civil Engineering Department Indian Institute of Technology Delhi
Mr Shiv Mukherjee	Former diplomat
Dr M Gopalakrishnan	Former Member, Central Water Commission (CWC)
Dr Jayanta Bandyopadhyay	Prof. and Head - Centre for Development and Environment Policy Indian Institute of Management in Calcutta, India
Ms Meena Gupta	Retired officer, Indian Administrative Services (IAS) (Former Secretary, Ministry of Environment and Forests)
Mr Homi Khusro Khan	Economist and Vice President of the Bombay Natural History Society
Mr P R Sinha	Former Director, Wildlife Institute of India and Country Representative, IUCN India
Prof Sanjoy Hazarika	Director, Centre for North East Studies and Policy Research, Jamia Millia Islamia, New Delhi, India

Note: The NAC Bangladesh and NAC India together form the Project Advisory Committee

Appendix B. E4L External Review - Review Team and Scope Of Work

I. Review Team Composition

Brief profiles of the three-person External Review Team members are provided below:

Randal Glaholt M.E.Des. has worked as an environmental consultant to industry and government for over 25 years in North America, Africa, Mid East and Asia in the area of environmental and social impact assessment, environmental planning, mitigation and compliance. His work has included hydroelectric projects in Canada and Central America as well as watershed studies, fisheries and aquatic ecology investigations. Prior to consulting, he worked with government in the area of wildlife management, endangered species, and conservation planning. He has facilitated the development of regional and community conservation plans within co-management frameworks and has extensive experience working with indigenous people, including collection of local ecological knowledge. He has a B.Sc. in Fisheries and Wildlife Biology and an M.E.Des. in Environmental Science. He has been an adjunct professor at the University of Calgary and was previously appointed under Canada Order in Council to the Inuvialuit Environmental Screening Committee.

Julian Gonsalves PhD. has been associated with international development efforts in the areas of agriculture and natural resources management for 30 years. at He worked at the International Institute of Rural Reconstruction for 17 years retiring as Vice President for Program. For the past 13 years, he has served as consultant to a wide range of organisations such as FAO, IFAD, IDRC, CCAFs, IUCN, ICRAF, IWMI amongst others. Julian Gonsalves obtained his PhD from Cornell University in the USA. His current interests are in the fields of climate change adaptation, natural resources management and food security and nutrition

Don Macintosh PhD. has been a Senior Lecturer at the University of Stirling, Scotland, an Associate Professor at AIT in Bangkok, and the Danida Research Council Professor in Environment & Development at Aarhus University, Denmark. He has also worked previously in Bangladesh, India and Thailand as a DFID Fisheries Adviser. His main field of interest is tropical coastal ecosystems research and management, including fisheries and aquaculture. He has designed/reviewed development projects in these fields for ACIAR, Danida, DFID, UNDP, World Bank and INGOs like Action Aid and the Red Cross.

II. Ecosystems for Life: a Bangladesh-India initiative - Scope of External Review

Introduction

Ecosystems for Life: A Bangladesh – India Initiative (Dialogue for Sustainable Management of Trans-boundary Water Regimes in South Asia) is a unique attempt to build and provide a neutral platform for discussing the management of shared rivers between the countries. This initiative, implemented since 2010, is supported by the Minister for Development Cooperation, the Netherlands. The concept behind the project is to promote a better understanding of the trans-boundary ecosystems between Bangladesh and India by involving the civil society on both sides of the border. The

methodology of the project is geared towards an effort to create a body of knowledge through credible joint scientific research with the potential to influence policy options for sustainable management of shared rivers in the region.

Bangladesh and India share three major river systems, the Ganges, Brahmaputra and Meghna, which, along with their tributaries, drain an area of approximately 1.75 million sq km with an average runoff of 1200 cu km. These support over 620 million people. Sustainable management of trans-boundary water regimes therefore will greatly benefit the millions of people who are dependent on them for their livelihoods and well-being.

The **Goal** of the project is improved, integrated management of trans-boundary water regimes in the shared rivers of the GBM Region

The **Purpose** of the project is to establish multi-stakeholder endorsed mechanisms for integrated management of trans-boundary water regimes with a view to enhance food, livelihood and water security in the South Asian Region. The specific focus of this is via track 3 diplomacy.

Outcomes and Outputs

The outcomes and outputs of the project based on the results framework are as follows:

1. Shared vision for addressing food, livelihood and water security issues developed

    1.1. Dialogue processes established on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation in the Indo-Bangladesh region

    1.2. Research conducted on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation in the Indo-Bangladesh region

    1.3. Joint research initiatives conducted between the countries using common research framework

2. Multi-stakeholder knowledge hub on food, livelihood and water security issues related to trans-boundary water management established

    2.1. Region specific knowledge generated and disseminated towards improved understanding of trans-boundary water management (TBWM) issues

    2.2. Comprehensive database established for trans-boundary knowledge resources

    2.3. Policy options identified and shared for each of the dialogue areas

3. Capacity of civil society stakeholders enhanced to address food, livelihood and water security issues

3.1. Comprehensive capacity building Program developed and implemented on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation issues

3.2. Relevant stakeholders exposed to best practices in food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation

3.3. Knowledge base and capacity on environmental flows research enhanced

3.4. Capacity to undertake advanced research on trans-boundary water management enhanced

Themes and Processes

The thematic areas that the project covers were developed through stakeholder discussions and reflect the priority concerns of the region. These are ***Food security, water productivity and poverty, Impacts of climate, Environmental security, Trans-boundary inland navigation and Biodiversity conservation.*** In order to cover these themes the project has defined some processes and activities that are applicable in both countries and are outlined under four components:

Component A: **The Dialogues** The Dialogues have been designed to develop a long term relationship between various stakeholder groups within the country and between the countries, for developing a common understanding on trans-boundary water management, and the impacts of climate change, natural disasters (including floods, cyclones and droughts), international navigation routes and poverty and food security both in India and in Bangladesh and to generate options on how to develop and manage the trans-boundary water regimes for mutual benefits. The Dialogue Groups represent different stakeholder groups from both countries such as NGOs and CSOs, academia and researchers, journalists, ex-political players, and eminent or key members of society.

Component B: Supporting Research The thematic dialogues have been supported through inter-disciplinary research studies that bring together experts from various fields for a holistic understanding of issues relevant to the dialogue themes. The Dialogue Groups ensure that research studies answer key questions and the findings from the studies provide inputs to the dialogue processes. Under the project **situational analysis** on the five themes were undertaken to identify core issues related to food security and poverty, its significance within the India-Bangladesh geographic focus as well as to identify research gaps and needs and future priority joint research areas. Under the project, **joint research** teams comprising of authors from both countries are undertaking research on the key issues identified by the situation analysis and

stakeholder consultations. The research produced by these teams is being peer reviewed and guided by the Project Advisory Committee to establish scientific integrity.

Component C: Shared knowledge base on IWRM issues in the management of trans-boundary water regimes All the knowledge generated under this project is being made available to the public at large. A knowledge base is being developed by assimilating information on IWRM and trans-boundary water management available with project partners and dialogue group members in both countries.

Component D: Capacity building, Training Programs, Communication, Publication and Dissemination

The objective of this component is to build the capacity of young professionals (who will be entering into the negotiating process in future), media, and the government officials who will be eventually taking over the process in the future. Activities are designed to develop training materials which could be used by trainers in a later stage.

Project Implementation

The project is managed jointly by the IUCN offices in Bangladesh and India with the Asia Regional Office at Bangkok. A National Advisory Committee (NAC) at the country level and a joint Project Advisory Committee (PAC, combined NAC of India and Bangladesh) comprises eminent professionals who guide and mentor the project team and play a major part in the decision making of the initiative. The selection of the members of the National Advisory Committee of each of the countries has been deliberate ensuring inclusion of key players and drivers from a broad spectrum of sectors. The members include prominent non-governmental water resource professionals, legislators, diplomats, researchers and academics of high repute at the national, regional and international level.

The Project Review

As the project's final year draws to an end, this review is being commissioned to assess project impacts, to advise on project institutionalisation and to identify lessons which can be taken into a Phase Two project.

Overall objectives of the project review and scope of work

Overall this review aims to do two things. The first is to provide an assessment of the initiative's impacts. The second is to assess relevant lessons learned which might be important to the donor community, managers of similar projects and other stakeholders.

The purpose of the review is to:

a) Assess the overall progress and performance of the initiative
b) Identify internal and external factors which make policy dialogues successful and which can be used for operational staff involved in designing and implementing policy dialogue approaches
c) Provide lessons, insights and direction to donors with regard to lessons learned within the initiative, especially in relation to how initiatives such as this can lay foundations for longer-term cooperation.

The scope of the review should include, but not be restricted to, the following:

1. Assess the role and relevance of the initiative in the Bangladesh-India context, especially in relation to:

a) Other initiatives in the GBM region
b) The needs and priorities of the region
c) The extent Ecosystems for Life provides a foundation for on-going cross-national dialogues through its approach
d) The extent it has been able to use track three diplomacy to open up new narratives and discussions in tracks two and one.

2. Assess Ecosystems for Life's impact to date, using the following questions as guides:

a) Are objectives being reached?
b) How effective has the initiative been in achieving its expected results?
c) What is likely to happen to the results of the initiative once external assistance comes to an end?
d) What are recommendations for institutionalising the initiative's impacts in the longer-term (for example, through a continuation of the project)

3. In relation to the Ecosystems for Life process, how effective has it been in:

a) Delivering the initiative's objectives?
b) Delivering solid shared methodologies for the research?
c) Establishing shared understandings, especially through multi-stakeholder platforms and dialogues?
d) Establishing processes of policy advocacy?
e) Establishing the foundation for evidence-based policy making, and/or evidence-based policy discussions?

5. In relation to capacity-building:

    a) Assess the capacity-building activities in regard to Ecosystems for Life's aims and objectives

6. In relation to communications and dissemination:

    a) Assess the effectiveness of the initiative's efforts to capture and share results from its activities
    b) Assess stakeholder perception of the initiative at project, country and cross-national level.

7. Has the project been able to build on existing dialogues, mechanisms and processes?

    a) How has the project harnessed these?
    b) How has the project opened dialogues and laid foundations to develop dialogues, mechanisms and processes where none exist?

8. In relation to leveraging funding,

    a) what is the potential for the initiative to further funding?
    b) What are the areas of the project which have the best strategic potential for this?

Methodology

It is expected the work would include the following:

- Review of documents
- Meetings with members of the NACs and PAC
- Use of relevant approaches to assess the impact of Ecosystems for Life *vis-à-vis* other similar initiatives
- Use of relevant approaches to assess the impact of Ecosystems for Life *vis-à-vis* its aims and objectives
- Use of relevant approaches to assess the impact of Ecosystems for Life *vis-à-vis* its activities

Visits will be made to both India and Bangladesh.

Tentative work-plan and schedule for internal review

Review mission 27th July to 5th August 2014

Final report as per contract

Deliverables

A written report

Appendix C. Key Informants Interviewed During E4L Project Review.

	Name	Current Affiliation	E4L Participation
1.	Brian Furze	IUCN – E4L Project Director	Project Management and Administration
2.	SushmitaMandal	IUCN- E4L Dialogue Coordinator (Joined August 2012)	Dialogue Coordinator
3.	ArchanaChaterjee	IUCN- E4L Manager (Joined July 2013)	Project Management
4.	Aditi Jha	IUCN – E4L Program Officer, Joined Jan 2014	Support for Project Management
5.	PR SInha	Former Director, Wildlife Institute of India and Country Representative, IUCN India Country Representative IUCN India,	National Advisory Committee – India; Project Advisory Committee
6.	Krishnendu Bose	Managing Trustee Earthcare Outreach Trust	Prepared (*Participatory Video, Chars*)
7.	Dr. Bharat Sharma	Scientist Emeritus (Water Resources) Indian Water Management Institute (IWMI)., New Delhi, India	Participant in Joint Research Team (JRT) on Food Security
8.	M Gopalakrishnan	Secretary General (Hon) International Commission on Irrigation and Drainage Indian National Committee on Large Dams President, New Delhi Chapter – World Water Council Ex-President, Indian Water Resources Society	National Advisory Committee – India; Project Advisory Committee
9.	UttamSinha	The Institute for Defence Studies and Analyses (IDSA)	Participant in dialogue around hydro-diplomacy module development
10.	Shiv Mukherjee	Former Diplomat, Government of India, served in UK, Nepal, South Africa	National Advisory Committee – India; Project Advisory Committee
11.	Bharat Bhushan	Media person, Consultant to Indian Council for Social Science research; Journalist for leading English dailies such as Mail Today, The Hindustan Times, Telegraph, India Today	Carried out "An Analytical Review of Media Reports: Context of trans-boundary aspects of the Teesta river"
12.	Dr. Partha Das	Program Head	Joint Research Team,

		Water, Climate, Hazard (WATCH) Program Aaranyak Institute	*Wetlands connectivity*
13.	Dr. Chandan Mahanta	Indian Institute of Technology Guwahati	(Joint Research Team: Physical Assessment of Brahmaputra; attended Hydro-diplomacy module development consultation
14.	Anup Mitra	Chairman, Technical Advisory Committee Water Resources Dept. Former Secretary, Water Resources, Gov't of Assam. Guwahati, India	Attended E4L meetings in his capacity as Secretary
15.	Arun Roy	Director, Inland Waterways Authority of India (IWAI),Ministry of Shipping Government of India	Participant in Navigation workshops
16.	Prof Sugata Hazra	Director, School of Oceanographic Studies, Jadavpur University	Joint Research Team: on Migratory and Spawning patterns of Hilsa*and* Methodology development for Environmental Flows
17.	Dr R FoningLepcha,	Additional Director(Technical) Dept of Fisheries, GoWB	Interaction for Hilsa work
18.	Prof Bandyopadhyay	Former Professor &HoD, Centre for Environment & Development Policy, IIM Kolkata	National Advisory Committee – India; Project Advisory Committee
19.	Ishtiaq Uddin Ahmad	Country Representative IUCN Bangladesh	Support for Project Management; as CR, permanent member of NAC and PAC
20.	Bushra Nishat	IUCN Manager Bangladesh	Project Management, Bangladesh
21.	Dipankar Aich	IUCN E4L Dialogue Coordinator Bangaldesh	Dialogue Coordination
22.	Prof. Niamul Naser	Department of Zoology, Dhaka University	Joint Research Team: The Importance of Migratory and Spawning Patterns for the Conservation of Hilsa in Bangladesh and India
23.	Dr. Qazi Kholiquzzaman Ahmad	Chairman, Palli Karma-Sahayak Foundation	Chairman National Advisory Committee – Bangladesh; Co-Chairman – Project Advisory Committee

24.	Md. Waji Ullah	Executive Director Centre for Environmental and Geographic Information Services (CEGIS), Dhaka	Joint Research Team:– methodology development for Environmental Flows in the Sundarbans
25.	Dr. Maminul Haque Sarker	Deputy Exec. Dir. Centre for Environmental and Geographic Information Services (CEGIS), Dhaka	Joint Research Team: – Convergence of Inland Navigation and Integrated Water Resources Management Goals
26.	Malik Fida A Khan	Director, Climate Change Study Division Centre for Environmental and Geographic Information Services (CEGIS), Dhaka	Joint Research Team: methodology development for Environmental Flows in the Sundarbans
27.	Md. Sarfaraz Wahed	Director, Water Resources Division Centre for Environmental and Geographic Information Services (CEGIS), Dhaka	Joint Research Team: – eflows
28.	Prof. Imtiaz Ahmed	Dhaka University, International Relations Department	Coordinator: Water Futures
29.	Mir Sajjad Hossain	Member, Joint Rivers Commission Ministry of Water Resources Government of Bangladesh, Dhaka	JRC (Joint Rivers Commission?) attended meetings and exposure visits.
30.	Farah Kabir	Country Director Action Aid, Dhaka, Bangladesh	Joint Research Team: Building Flood Resilient Community through Flood Early Warning Dissemination
31.	Abdul Alim	Manager, Humanitarian Response and Disaster Risk Reduction and Climate Justice Action Aid, Dhaka, Bangladesh	Joint Research Team: Building Flood Resilient Community through Flood Early Warning Dissemination
32.	Prof. Sajjadur Rashid	Dhaka University, Dept. of Geography	National Advisory Committee – Bangladesh; Project Advisory Committee
33.	Carel De Groot M.Sc.	First Secretary, Water Section. Embassy of the Kingdom of the Netherlands, Dhaka	Donor Representative
34.	Michiel Slotema	Policy Advisor Water Embassy of the Kingdom of the Netherlands, Dhaka	Donor Representative
35.	Ms. Meena Gupta	Retired officer, Indian Administrative Services (IAS) (Former Secretary,	National Advisory Committee - India; Co-

		Ministry of Environment and Forests), New Delhi, India	Chair, Project Advisory Committee, anything else?
36.	Abu Bakar Siddiique	New Nation, Dhaka	Received Media fellowship, participated in workshops
37.	Badrul Ahsan	Journalist, Daily Star, Dhaka	Participated in workshops
38.	Mr. Nurul Islam	President, National Fisherman's Association, Dhaka	Participated in cross border Hilsa dialogues
39.	Sri Phani Bhushon Malo	Secretary General National Fisherman's Association, Dhaka	Participated in cross border Hilsa dialogues

Appendix D. Listing of Main Publication Outputs

A. Situation Analysis Reports	
Food Security, Water Productivity and Poverty	**1. Distress and promise: GBM riparian states of India (India)** **2. The dynamics in Indian states flanking Bangladesh (India)** **3. Are people in rivebank areas more vulnerable? (Bangladesh)** **4. Challenges in the GBM region (Bangladesh)**
Climate Change	1. Impacts in India: Key issues (India) 2. Climate change impacts and North-East India (India) 3. Impacts on hydro-meteorology: A research agenda (Bangladesh) 4. What will happen when climate change occurs? (Bangladesh)
Inland Navigation	1. Navigating cross-boundary rivers: An India perspective (India) 2. Towards a Bangladesh-India initiative (Bangladesh)
Environmental Security	1. Charting a research course (India) 2. A GBM ecosystem perspective (Bangladesh)
Biodiversity Conservation	1. Conservation challenges in the sundarban (India) 2. Core issues of joint research in conserving biodiversity (Bangladesh)
Energy Security	1. An exploration of cooperation potentials for energy security in the GBM region (India)

	2. Energy security in the Ganges, Brahmaputra and the Meghna (GBM) Basins (Bangladesh)
Floods and Flood Management	1. Situation analysis on floods in East and Northeast India (India) 2. Retrospective perspective on history and climate change (Bangladesh)

B. Joint Research Commissioned	
Completed	
1	Joint Research Report: Convergence of Inland Navigation and Integrated Water Resource Management Goals
2	The Importance of Migratory and Spawning Patterns for the Conservation of Hilsa in Bangladesh and India
3	Assessing Ecosystem Services of the Chars in Bangladesh and India
4	Physical Assessment of the Brahmaputra River
5	Impact of Climate Change and Adaptation Strategies
Underway	
6	Wetlands Connectivity in the Floodplains of Brahmaputra
7	Flood Early Warning Systems Joint Research
8	Food Security, Water Productivity and Poverty Comparative Study Between India (West Bengal) and Bangladesh (Southwest Region)
9	Methodology for Assessing Environmental Flows
10	Valuing Ecosystem Services of the Teesta River
11	Joint Research on Assessing Sustainable Livelihood Strategies for Fisher Communities during the Hilsa Fishing Ban Season

Appendix E. E4L Staffing 2010 - 2104

Name	Position	Tenure
Bangkok Office		
T P Singh	Deputy Regional Director	2010-2014
Ganesh Pangare	Project Director	2010-2014
Lalita Rammont	Program officer	2010-2014
Ali Raza Rizvi	Interim project director	2010-2011
Sarmad	Operations Manager	2010-2012
Bangladesh Office		
Dr. Mihir Kanti Majumder	Dialogue Advisor	2013-2014
Bushra Nishat	Project Manager	2010-2014
Dipankar Aich	Dialogue Coordinator	2014-2014
A. J. M. Zobaidur Rahman	Communications Officer	2012-2014
Mohammad Omar Faruque	Office Assistant	2010-2014
Md. Anwar Hossain	Logistics Officer	2011-2014
Mohammad Aminur Rahman Shah	Program Officer	2014-2014
Shahad Mahabub Chowdhury	Dialogue Coordinator	2012-2013
Shahzia Mohsin Khan	Dialogue Coordinator	2010-2012
Md. Abdul Quayyum	Communications Officer	2010-2011
India Office		
Brian James Furze	Project Director	2013-2015
Archana Chatterjee	Project Manager	2013-2015
Sushmita Mandal	Dialogue Coordinator	2012-2014

Name	Position	Tenure
Aditi Jha	Program Officer	2014-2014
Prakash Basnet	Project Assistant	2014-2015
Prativa shukla	Project Assistant	2010-2013
Kazimuddin Ahmed	Dialogue Coordinator, Project Manager	2010-2012
Frank van der valk	Project Director	2011-2012
Nidhi Nagabhatla	Project Manager	2010-2011
Narendra Singh	Project Logistics Officer	2010-2011

Appendix F Bangladesh Civil Societies, NGOs, Community Organizations and Research Institutes Contracted for E4L Project

Name/ Organization (Bangladesh)		Work Type	Time Period
1.	Center for Environmental and Geographic Information Services (CEGIS)	Procurement preparation of a detailed list of Institutions, researchers, civil society organizations	2010
2.	Bangladesh Unnayan Parishad	Procurement preparation of a detailed list of Institutions, researchers, civil society organizations	2010
3.	Mohammad Solaiman Haider	Situation Analysis study on Biodiversity Conservation	2010
4.	Mr Nityananda Chakravorty	Situation Analysis study on Climate Change	2010
5.	Mr Syed Monowar Hussain	Situation Analysis study on Inland Navigation	2010
6.	Mr Shahab Enam Khan	Situation Analysis study on Environmental Security	2010
7.	Unnayan Onneshan	Situation Analysis study on Environmental Study	2010
8.	Bangladesh Unnayan Parishad	Situation Analysis study on Water Productivity and Poverty	2010
9.	Center for Environmental and Geographic Information Services (CEGIS)	Situation Analysis study on core issues of impacts of climate change	2010
10.	BRAC	Situation Analysis Study on core issues of food security and poverty	2010
11.	Departmen of Fisheries, University of Dhaka (DU)	Part of the JRT on Hilsa species	2011
12.	Environmental Conservation Managements Consultants Ltd (ECOMAC)	Part of the JRT on Environmental Security	2011
13.	Bangladesh Centre for	Part of JRT on potential climate change	2011

Name/ Organization (Bangladesh)		Work Type	Time Period
	Advance Studies (BCAS)	impacts on water availablity	
14.	Mr Nandan Mukherjee	Identify core issues on floods and flood management and Joint research in Country and GBM region	2011
15.	Prof. M Nurul Islam	Identify core issues on energy security and Joint research in Country and GBM region	2011
16.	Mr M Iqbal Kabir	Synthesise and analysis media reporting on trans-boundary water management	2011
17.	Mr Sheikh Rokon	Narrative phot story on the banks of Jamuna and visible threats to the river	2011
18.	Mr Zunid Al Saqee	Narrative photo story on life, livelihoods and cultures of communities in Gumoti, Feni, Selonia and Muhuri rivers	2011
19.	Mr Sheikh Rokon	Narrative photo story on life, livelihoods and cultures of communities of twelve rivers in the northj-eastern part of Bangladesh	2011
20.	Mr Md Maksudur Rahman	Narrative photo story on the life, livelihoods and cultures in the north west part of Bangladesh	2011
21.	Mr Md Maksudur Rahman	Narrative photo story on the life, livelihoods and cultures in the south west part of Bangladesh	2011
22.	Bureau of Research, Testing and Consultation (BRTC)	To obtain services from BRTC, BUET to peer review the Joint Report on navigation route between Ashuganj in Bangladesh and Karimganj in India	2011
23.	Mr Subrata Biswas	Design and update a web enabled database to include the stakeholder mapping and annotated bibliography	2012
24.	Mr Pradip Saha	Edit and produce printable manuscript on SA Papers	2012

Name/ Organization (Bangladesh)		Work Type	Time Period
25.	Ms Anindita Kamal	Field visits of the trans-boundary rivers in Bangladesh	2012
26.	Mr Humayun Kabir	Field visits of the trans-boundary rivers in Bangladesh	2012
27.	Mr Jayanta Basu	Narrative photo story in the state of West Bengal in India	2012
28.	Mr Sanat K Chakraborty	Narrative photo story in the state of Meghalaya in India	2012
29.	Dr Shaakeel Hasan	Peer review the joint report on climate change	2012
30.	Mr Jamil Ahmed	Synthesise and analyse media report on trans-boundary water management	2012
31.	Dr Imtiaz Ahmed	Write a pictorial book on the river Yarlung Tsangpo-Brahmaputra-Jamuna and threats to the ecosystem	2012
32.	Center for Natural Resource Studies (CNRS)	Part of the Joint Research Team	2012
33.	Center for Environmental and Geographic Information Services (CEGIS)	Part of the Joint Research Team	2012
34.	BRAC	Part of the Joint Research Team	2012
35.	Institute of Water Modelling (IWM)	Part of the Joint Research Team	2012
36.	Dr Rahmatullah	Develop a policy brief on trans-boundary Inland Navigation	2012
37.	Mr Syed Monowar Hussain	Design a policy dialogue on Inland Navigation	2012
38.	Asia Centre for Development (ACD)	Economic valuation of the ecosystem services on River Teesta	2012
39.	Mr Sabyasachi Hazra	Design a template for policy brief for different thematic areas	2012

Name/ Organization (Bangladesh)		Work Type	Time Period
40.	Mr Masud Talukdar	Translate recorded interviews for an eight minute docu-film on Hilsa Fisheries Management	2013
41.	Ms Ahana Adrika	Compiling meeting proceedings based on the notes taken	2013
42.	Ms Parveen Rasheed	Produce two printable manuscripts by editing and compiling SA papers on Floods and flood manangement and Energy Security	2013
43.	Institute of Water Modelling (IWM)	Part of the Joint Research Team (JRT) - Wetlands Connectivity	2013
44.	Dr Asif M Zaman	Peer review a situation analysis on floods and flood management	2013
45.	Dana Ansberga	International intern	2013
46.	Axel Haberkorn	International intern	2013
47.	Mr S A M Hamid-uz-Zaman	Study, produce and disseminate three news reports on issues of trans-boundary water resource management	2013
48.	Mr Abu Bakar Siddique	Study, produce and disseminate three news reports on issues of trans-boundary water resource management	2013
49.	Mr Badrul Ahsan	Analytical review of media reports	2013
50.	Ms Eva	River atlas - collect stories and pics from Sylhet rivers	2013
51.	Ms Manjima	Write a pictorial book on the river Yarlung Tsangpo-Brahmaputra-Jamuna and threats to the ecosystem	2013
52.	Mr Barkatullah Maruf	Produce an eight minute documentatry (Film) on Inland Navigation	2013
53.	Mr Jamaluddin	Peer review a situation analysis on energy	2013

Name/ Organization (Bangladesh)		Work Type	Time Period
54.	IR, University of Dhaka	Exchange Program titled "Water Futures: A Dialogue for Young Scholars and Professionals"	2013
55.	Dr Nurul Islam	To Develop situation analysis on energy security	2013
56.	Mr Amirul Islam	Exchange Program titled "Water Futures: A Dialogue for Young Scholars and Professionals"	2013
57.	Dr Imtiaz Ahmed	Exchange Program titled "Water Futures: A Dialogue for Young Scholars and Professionals"	2013
58.	Mr Jasimuddin	Translate for river atlas	2013
59.	Mr Rahed Ejaj	Translate 'SHARE'	2013
60.	CNRS	Study on wetlands connectivity for Charan Beel - socio-economic	2013
61.	Abdullah Al Mamun	River atlas - help compile the stories	2013
62.	Development Media	Development of media module	2013
63.	Pintu Saha	Participatory Video - chars	2013
64.	IWM	Study on wetlands connectivity for Charan Beel – physical	2013
65.	ActionAid	Flood early warning system - scoping	2013
66.	PPRC	To identify optimal strategies for addressing livelihood security of marginal communities that reconcile with conservation priorities in Bangladesh and India	2013
67.	Md Mizanur Rahman	Design of template river atlas	2013
68.	CEGIS	Piloting methodology on E-flows in Sundarbans	2013

Name/ Organization (Bangladesh)		Work Type	Time Period
69.	Abdullah Al Mamun	facilitate exposure visit during Jatka ban Program	2014
70.	Professor Benazir Ahmad	organisation of River Biodiversity Symposium	2014
71.	Nymphea	Multimedia platform for Brahmaputra book	2014
72.	Robiul Hasan	Production service for inland navigation film	2014
73.	Hossain Shikdar	(Design of Annual Report)	2014
74.	Creative Lab lmt	Participatory Video - chars	2014
75.	Dr. Tanvir Ahmed (contract with BRTA)	SA - Water and Health	2014
76.	PPRC	To identify optimal strategies for addressing livelihood security of marginal communities that reconcile with conservation priorities in Bangladesh and India	2014
77.	Action Aid	Flood early warning system - piloting	2014

Appendix G Indian Civil Societies, NGOs, Community Organizations and Research Institutes Contracted for E4L Project

Name/ Organization (India)		Work Type	Time Period
1.	Development Alternatives (DA)	Situation Analysis - Food Security	2010
2.	The Energy and Resources Institute (TERI)	Situation Analysis - Climate Change	2010
3.	Takshashila Academia of Economic Research Limited (TARE)	Situation Analysis - Environmental Security	2010
4.	CENV: Centre for Environment -Indian Institute of Technology, Guwahati (IITG)	Situational Analysis - Climate Change	2010
5.	Indian Institute of Technology Kharagpur	Situational Analysis - Biodiversity	2010
6.	International Water Management Institute (IWMI)	Situational Analysis - Food Security	2010
7.	Dr. Dinesh Kumar Mishra	Situational Analysis - Inland Navigation	2010
8.	Mr. Ranjan K Panda	Situational Analysis - Environmental Security	2010
9.	Aaranyak (Dr Patha J Das)	Ecosystem Services for Chars	2011
10.	Institute of Development Studies Kolkata (IDSK) (Dr Jenia Mukherjee)	Ecosystem Services for Chars	2011
11.	Centre for the Environment, IIT - Guwahati (Dr. Chandan Mahanta)	Physical Assessment of Brahmaputra	2011
12.	Humanities and Social Sciences Department, IIT- Guwahati (Dr. Anamika Barua)	Part of JRT on potential climate change impacts on water availability	2011
13.	North Eastern Social Research Centre (NESRC) (Dr. Walter Fernandes)	Climate Change and Livelihoods	2011
14.	Radhakrishnan Madhavan Nair.	Inland Navigation research	2011

Name/ Organization (India)		Work Type	Time Period
15.	Eklavya Prasad	Situation Analysis -Flood and Flood Management	2011
16.	Chandan Mahanta	Majuli monograph	2011
17.	Ritesh (Wetlands International)	Peer review of food security situation analysis	2011
18.	Ms Madhurilata Basu	Research Associate: Media content analysis	2012
19.	Aaranyak	Wetland Connectivity: Phase 1	2012
20.	Dr. Anamika Barua (IIT G)	Climate Change	2012
21.	Jadavpur University	E-flows	2012
22.	Mr Jayanta Basu	River Atlas	2012
23.	Ratna Bharali Talukdar	Media Fellowship	2013
24.	Anamitra Sengupta	Media Fellowship	2013
25.	Dinesh Kumar Mishra	Review of situation analysis on flood and flood management	2013
26.	Sikkim University	Valuation of Ecosystem services (Teesta)	2013
27.	Devika Kar	Documentation - Hilsa consultation	2013
28.	Advait Nemlekar	Music - Hilsa film	2013
29.	Prof. C. K. Varshney	Review of situation analysis on energy security	2013
30.	International Water Management Institute (IWMI)	Food Security Joint Research	2013
31.	Indira Khurana	Joint Report on Impacts of Climate change on water,	2013

Name/ Organization (India)		Work Type	Time Period
		livelihoods and food security	
32.	Academic Foundation	Publisher - Hilsa and inland navigation	2013
33.	Anamika Deb Roy	Concept note and associated work on "Water Futures"	2013
34.	Jamia Milia Islamia	Exchange Program for young professionals in CNES	2013
35.	Centre for North East Studies and Policy Research (C-NES) Guwahati	Water Futures field component	2013
36.	Sanat Chakraborty	River Atlas	2013
37.	Kausik Ghosh	River Atlas	2013
38.	Jeta Sankrityayana	River Atlas	2013
39.	Nav Jagriti	Flood Early Warning Systems joint research	2013
40.	Mahanirban Calcutta Research Group (CRG)	Media Module	2013
41.	Aaranyak	Wetland Connectivity: Phase 2	2013
42.	Jadavpur University	E-flows Joint Research	2013
43.	Earthcare Outreach Trust	Participatory Video	2013
44.	WWF - India	Joint Research on assessing sustainable livelihood strategies for fisher communities during the Hilsa fishing ban season	2014
45.	Dr Indira Chakravarty	Organize a consultation to assess and analyze the core issues on the impact of water on health and nutrition in Bangladesh and East and North-East states of India	2014

Name/ Organization (India)		Work Type	Time Period
46.	Foundation for Community Support and Development (FCSD)	Facilitate the organization of Dialogue on Water and Health and field visit	2014
47.	IIT Roorkee	E-flows Joint Research	2014
48.	Sanat Chakraborty	Narratives for River Atlas	2014
49.	Prof Kalyan Rudra	Advice and guidance for finalizing the River Atlas	2014
50.	Sanjay Gupta	Lead and facilitate the design and organization of a two day consultative workshop on water diplomacy and prepare a report	2014
51.	Patna University	Organization of river biodiversity symposium and field visit	2014
52.	R K Sinha	Organize and Coordinate the River Biodiversity Symposium	2014
53.	Dilip Kumar Kedia	Assist in organizing the River Biodiversity Symposium	2014

Appendix H Independent Contractors On E4L Project

Name/ Organization (Independent/Expat)		Work Type	Time Period
1.	Pradip Saha	Copy editing for situation analysis	2011
2.	Mr. Bharat Bhushan	Media content analysis	2012
3.	Dr. Robert Fisher	Annual Report as well as paper on 'Track3 to diplomacy to evidence based policy'	2013
4.	Dr. Brij Gopal	Preparing Annual Report 2012	2013
5.	Belinda Calaguas	Policy Advocacy training workshop	2013
6.	Olivier Cogels	Expert paper on the relation between diplomacy tracks (I,II,III)	2013
7.	Annita Annies	Report on Climate Change, Water Security and Resilience	2013

APPENDIX I. Results Framework For E4L

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
1.1. Dialogue processes established on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation in the Indo-Bangladesh sub-region	• Constitute and facilitate multi-stakeholder forums and groups in each country with representation from related sectors.	*Stakeholder consensus on the understanding of common trans-boundary issues in context of the thematic arena of the project* Multi-stakeholder dialogues for research dissemination (details in 2.3 – policy dialogues) Multi-stakeholder forums on: • Regional Initiatives (International Workshop on Trans-boundary resource knowledge sharing, 24th November, 2011 in Dhaka, Bangladesh) • Hydro-diplomacy (International Conference on Hydro-diplomacy: A Tool for Sharing Water across Borders, 31st October, 2012 Chiang Rai Thailand) • Shared Vision in the GBM (Shared visioning exercise in October and December, 2013)
	• Project and National Advisory Committees established	India and Bangladesh National Advisory committees (NAC) with 9 members from each country established which together constitute the Project Advisory Committee (PAC); A total of 8 NAC meetings and 5 PAC meetings held
	• Prioritised list of issues in food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity from National Stakeholder Consultations	*National Stakeholder Consultations* to identify issues in thematic areas: India

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
1.1 cont'd	• Prioritised list of issues in the same thematic areas from Regional (India-Bangladesh together) Stakeholder Consultations	• First Stakeholder Consultation on 3rd November, 2010 – New Delhi, India • Second Stakeholder Consultation on 10th November, 2010 – Kolkata, India • Third Stakeholder Consultation on 12th November, 2010 – Guwahati, India • Fourth Stakeholder Consultation on 21st January, 2011 – New Delhi, India <u>Bangladesh</u> • First Stakeholder Consultation on 29th November, 2010 – Dhaka, Bangladesh • Second Stakeholder Consultation on 10th January, 2011 – Dhaka, Bangladesh *Regional Consultation* on • Approach and Methodology for Joint Research on 3-4 August, 2011 in Kathmandu, Nepal

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
1.2. Research conducted on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation in the Indo-Bangladesh sub-region	• The experts involved in research have developed consensus on options to address the common trans-boundary issues jointly	*Situation analysis reports* on 1. Situation Analysis on Inland Navigation 2. Situation Analysis on Biodiversity Conservation 3. Situation Analysis on Water, Food Security, Poverty 4. Situation Analysis on Climate Change 5. Situation Analysis on Environmental Security 6. Situation Analysis on Energy Security 7. Situation Analysis on Floods and Flood Management *Areas of Joint Research prioritised and undertaken*: 1. Convergence of Inland Navigation and Integrated Water Resource Management Goals 2. The Importance of Migratory and Spawning Patterns for the Conservation of Hilsa in Bangladesh and India 3. Assessing Ecosystem Services of the Chars in Bangladesh and India 4. Physical Assessment of the Brahmaputra River 5. Wetlands Connectivity in the floodplains of Brahmaputra 6. Flood Early Warning Systems joint research 7. Food Security, Water Productivity and Poverty Comparative study between India (West Bengal) and Bangladesh (Southwest Region) 8. Methodology for assessing Environmental Flows 9. Valuing Ecosystem Services of the Teesta river 10. Joint Research on assessing sustainable livelihood strategies for fisher communities during the Hilsa fishing ban season
1.3. Joint research initiatives conducted between the countries using common research framework	• An agreed research agenda and methodology • At least 50% of the researchers/experts have consensus on findings of the joint research studies	*Joint research reports* (mentioned above) *Minutes of the joint meetings of the researchers/experts*

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
2.1. Trans-boundary water management specific knowledge generated and disseminated towards improved understanding of TBWM issues	• Knowledge products (publication/ models/reports) derived from on research outcome • Biannual TWD newsletter • Stakeholder Consultations reports	*Technical report on knowledge generation* • Creating a Shared Vision: Knowledge generation and management in Ecosystems for Life *Documents on river basin management models* • Expert paper on the relation between diplomacy tracks (I, II, III) • Paper on multi-stakeholder platforms *Knowledge products* • 10 Joint research reports (5/10 complete) • 3 policy films on Hilsa conservation, Chars (river islands) and Inland Navigation • River Atlas • Brahmaputra book and multimedia platform • Hydrodiplomacy book
2.2. Comprehensive database established for knowledge resources	• Web portal on trans-boundary knowledge base	*Knowledge products' inventory* *Hit count of portal's use* http://www.iucne4l.org/ regularly updated (visitors since Feb 2013 is 8244)
2.3. Policy options identified and shared for each of the dialogue areas	• Stakeholders, experts and the project advisory have consensus on the policy options	*The Advisory committee (NAC) reflects the policy options in the country-level*

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
2.3 cont'd	• Policy options reflects the cross-disciplinarily context of the trans-boundary water issues	*The Advisory committee (PAC) reflects the policy options in the regional-level* Policy dialogues held on the following: • International Workshop on Trans-boundary Inland Navigation: Joint Research Dissemination and Policy Dialogue (22 March 2012 in Dhaka, Bangladesh) • Trans-boundary policy dialogue on Hilsa Fisheries Management (24 July, 2012 in Kolkata, India) • Water, Food Security, and Poverty: Linking Policy to Grassroots Action (21st May, 2014 in Kolkata, India)
3.1. Comprehensive capacity building Program developed and implemented on food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation issues	• A comprehensive capacity need assessment	An analytical review of media reports (need for capacity building of training media in reporting trans-boundary issues identified) Hydro-diplomacy workshop (need for capacity building in the area of hydro-diplomacy in the South-Asian region identified) Media dialogue on Trans-boundary Resources Management: Bangladesh and India Perspective

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
3.1 cont'd	• A comprehensive capacity building Program	*Internships and Scholarships assigned within in the thematic reach of the project* *Number of individuals trained* 4 (Media Fellows) 12 (Policy Advocacy training) 40 (Water Futures) 35 (Exposure visits – Mekong River Commission, Nile Basin Initiative and Hilsa Exposure visit) *Kind of stakeholders trained* Media personnel (Media module) Young professionals (Water Futures) Project partners trained in Policy Advocacy Policy makers and Civil Society (Exposure visits) Media module to train journalists and media (under preparation) Module on Hydrodiplomacy to train diplomats, professionals etc. (under consideration)
	• Number of capacity building events	*Report/ Knowledge product from the above activities*
	• Level of satisfaction of the capacity building beneficiaries	*Progress report* Feedback Surveys

Desired Outcome	Objectively Verifiable Indicators	Validating Evidence
3.2. Relevant stakeholders exposed to best practices in food security, water productivity and poverty; climate change; inland navigation; environmental security and biodiversity conservation	• Exposure visit to trans-boundary water basins such as Mekong , Nile basin	*Identification of initiatives with mapping of interests, abilities and influence at different stages and engage and integrate with relevant initiatives and processes* *Exposure visit reports highlight the commonalities/ lessons learnt* *Progress report*
3.3. Knowledge base and capacity on environmental flows research enhanced	• Specific environmental flow parameters for example seasonality identified in both countries	*Technical reports on e-flows* Phase I Report: Development of a Joint Methodology: Environmental Flow Assessment of the Sundarbans Phase II Report: Pilot testing the joint methodology (underway)
	• Professionals and experts gain capacity and research on common trans-boundary issues related to environmental flows initiated	*Capacity building Program on environmental flows conducted by supporting research scholars /interns* Training workshop on Environmental Flows with Professor P J Meynell conducted on 2nd and 3rd May, 2014
3.4 Capacity to undertake advanced research on trans-boundary water management enhanced	• Capacity development Program in each country developed	*Research scholars in both countries have similar capacities to undertake advanced research.*
	• Professionals and experts with improved capacity for research on common trans-boundary issues	

Appendix J. List of Meetings, Workshops and Conferences Organized

○	Date	Meeting/ Workshop/ Conference	Venue	Number of Participants			Remarks
				B'desh	India	Total	
1.	26 Nov 2010	First multi-stakeholder meeting	Dhaka, Bangladesh	80	○	80	National level
2.	8 Dec 2010	First Joint Author Meeting on 08 December 2010 in Bangkok, Thailand	Bangkok, Thailand	12	12	26	2 from ARO
3.	10 Jan 2011	Second Multi-Stakeholder Consultation on Situation Analysis for Joint Research of Ecosystems for Life	Dhaka, Bangladesh	54	○	54	National level
4.	3-4 Aug 2011	Consultation on Approach and Methodology for Joint Research	Kathmandu, Nepal	10	10	25	Participant from ARO
5.	11-17 Sept 2011	Exposure Visit to the Nile Basin	Entebbe, Uganda	5	5	11	1 from ARO
6.	27 Sept 2011	Expert dialogue on situation analysis on Energy Security in the Ganges –Brahmaputra-Meghna basins	Dhaka, Bangladesh	10	○	10	National level
7.	6-8 Dec 2011	Media dialogue on trans-boundary resources management: Bangladesh and India Perspective in Bangkok, Thailand, 6-8 December, 2011	Bangkok, Thailand	14	14	29	○
8.	23-24 Nov, 2011	International Workshop on Trans-boundary Water Resource Knowledge Sharing: Presentation of Joint Research Findings and Regional Initiatives	Dhaka, Bangladesh	33	19	60	Inaugurated by Deputy Minister, MoWR
9.	29 May 2012	Joint Research Team Meeting for finalizing Joint Study Report on Hilsha	Padma, Bangladesh	2	2	5	○

○	Date	Meeting/ Workshop/ Conference	Venue	Number of Participants			Remarks
				B'desh	India	Total	
10.	21 Mar 2012	Trans-boundary Biodiversity: Joint Research Dissemination and Policy Dialogue on	Dhaka, Bangladesh	27	3	30	○
11.	22 Mar 2012	Joint Research Dissemination and Thematic Discussion on Trans-boundary Inland Navigation	Dhaka, Bangladesh	21	4	25	○
12.	24 July 2012	Policy DIALOGUE on Hilsa Ecosystems for Life: A Bangladesh-India Initiative	Kolkata, India	18	30	○	48
13.	26 July 2012	Joint Secretary Level Meeting on Hilsa Fisheries Management ○	Kolkata, India	3	3	6	Closed door meeting between Joint Secretary, Min of Fisheries of both countreis
14.	30 Sept 2012	Policy Dialogue on Food Security, Water and Poverty	Dhaka	8	7	15	○
15.	31 Oct – 1 Nov, 2012	International Conference on "Hydro-diplomacy"	Chiang Rai, Thailand	18	15	120	Participants from 25 countries
16.	10 Jan 2013	Policy dialogue on trans-boundary inland navigation: A way forward	Guwahati Assam	10	13	23	○
17.	25-26 Feb 2013	Joint Research Team meeting on "Food Security, water productivity and poverty"	New Delhi, India	2	2	5	○
18.	April, 2013	Policy advocacy strategy meeting on Inland Navigation	Bangkok, Thailand	1	1	○	○
19.	April	Policy advocacy strategy	Bangkok,	2	1	○	○

○	Date	Meeting/ Workshop/ Conference	Venue	Number of Participants			Remarks
				B'desh	India	Total	
	2013	meeting for Hilsa conservation	Thailand				
20.	27 June 2013	Consultation on "Hilsa Conservation Action"	Kolkata, India	5	45	50	○
21.	1-2nd Aug 2013	Consultation on Media Module Development on Trans-boundary Water Governance	Bangkok, Thailand	7	7	14	○
22.	21-23 Aug 2013	IUCN Workshop on Wetland Governance	Pakse, LAO PDR	6	3	10	○
23.	20 – 24th Aug, 2013	Exposure Visit to Mekong River Commission	Laos, Cambodia	8	7	15	○
24.	28-29 Oct 2013	Shared Visions Meeting	New Delhi, India	8	12	20	○
25.	26 Aug 2013	Meeting on "Food Security, water productivity and poverty: Comparative Study between India (West Bengal) and Bangladesh (Southwest region)	Dhaka, Bangladesh	14	4	18	○
26.	26 Oct 2013	Research Consultation Workshop on "Trends and Status of Wetlands"	Dhaka, Bangladesh	30	○	30	National level
27.	25 - 27 Oct 2013	2nd sub-regional workshop on community resilience to climate change in Bay of Bengal	Dhaka, Bangladesh	○	○	100	From different countries, this was in partnership with Concern
28.	13 Nov 2013	Sharing responsibilities: Joint discussions on floods and flood management	Kathmandu, Nepal	8	8	16	○
29.	10 Dec 2013	Expert Dialogue on Energy Security in the GBM: Opportunities and	Bangkok, Thailand	8	2	10	○

○	Date	Meeting/ Workshop/ Conference	Venue	Number of Participants			Remarks
				B'desh	India	Total	
		Challenges.					
30.	10th Dec 2013	Alternate Livelihood Options for Fisheries: Opportunities & Challenges	Bangkok, Thailand	9	9	18	○
31.	11 Dec, 2013	Multi-stakeholders discussion: Focusing on lives and livelihoods in Chars	Bangkok, Thailand	10	6	16	○
32.	11 Dec 2013	Ecosystem based adaptation in the GBM	Bangkok, Thailand	10	8	18	○
33.	12 Dec 2013	Shared visioning exercise	Bangkok Thailand	16	16	32	○
34.	13 Dec, 2013	Technical roundtable: Dimensions of river morphology	Bangkok, Thailand	11	11	22	○
35.	13 Dec 2013	Sharing experiences: Regional initiatives in the GBM Region	Bangkok, Thailand	5	5	10	○
36.	6-7 Jan 2014	Wetlands Governance In South Asia: Issues and Options' at the Chilika Lake Wetland Centre	Orissa, India	14	40	54	○
37.	23-24 Jan 2014	Media Module Joint Team Meeting ○	Kolkata, India	2	5	7	○
38.	09-10 Jan 2014	Training program on Policy advocacy	New Delhi, India	10	15	25	○
39.	02 Feb 2014	Meeting on Wetlands of Assam in the context of Hydrological connectivity, climate change, ecosystem services and livelihoods	Assam, India	3	15	18	○
40.	6 Feb 2014	Joint Research Team Meeting on Environmental Flows	New Delhi, India	4	6	10	○

○	Date	Meeting/ Workshop/ Conference	Venue	Number of Participants			Remarks
				B'desh	India	Total	
41.	2 - 4 May 2014	Training Workshop on Environmental Flows	Kolkata, India	5	10	15	○
42.	10 Mar 2014	National Sharing Workshop on Flood Early Warning Dissemination Scoping Study	Bangladesh	10	25	35	○
43.	4 – 6 April, 2014	International Symposium on River Biodiversity: Ganges-Brahmaputra-Meghna (GBM) River System Jointly Organized: Patna University, Patna (India) and University of Chittagong (Bangladesh)	Patna, India	10	30	40	○
44.	13 – 14 May, 2014	Regional Consultation on Water and Health	Agartala, Tripura, India	8	25	33	○
45.	21 May 2014	Regional Dialogue on "Water, Food Security and Poverty: Linking Policy to Grassroots Action"	Kolkata, India	10	20	30	○

Appendix K LISTING OF MEDIA BRIEFS AND FACT SHEETS PRODUCED

Media Briefs

1. *Strengthening environmental flows in South Asia*
2. *Bangladesh and India formulated methodology for joint research*
3. *Exposure visit to Nile Basin Initiative: Building linkage and Sharing Information*
4. *International workshop on trans-boundary water resource knowledge sharing*
5. *Call for a joint Bangladesh-India media strategy to highlight trans-boundary resource issues*
6. *Water for peace in south Asia*
7. *Trans-boundary biodiversity, opportunities for collaboration*
8. *Experts call for integrated approach to address Trans-boundary Inland Navigation in Bangladesh and India*
9. *Media dialogue on Trans-boundary Resources Management*
10. *IUCN Trans-boundary Policy Dialogue Recommends Joint Action by Bangladesh and India for Sustainable Hilsa Fisheries Management*
11. *Joint Secretaries for Fisheries of India & Bangladesh meet in Kolkata to discuss sustainable management of the Hilsa*
12. *Hydro-diplomacy: An invaluable concept for sharing water across borders*
13. *Hydro-diplomacy: Bridging the gap between science, policy and action*
14. *Experts call for a techno-economic feasibility study to restore water ways between Bangladesh and North East India*
15. *Water cooperation in Asia: Interview with Ganesh Pangare*
16. *Asia Pacific Water Summit: regional cooperation essential*
17. *Experts call for engaging citizens to save the Hilsa*
18. *IUCN announces fellows for Ecosystems for Life Media Fellowship 2013*
19. *Rivers for Life: Photo Competition: Call for Entries*
20. *Water Futures in South Asia – Time for closer cooperation*
21. *Promoting interdisciplinary cooperation on trans-boundary water resources management through dialogues*
22. *IUCN participates in the 7th CMS Vatavaran Environment and Wildlife Film Festival and Forum 2014 in Delhi*
23. *Participatory Video: Learning beyond borders*
24. *Towards Building Coastal Resilience in South and South-east Asia*

Media Fact Sheets

1. *Ecosystems for Life: A Bangladesh-India Initiative*
2. *Rivers beyond Borders: Inland Navigation & Integrated Water Resource Management on the Ganga-Brahmaputra-Meghna*
3. *Saving the iconic Hilsa*
4. *Participatory Film: Learning beyond borders*
5. *Background note on Media Module Development*

Appendix L . Media Persons and Fellows Engaged/ Contracted For E4L Project

Country	Person and Organization	Work Type	Time Period
Bangladesh			
1.	Dr Golam Rahman - Professor, Mass Communication and Journalism, Dhaka University	Participant at Media Dialogue	2011
2.	Mr Abed Khan – Chief Editor, Daily Jagron	Participant at Media Dialogue	2011
3.	Mr Jamil Ahmed – Chief Executive, JATRI	Participant at Media Dialogue	2011
4.	Mr Ahmen Pipul – Senior Correspondent, NTV Bangladesh	Participant at Media Dialogue	2011
5.	Mr Bayezid Ahmed - Senior Reporter, RTV, Bangladesh	Participant at Media Dialogue	2011
6.	Mr Amin Al Rasheed Senior Reporter ABC Radio, Bangladesh	Participant at Media Dialogue	2011
7.	Mr AKM Zakaria Senior Assistant Editor Daily Prothom Alo	Participant at Media Dialogue	2011
8.	Mr Sheikh Rokonuzzaman - Assistant Editor, Daily Samakal, Bangladesh	Participant at Media Dialogue	
9.	Mr Syed Badrul Ahsan - Executive Editor, the Daily Star, Karwan Bazar, Dhaka and former Minister (Press) to the High Commission of Bangladesh, UK	Participant at Consultation on Media Module Development	2013
10.	Mr Mohammad Shafiqul Karim - Senior Journalist, Former Bangladesh Correspondent to New Delhi of BSS	Participant at Consultation on Media Module Development	2013
11.	Ms Syeda Rizwana Hasan - Attorney and Environmentalist Chief Executive of Bangladesh	Participant at Consultation on Media Module Development	2013

Country	Person and Organization	Work Type	Time Period
	Environmental Lawyers Association (BELA)		
12.	Mr Md Mofizur Rhaman - Associate Professor and Media Analyst, Department of Mass Communications and Journalism, Dhaka University	Participant at Consultation on Media Module Development	2013
13.	Md Nazrul Islam - Bangladesh Correspondent, Deutsche Presse-Agentur GmbH (dpa)	Participant at Consultation on Media Module Development	2013
14.	Ms Shahela Akhter - Assistant Editor, Press Institute of Bangladesh (PIB)	Participant at Consultation on Media Module Development	2013
15.	Mr Mohammad Ehsanul Kabir - Associate Professor & Media-Communications Expert, School of Economics, Dhaka University	Participant at Consultation on Media Module Development	2013
16.	Mr Md Abu Bakar Siddique - Staff Reporter, The daily Dhaka Tribune	Participant at Consultation on Media Module Development	2013
India			
1.	Ms Anita Rao Kashi – Journalist, Bangaluru, India	Participant at Media Dialogue	2011
2.	Ms Rajashri Khanna – Journalist, Kolkata, India	Participant at Media Dialogue	2011
3.	Mr Ranit Mukherji - Senior Editor, Doordarshan, Kolkata, India	Participant at Media Dialogue	2011
4.	Mr Samudra Gupta Kashyap - Bureau Chief, Indian Express, Guwahati, Assam, India	Participant at Media Dialogue	2011
5.	Mr Jayanta Kumar Bhattacharya - Bureau Chief, Press Trust of India, Agartala, Tripura, India	Participant at Media Dialogue	2011

Country	Person and Organization	Work Type	Time Period
6.	Mr Prasanta Rajguru Editor, Amar Axom, Guwahati, Assam, India	Participant at Media Dialogue	2011
7.	Mr Kalyan Kumar Paul – Journalist, Grassroots Development Foundation, Ranikhet, Uttarakhand, India	Participant at Media Dialogue	2011
8.	Ms Kalpana Subramania Sharma - Environmental Journalist and Writer, Mumbai	Participant at Media Dialogue	2011
9.	Ms Asha Ramachandran – Correspondent, Statesman, New Delhi, India	Participant at Media Dialogue	2011
10.	Mr Darryl D'Monte - Senior Journalists	Participant at Consultation on Media Module Development	2013
11.	Dr. Buroshiva Dasgupta - Communications Expert	Participant at Consultation on Media Module Development	2013
12.	Mr Bharat Bhushan - Senior Journalist and Media Analyst	Participant at Media Dialogue and Consultation on Media Module Development	2011; 2013
13.	Ms Shashwati Goswami – Journalist; Indian Institute of Mass Communication	Participant at Media Dialogue and Consultation on Media Module Development	2011; 2013
14.	Mr Jayanta Basu	Participant at Consultation on Media Module Development	2013
15.	Mr Krishnendu Bose	Participant at Consultation on Media Module Development	2013
16.	Mr Joydeep Gupta	Participant at Consultation on Media Module Development	2013

Country	Person and Organization	Work Type	Time Period
17.	Ratna Bharali Talukdar	Media fellowship awarded	2013
18.	Anamitra Sengupta	Media fellowship awarded	2013
19.	Abu Bakar Siddique	Media fellowship awarded	2013
20.	S. A. M. Hamiduzzaman	Media fellowship awarded	2013

Appendix M List of E4L Field Visits

No	Field visit to	Date	Participants	Objective
1.	Exposure visit – Nile Basin Initiative	14-18 October 2011	PAC, researchers, media, govt officials from India and Bangladesh	
2.	Chandpur, Bangladesh	25 Nov 2011	PAC, researchers from India, civil society	• To see the Padma-Meghna confluence • Visit Chandpur bank protection works • Visit Chandpur fish market
3.	Sundarban, West Bengal, India	25-27 July 2012	Researchers, officials from Dept of fisheries (GoB), media, fisherman community representatives	• To see the Sundarban rese • Visit Solar electricity production site of WWF • Talk to fishermen community
4.	North Bengal, Bangladesh		Interns and Junior professionals	• To visit Teesta barrage and associated works • Visit Mahananda river • Talk to farmers in the area
5.	Golden Triangle, Chiang Rai, Thailand	1 Nov 2012	PAC, researchers, media, govt officials from India and Bangladesh	• Visit Golden Triangle • Visit Doi Mae Salong - soil and water conservation initiative
6.	Bhola, Chandpur			Filming for Hilsa Documentary
7.	Pandu Port, Guahati, Assam, India	11 Jan 2013	Researchers, media, govt officials from Bangladesh (BIWTA, Min of	

			Shipping), private sector, MP	
8.	Deeper Beel, Guahati, Assam, India	12 Jan 2013	Researchers, media,	•
9.	Charan beel, Gaibandha chars, Bangladesh		E4L, interns	• Talk to Charan Been Fisherman's association • Visit Freindship school and hospital • Talk with char dewellers
10.	Exposure visit – MRC		PAC, researchers, media, govt officials from India and Bangladesh	
11.	Pakse, Laos		Govt officials, civil society, researchers	
12.	Water Future field visit			
13.	Chilika Lake, Orissa, India			
14.	Kushtia and Faridpur, Bangladesh		JRT – Flood action research	• Attend community level consultations on FEWS • Visit Ganges at Hardinge Bridge
15.	Patna, Bihar, India			Ganges dolphin hotspot
16.	Kushtia and Khulna, Bangladesh		Researchers of the JRT on E-flows	• To visit Gorai-Ganges confluence • Visit flow measurement site at Gorai Railway Bridge • Visit Sundarbans
17.	Inland Navigation filming			Participatory filming
18.	Bhola, Bangladesh		WWF India	Take JRT to field
19.	Rangpur, Bangladesh			Teesta flood plains
20.	Gaibandha, Bangladesh and			

	Malda, West Bengal, India			

Appendix N Media Coverage and Engagement

No	Bangladesh	India
National Dailies	The Daily Prothom Alo The Daily Star The Dhaka Tribune The New Age The Daily Sun The Shamakal The Ittefaq The Jugantor The Bangladsh Today The Independent The Janakantha The News Today	The Times of India The Hindu The Anandabazar The Pioneer The Hindustan Times The Bartaman The Statesman The Telegraph The Business Line The Indian Express The Ajkal
Online Media	www.bdnews24.com www.banglanews24.com www.bss.com	PTI
Regional/State media	The Karatoa The Khoyai The Purbanchal	The Deccan Herald The Eastern Panorama The Assam Tribune The Amar Asom The Sunday Times The Hindustan The Prabhat Khabar The Shokal Bela The Benga Post Ai Shomoy
TV Channels	ATN Bangla Channel 71 Machranga TV Channel i NTV Shomoy TV	NDTV CNN-IBN Taza Khabar 24 Hours ABP Ananda

Appendix O List of Universities Engaged

Country	University
Bangladesh	University of Dhaka (Department of Fisheries and Department of International Relations)
	University of Chittagong
India	Jadavpur University
	Sikkim University
	Centre for North East Studies (CNES) Guwahati
	Centre for North East Studies (CNES) Jamia Milia Islamia University, New Delhi
	Indian Institute of Technology (IIT) Guwahati
	Indian Institute of Technology (IIT) Kharagpur
	Indian Institute of Technology (IIT) Roorkee
	Patna University

Appendix P. Potential Format Outline for Information Briefs