



Nature-based Solutions (NbS)

Workshop Report

14- 15 October 2019 - Dhaka

Organized by

International Centre for Climate Change and Development (ICCCAD) and the
Nature-based Solutions Initiative (NbSI), University of Oxford

Report prepared by

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Seddon

Background of the Workshop

The **International Centre for Climate Change and Development (ICCCAD)** at Independent University, Bangladesh (IUB) and the **University of Oxford** have jointly organized a two-day **Workshop on Nature-based Solutions (NbS)** on 14-15 October 2019 at Lakeshore Hotel, Gulshan 2, Dhaka, Bangladesh.

Nature-based Solutions (NbS) involve working with and enhancing nature to help address societal challenges while also providing biodiversity benefits. They encompass a wide range of actions, such as the protection and management of the natural environment, the incorporation of green and blue infrastructure in urban areas, and application of ecosystem-based principles to agricultural systems. The concept is grounded in the knowledge that natural and carefully managed ecosystems produce a diverse range of goods and services on which human well-being depends, from storing carbon, controlling floods and stabilizing shorelines and slopes to providing clean air and water, food, fuel, medicines and genetic resources. NbS is an ‘umbrella concept’ for other established nature-based approaches such as ecosystem-based adaptation (EbA) and mitigation (EbM), eco-disaster risk reduction (Eco-DRR), and Green Infrastructure (GI).

The overall goal of this workshop was to bring together a diverse range of stakeholders to enhance understanding of the current and future role of NbS in Bangladesh and to develop a roadmap for increasing their implementation in the region.

The workshop had the following specific aims:

- **To bring together relevant stakeholders** (policy makers, practitioners, researchers and members of the business community) from the development and conservation communities, especially those involved in adaptation planning and including those implementing NbS initiatives and developing adaptation policy in Bangladesh and beyond.
- **Clarify and enhance the level of understanding about NbS** among stakeholders, map out their knowledge and knowledge needs and **identify how national and international research could better inform the design and implementation of NbS in Bangladesh.**
- **Identify best practice in the implementation of NbS in Bangladesh**, as well as major obstacles to policy uptake and practice across urban-to-rural spectrum.
- **Gain feedback on science and policy tools being developed by the Nature-based Solutions Initiative** to make them more useful and accessible to decision makers and practitioners in Bangladesh and in general.
- Explore the possibility of establishing a **Nature-based Solutions Task Force** for Bangladesh.

Approximately 50 participants from government institutions, NGOs, universities, research organizations and think tanks and private sectors participated in the two-day workshop. On day one, there were discussions around enhancing the knowledge around NbS and identifying the best practices in the implementation of NbS in Bangladesh. The day two was mainly designed to discuss on the science and policy tools and to explore on the financing and governance model of NbS.

The next part of the report consists of the summary points from each session. The summary points mainly capture the highlights from speakers and sessions discussants, synopsis of the group works and the workshop outcome.

DISCUSSION SUMMARY FROM DAY ONE (14 OCTOBER 2019)

Welcome Remarks by Dr. Saleemul Huq, Director, ICCCAD

Dr. Saleemul Huq, Director, International Centre for Climate Change and Development (ICCCAD) delivered the inaugural speech by briefly discussing on the background and goal of the workshop. Nature-based Solutions (NbS) have been prioritized in some of the recent major events like, UNSG Climate Action Summit, held in New York. It gave rise to a new outcome, “to match with nature and blend it in the development efforts”.

Bangladesh has the potential to be the pioneer in the NbS arena as the country has been practicing solutions adapted from the nature in the climate adaptation efforts from a long time. However, even being one of the fastest growing economies and home of several hotspots, like: Sundarban Mangrove Forest or wetlands, the development pathway of Bangladesh has not addressed natural components substantially. Pollution is increasing, inequality is broadening, and economic viability is at stake at the cost of unsustainable development. Hence, it is important to take an alternative right pathway to promote sustainable development by working with nature.

In this regard, Dr. Huq stated, *“It is the time that we should take NbS seriously to preserve what we have and restore the damage that has been made. Economic development does not necessarily need to be in silo from the nature. Rather sustainability will be ensured if it is surrounded by the protection of these rich ecosystems”*.

Session on Introduction to Nature-based Solutions (NbS) BY Prof. Nathalie Seddon, NbSI, University of Oxford

Prof. Nathalie Seddon, Director, Nature- based Solutions Initiative (NBSI) and Professor of Biodiversity at the University of Oxford facilitated the introductory session. With workshop participants, she discussed the long-practiced adaptation efforts of Bangladesh and the future challenges in promoting NbS in this country. Some of the session highlights from the discussion are:

- NbS involved working with nature to support human well-being. It brings the communities of climate change and biodiversity conservation together with development practitioners.
- Growing momentum for NbS: Paris Agreement (66% signatories include NbS in their NDCs), Global Deal for Nature, UN Nature Summit in 2020 and NbS Climate Change Manifesto
- However, policy targets encourage tree-plantations with single non-native species which can damage natural ecosystems and are not resilient to climate change.
- Economics of NbS: According to a GAC 2019, coastal flooding cause loses of \$80 billion per year where mangroves protect 18 million people, contributing \$40–50 billion per year in non-market benefits combined; hence the benefits of mangrove preservation and restoration are up to 10 times higher than the cost
- Mostly, traditional grey engineering provides solutions to a single hazard whereas NbS is a low cost bottom-up approach that protects people and nature from multiple hazards and bring long term benefits
- To date, investment in adaptation measures have favoured engineered infrastructure in Bangladesh.
- Bangladesh possess several biodiverse ecosystems and the GDP is also growing fast, hence this country has a great potential to be the champion in NbS for future sustainability

Remarks by Chief Guest – Mr. Saber Hossain Chowdhury, Honorary President, Inter-Parliamentary Union

The chief guest, **Saber Hossain Chowdhury, Honorary President, Inter-Parliamentary Union** delivered his note of appreciation towards Dr. Huq and Prof. Seddon for organizing such an informative workshop. The necessity to acknowledge ecosystem services and its worth are absolutely essential for a sustainable future. During the massive destruction of Sundarbans mangrove forestry by cyclone Sidr in 2007, the forest got extremely damaged. Later on, forest department decided to leave Sundarbans on its own to recover. Within a few years, the forests recovered to deliver their protection services. In this regard, Mr. Chowdhury mentioned that *“often million dollars engineered solutions cannot bring the change that the nature can do by itself. So, we need to blend the grey engineering with natural green solutions and appeal for the dark green to ensure our future sustainability”*.

However, article 18.A of the Constitution of Bangladesh also has the provision to save biodiversity for present and future generations. As NbS provides a conceptual framework in tackling climate change, biodiversity loss and promoting sustainable development, Bangladesh needs to develop a roadmap to integrate NbS in the policy framework. The long-practiced local knowledge also needs to be protected to leverage them along with the development activities. Thus, it is important to work with different communities in a co-creative manner, so that Bangladesh can be more resilient in future to tackle climate change risks and associated threats.

Session: Examples of NbS in Bangladesh – Presentations in different contexts

Bangladesh has been practicing NBS from a long time; i.e. protecting, sustainably managing, and restoring natural and modified ecosystems for social benefit.

▪ **NbS in Mangrove and Inland Forest in Bangladesh**

Dr. Haseeb Irfanullah, Visiting Research Fellow, CSD, University of Liberal Arts Bangladesh

Dr. Haseeb Irfanullah discussed the relevance of NbS in the context of mangroves and inland forests in Bangladesh. He highlighted various services offered by forests, such as: provisioning, regulatory, supporting, and cultural services. Despite recognition of these ecosystem services, forest cover is declining. This reflects many challenges regarding investment gap, trade-offs, project success vs. longevity, economic development Vs environmental sustainability. Moreover, in terms of developing a roadmap for Bangladesh, few recommendations were highlighted:

- Consider the various aspects of forest degradation, afforestation, reforestation and conservation
- Past and forthcoming challenges of Bangladesh as a lower middle-income country
- Need to innovate, test/pilot, and scale up of successful projects

▪ **NbS in Fisheries of Bangladesh**

Prof. Md. Monirul Islam, Professor, University of Dhaka

Prof. Md. Monirul Islam talked about the potential of NbS in the fishery sector of Bangladesh as nature-based actions will help to enhance aquatic habitats to help address societal challenges. He explained that currently there is no direct program of NbS in fisheries, but existing programs have several components that are related to it. Prof. Islam emphasized that NbS has the potentiality to regain our natural fish in Bangladesh as this country is moving towards self-sufficiency in fish production and need to focus on sustainability. However, several challenges were highlighted:

- Even though legislative documents support NbS, there is a need to make it inclusive and equitable
- Emphasis should be given to fish production, environment, and fisheries dependent people

- Need to develop NbS framework taking into consideration local context
- Lack of evidence on NbS effectiveness
- Need for finance and institutional support

▪ **NbS in Wetlands of Bangladesh**

Dr. Mokhlesur Rahman, Executive Director, CNRS, Bangladesh

Dr. Mokhlesur Rahman presented a case study of Haor ecosystem in Bangladesh, particularly Hail Haor situated in Maulavi bazar district. This wetland is rain-based and receives water from streams of the hills. Through the community consultation, they found out that there are multiple societal groups that are dependent on these systems. Several challenges of these communities were the lack of water due to siltation, loss of fish diversity and conversion of the wetlands in fringe areas, withdrawal of water, and restricted access of poor due to leaseholder control. However, the project positively helped to enhance fish production and household income increased and so do the biodiversity, especially for migratory birds. Several challenges to realizing NbS were identified;

- Inadequate capacity, clarity and practical skills
- Inadequate engagement of government agencies
- Need of collaboration and multi-agency coordination
- Lack of sustainable funding and institutional mechanism around the ecological system

▪ **NbS Practices in Forestry Sector of Bangladesh**

Arif M. Faisal, Programme Specialist, UNDP Bangladesh

Mr. Arif M. Faisal presented a LDCF funded project, Integrating Community-based Adaptation into Afforestation and Reforestation Programme in Bangladesh. This project has received \$10M to scale it up and 10,000 households would be provided with climate resilient option, like 3F model - forest, food and fish. He mentioned that to implement NbS in Bangladesh, social and economic benefits need to be demonstrated. Community involvement should be ensured to protect the nature. However, he shared some of the learning from this project in relation to NbS.

- Social acceptance is very important as a project success depends on household need, seasonality, climate, ecosystem type etc.
- Ample time requirement to work with ecosystem services, 4-5 years is not enough
- NbS requires demo project in vulnerable areas before implementation of large-scale investment
- Project developers should possess an attitude of “learning by doing”
- Political commitment, institutional change and support from local government is necessary
- Lack of institutional and technical guideline on NbS
- Indigenous & ecosystem-based adaptive knowledge could be refined scientific understanding on NbS
- Need to ensure sufficient national budget for scaling up innovative NbS projects
- Necessity to ensure private sector engagement

Session: NbS Policy and Evidence Toolkit

Dr. Cécile Girardin, Technical Director, Nature Based Solutions initiative, University of Oxford

Dr. Cécile Girardin described the NbS Evidence Platform (www.naturebasedsolutionsevidence.info) and NbS Policy Platform (www.NBSPolicyPlatform.org) and outlined how they can be used to help decision makers to

find the relevant science on NbS and get this into practice in a larger scale. It can also identify key knowledge gaps, at least in the scientific literature.

Group Activity: Opportunity to explore the NbS Policy and Evidence tool kit

Dr. Cécile Girardin and Prof. Nathalie Seddon

Dr. Cécile Girardin and Prof. Nathalie Seddon conducted a group activity where all the participants were divided into three groups to explore the opportunities of NbS policy and evidence tool kit. The assessment has been done based on the three following questions –

- How do you see yourself using these tools?
- What information on NBS effectiveness do you need, and in what format?
- How can we make our tools more useful to you?

Groups	How do you see yourself using these tools?	What information on NBS effectiveness do you need, and in what format?	How can we make our tools more useful to you?
Group 1	a. Research activities b. Project development c. Tools development d. User-friendly	a. Information on free access/ available data b. Data compilation c. Several case studies	a. Classification of information based on time and type b. Inclusion of more scientific paper from vulnerable countries.
Group 2	a. Informed decision making in national and sub-national level. b. Writing journal articles c. University research and training d. Information for national forest inventory e. Influencing policy makers	a. Economic and livelihood benefits b. Sustainable business models d. Provide information for social outcomes for indigenous people e. Demonstrate the importance and valuation of ecological services	a. Specific information for Bangladesh b. Include official/governmental documents and national forestry inventory c. Inform decision makers about the tool d. Provide open-access to the journals.
Group 3	a. NbS policies are align with Bangladesh's several environmental acts, such as : Environment Conservation Act 1995, Environment Conservation Rule 1997, Environment Act 2012	a. Detailed documentation b. Indicators for SDG c. Financial mechanism d. Implementation and monitoring.	a. Capacity development b. Research c. Impact study coordinator between NbS policies and practices in Bangladesh.

Prof. Nathalie Seddon made some concluding remarks after the group activity. Theoretically, NbS is not a new concept for Bangladesh as this country has a long history of practices in living with nature. The mangroves, hill tracts or wetland of this country have supported food security, biodiversity protection and carbon sequestration. But work is needed to bring this knowledge to the light so that it can help inform economic policy in the country and help harmonise nature and development.

DISCUSSION SUMMARY FROM DAY TWO (15 OCTOBER 2019)

Overview from Day One by Prof. Nathalie Seddon, University of Oxford

Prof. Nathalie Seddon highlighted some of the findings and discussion from the first day. She acknowledged:

- Although there is some evidence of the effectiveness of NbS to climate change impacts in the scientific literature, very little comes from Bangladesh.
- However, there is a great deal of knowledge from practice, as Bangladesh possesses a long history of NbS and adaptation practices to live with nature. Therefore, work is needed to consolidate this knowledge and make it available to policy makers and practitioners both within Bangladesh
- It is also important to set a standard of good practice NbS tailored to different regions. These standards include supporting diverse native species to help build resiliency and adaptability of ecosystems and

the people dependent upon them, including social safeguards, and ensuring that communities are supported as ecosystem stewards.

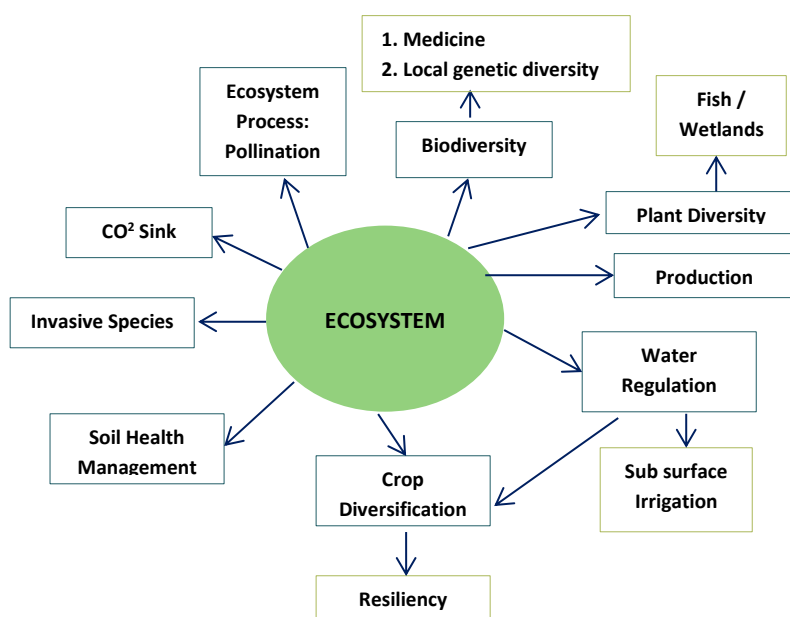
- However, it is essential to convey the right message about NbS. NbS are not an alternative to keeping fossil fuels in the ground. For example, it is not possible to offset the emissions produced by coal power plants by planting trees. In other words, NbS must be part of an integrated set of measures, including decarbonization of the economy.

Session: Challenges and Opportunities to Scale up NbS

Dr. Cécile Girardin, Technical Director, Nature Based Solutions initiative, University of Oxford

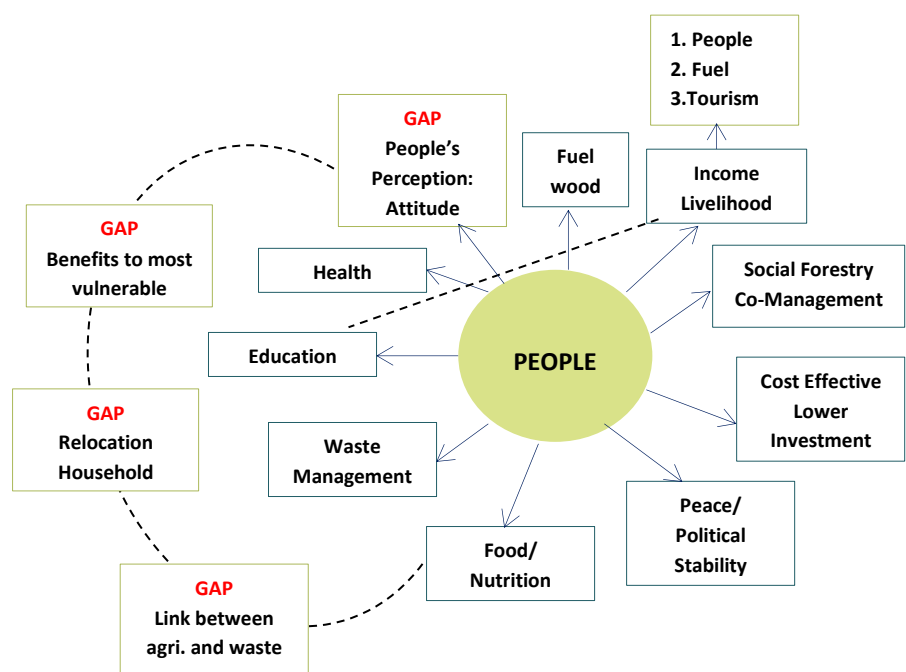
Dr. Cécile Girardin facilitated a session exploring current NbS knowledge and projects in Bangladesh, evidence gaps across three sectors, challenges and opportunities to implement the NBS knowledge into practice in the country.

Current Knowledge on Nature-based Solutions (Nbs)



HIGHLIGHTS
This session identified different components involved with the ecosystem. Such as:
1. Biodiversity
2. Ecosystem processes
3. Co2 Sink
4. Invasive Species
5. Soil Health Management
6. Crop Diversification
7. Water Regulation
8. Production and consumption
9. Plant diversity.

HIGHLIGHTS
This session also identified several factors related to people. Such as:
1. Income and livelihood
2. Social Forestry and Co- management
3. Fuel wood
4. Health
5. Education
6. Waste Management
7. Food/Nutrition
8. Peace and Political Stability
9. Cost Effective Investment



KEY EVIDENCE GAPS		
AGRICULTURE	FISHERIES	FORESTRY
1. Lack of cross-cutting household data (Social, Economic and Environmental)	1. Insufficient social outcomes	1. Lack of data on flora and fauna of different forests
2. Absence of actual production, consumption, waste and preservation data	2. Lack of nexus assessments analysis among agriculture, forestry, water and others.	2. Lack on information based on connectivity and diversity
3. Unavailability of market data	3. Lack of understanding of the nexus and prediction of future impacts	3. Lack of data on conservation benefits
4. Gaps in efficient production plans	4. Lack of urban area data	4. Lack of information on available land area that can be used for agriculture and forestry.
5. Lack of understanding about the local market	5. Constraints with trans-boundary rivers	5. Lack of understanding on plantation forest Vs. restored forest
6. Lack of integration of indigenous knowledge and practices	6. Lack of baseline and project data on wetland and hatchery management	6. Understanding of indigenous and ethnic group practices
7. Lack of adequate climate projections	7. Lack of river-based indigenous knowledge	7. Economic valuation of forestry sector.
8. Lack of data on sub-surface saline intrusion	8. Absence of link with SDG goals	
9. Missing links between usage of organic water and agricultural sector	9. Need to enhance understanding for the native fisheries	

Several challenges and obstacles to implement NbS in Bangladesh were shared and discussed by the participants are presented in the table below.

A. Projects Longevity and Sustainability
<ol style="list-style-type: none"> 1. Lack of broader area coverage under one project 2. Lack of investment in scaling up projects 3. Lack of willingness in thinking beyond project period due to absence of longer term benefits 4. Lack of recognition of land rights and occurrence of tragedy of the commons
B. Policy Framework and Legislation
<ol style="list-style-type: none"> 1. Lack of strong legislative framework 2. Lack of enforcement and local stewardship of lands 3. Lack of proper economic and institutional planning 4. Lack of Private-Public Partnership 5. Lack of integration of gender issues and human rights in policy 6. Unstable political economy 7. Lack of awareness of policy makers regarding the benefits of NbS
C. Project Design, Planning and Implementation
<ol style="list-style-type: none"> 1. Institutionalization of projects where planning should be built-in 2. Lack of understanding of short term and long term trade-offs and benefits 3. Lack of informing local communities about long term planning (stewardship of nature)

4. Absence of project intervention at the household level

D. Diverse group of Stakeholders and different sectors

1. Lack of coordination among stakeholders
2. Unwillingness to inform local people about the climate service information
3. People living adjacent to the project area often benefit the most (?)
4. Lack of information on sector specific benefits
5. Lack of encouragement of the local traditional knowledge
6. Unwillingness of people or traditional perception and lack of awareness on NbS

E. Challenges with Data Availability

1. Lack of data accessibility and availability
2. Low quality data, biased data and/or poorly maintained data
3. Lack of incentive, awards or rewards for the experts to do publications

Finance and Governance of NbS : What models are working in Bangladesh?

Dr. Cécile Girardin, Technical Director, Nature Based Solutions initiative, University of Oxford and

In order to outline the governance and financial framework for NbS in Bangladesh, the following points were highlighted.

Governance Challenges

- First and foremost, it is essential to understand the link between different components of ecosystem and their outcome on social change.
- Identification of set of indicators is necessary to better govern the flora and faunal network.
- Knowledge gaps is another big obstacle for our micro level stakeholders as farmers are often illiterate and not technologically sound.
- Lack of information on how many cultivable islands get available each year that can also be used for agricultural purpose.
- Faulty market system is another major constraint that compels farmers to sell their product at much lower cost than they deserve. Hence, an agricultural products mapping is necessary based on regions to develop suitable market for them.
- There are also various ethnic minorities living by the forest and product various non-timer products; efforts should be made to market them as well.
- Most of the development activities are project based and narrow focused on specific species. Hence, analysis on project duration and broader inclusion of diversified species are needed.
- Unplanned and grey infrastructure often destroy natural ecosystem and biodiversity.
- Data availability is another major problem that needs governance.
- Finally, it is also essential to include the past projects learning into the planning of future interventions.

Financial Mechanism Challenges

- Interventions need to provide economic value to the communities to make them sustainable, viable and solvent. It is thus important to analyze how much investments are required and what other kinds of benefit can be offered to encourage people to protect nature alongside with development activities.
- To ensure future financial sustainability, the public-private partnerships can also be explored, and planning should be developed in a people centric manner.

High Level Concluding Session

Remarks by the Chief Guest – Dr. S. M. Munjurul Hannan Khan, Additional Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC)

The chief guest of the concluding session **Dr. S. M. Munjurul Hannan Khan, Additional Secretary, Ministry of Environment, Forest and Climate Change** mentioned that NbS is a new concept that can combine the old adaptation practices with the economic activities of our country. Biodiversity rich ecosystems are generally resilient and possess ability to react and absorb shocks. But if the economic ventures do not consider these natural components, the resiliency to absorb external shocks will diminish over time. On the other hand, as most of the lands are privately owned, it is important to inform them about the significant of protecting nature.

Moreover, NbS would not be same for all over the countries. It is important to understand what kind of ecosystems and drivers a region possess and what are impacting the nature and what solutions are feasible to adapt. The consumption patter of a country is also necessary to analyze to understand the impact on resource extraction and availability. It is also important to explore the benefits of conservation for communities and provide alternative livelihood opportunities to reduce their dependency on nature. Hence, the integration of NbS can provide a future potential pathway for Bangladesh to protect natural resources and also enhancing the potential of sustainable economy in future.

Concluding remarks by Dr. Saleemul Huq, Director, ICCCAD

Dr. Saleemul Huq, Director, ICCCAD aspires to incorporate NbS in the national policies. He mentioned that NbS has recently gained profound recognition in two-way; first is the global UNSG Climate Summit where UN Secretary General launched the concept of NbS. As Bangladesh is going through a fastest economic growth, the cost of protecting nature is often overlooked. It stems to a growing need of an alternative pathway to promote economic development compatible with a nature friendly manner. It became crucial to inform policy makers the long-term benefits of integrating NbS rather than the short-term profit-making efforts. Another dimension that needs to be incorporated is the concern of climate change in the Nbs framework. These two approaches are closely linked. There are several conventions and policies on climate change and natural protection, but the challenge is to explore opportunities to bridge them and fit into right direction in different sectors.

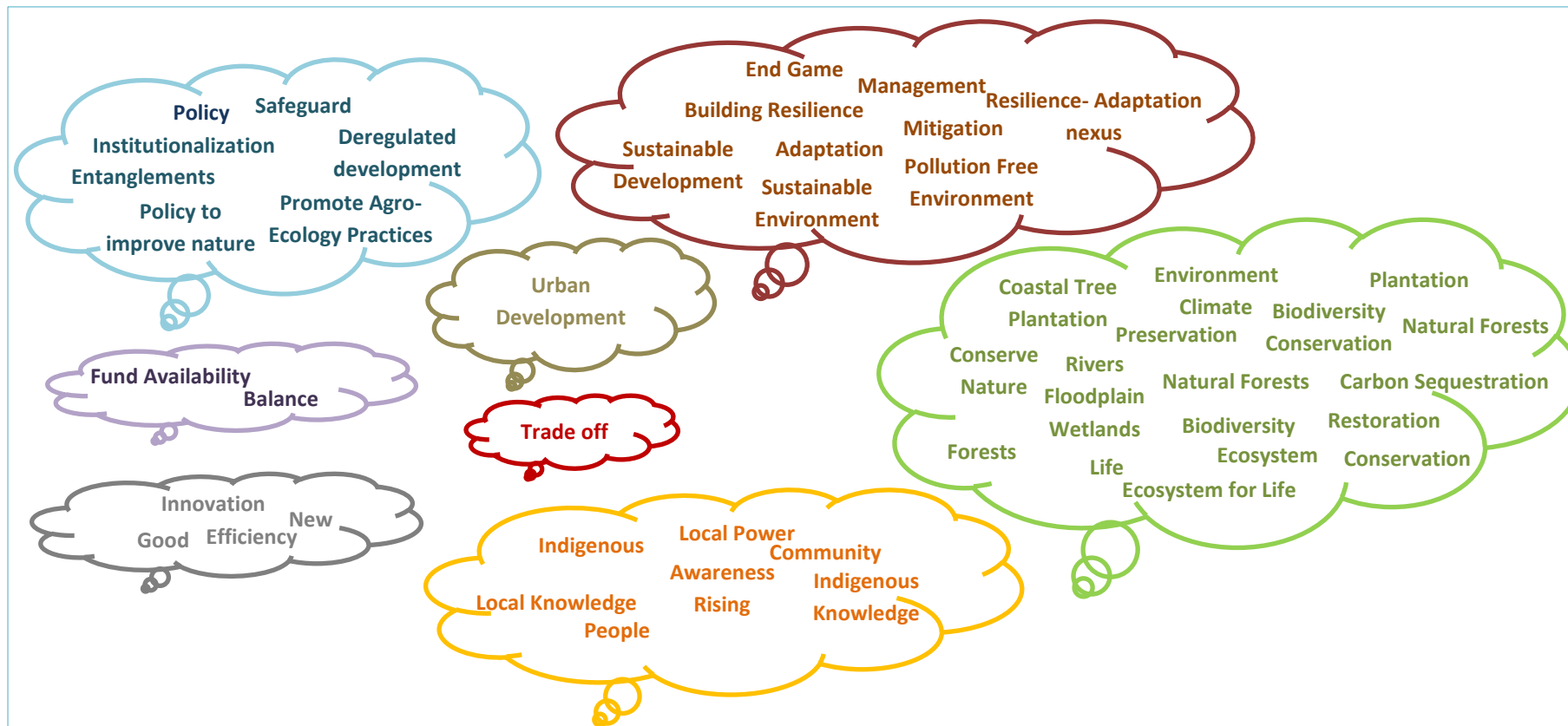
Dr. Huq also discussed the way forward to incorporate NbS in the national policies. Unfortunately, up to 7th Five Year Plan (FYP) of Bangladesh, NbS has not been a part of this national planning framework. Dr. Huq urged to produce a background paper on NbS and submit it to Planning Commission for the upcoming 8th FYP. Additionally, continuous efforts need to make to connect different stakeholders from various sectors in adapting and promoting NbS. It is also important to include sectors like: infrastructure or engineering that has not been considering natural phenomenon in substantial level and also to inform them about the long term benefits of NbS. Thus, a coordinated effort is necessary in promoting NbS to ensure the future sustainability of the economy as well as nature and human well-being.

ANNEX I: NbS PRACTICES IN DIFFERENT PROJECTS IN BANGLADESH

Institutes/ Organizations	Representatives and Designation	Practice of NbS in Different Projects	Sector
Center For Natural Resource Studies (CNRS)	Dr. M. Mokhlesur Rahman, Executive Director	a. Haor Flood Management & Livelihood Improvement Project by BWDB.	a. Wetlands Management
		b. Forest Co-management Project, DoF	b. Forest Management
		c. Mangroves for the Future (MFF), IUCN	c. Mangrove Forest
Local Government Engineering Department (LGED)	Gopal Krishna Debnath, Superintendent Engineer	a. Programmatic CDM Project Using Municipal Organic Waste of Towns in Bangladesh, Waste Concern	a. Waste Separation and Organic Waste Management
		b. Waste Management Programme by Jahangirnagar University	b. Waste Management and Biogas Plant
		c. Poultry Waste Management Projects	c. Produce Organic Compost and Biogas
Department of Agricultural Extension (DAE)	A.K.M. Manirul Alam, Additional Director	a. Integrated Pest Management (IPM), UNEF, FAO and DAE	a. Pest Management
		b. Alternate Wetting and Drying (AWD), DAE	b. Less Water Consumptive Irrigation
		c. Solar Powered Irrigation Project	c. Energy Efficient Irrigation
		d. Char Development and Settlement Project (CDSP)	d. Resilient Island Development
		e. Veri-Compost Project	e. Organic Composting
University of Dhaka	Dr. Md. Monirul Islam, Professor	a. Coastal Resilience Project in Bangladesh, World Bank	a. Protecting Communities from Flood and Storm Surges
Caritas Bangladesh	Augustin Baroi, Senior Manager	a. Strengthening Adaptive Farming in Bangladesh, India and Nepal (SAF-BIN), BRRRI, University of Vienna and Caritas	a. Food security and Climate Change
University of Dhaka	Dr. Md. Zashim Uddin, Professor	a. University Projects on Biodiversity and Ecosystem	a. Biodiversity, climate change and ecosystem
		b. Restoration of Hilly Bio-diversity through Community Based Bio-resource Management, Arannayak Foundation	b. Hill tracts biodiversity management
		c. Livelihood Development of Forest dependent Communities in and around Chunati Wildlife sanctuary, Arannayak Foundation	c. Livelihood opportunities for forest dependent people
		d. Books on Wildlife, biodiversity and forest management by Arannayak Foundation	d. Forest wildlife and biodiversity

Bangladesh Forest Department	Dr. Mariam Akhter, Assistant Chief Conservator	a. Inventory report on Sundarban Reserve Forest	a. Biodiversity of mangrove
		b. Carbon Inventory Reports	b. Forest Biomass status
		c. Bangladesh Tropical Forests and Biodiversity Assessment	c. Forest biodiversity
		d. Sustainable Forests and Livelihoods (SUFAL) Project	d. Livelihood improvement activities
		e. Bangladesh Forest Information System	e. Portal for forest information
		f. Reports on Social Forestry, Community Management, Women Empowerment, Alternative Livelihood opportunities, Wild Plant genetic resources, Wild edible fruits and vegetables	f. Forestry community management, forest resources and livelihood opportunities

ANNEX II: NBS WORDCLOUD BY THE WORKSHOP PARTICIPANTS



ANNEX III: PARTICIPANTS LIST

Sl. No.	Name	Designation	Organization
1	Saber Hossain Chowdhury	Honorary President	Inter-Parliamentary Union
2	Dr. S. M. Munjurul Hannan Khan	Additional Secretary	MOEFCC
3	Hamdan Hossain Chowdhury	Standing Committee Member	MOEFCC
4	Laskar Muqsudur Rahman	Senior Forestry Officer	Wildlife Conservation Society
5	Mohammad Azaz	Researcher and Director	Riverine People
6	Gopal Krishna Debnath	Superintendent Engineer	LGED
7	Remeen Firoz	Freelancer Environmentalist	
8	Dr. Md. Humayun Kabir	Professor	Department of Zoology, University of Dhaka
9	Md. Habibur Rahman		Bangladesh Centre for Advanced Studies (BCAS)
10	Md. Saiful Islam Patwary	Project Director	Department of Agricultural Extension (DAE)
11	Sohel Rana	Urban Development Specialists	UN-Habitat
12	Shamsuddin Doha	Chief Executive	CPRD
13	Tapas Ranjan Chakraborty		OXFAM
14	Muhammad Hasnat Morshed Bhuyan	Deputy Director (Senior Assistant Secretary)	SREDA
15	Dr. Md. Zashim Uddin	Professor	Department of Botany, University of Dhaka
16	Dr. Ali Muhammad Omar Faruque	DS & DD	Bangladesh Haor and Wetland Development
17	Amarta Galib Chowdhury	Programme Officer	Wild Team
18	Haseeb Md. Irfanullah	Independent Consultant	CSD, University of Liberal Arts Bangladesh (ULAB)
19	Md. Amir Hosain Chowdhury	Deputy Chief, Coordinator of Forest	Forest Department
20	A.K.M. Manirul Alam	Additional Director	DAE, Ministry of Agriculture
21	Dr. Mokhlesur Rahman	Executive Director	Center for Natural Resource Studies (CNRS)
22	Dr. Mariam Akhter	Assistant Chief Conservator of Forests	Forest Department
23	Augustin Baroi	Senior Manager	Caritas Bangladesh
24	Dr. Md. Abdullah Al- Faruk	DPD	Department of Fisheries
25	Istiak Ibne Rouf	Research Assistant	C3ER, BRAC University
26	Farid Uddin Ahmed	Executive Director	Arayannak Foundation
27	Prof. Dr. Md. Monirul Islam	Professor	University of Dhaka
28	Makidul Islam Khan	Research Assistant	University of Dhaka
29	Dr. Md. Rafiqul Islam	Focal Point, ULO	Department of Livestock Services (DLS)
30	Efadul Huq	PhD Candidate	University of Illinois & ICCCAD
31	Tahmina Hadi	Deputy Manager	BRAC Bank

32	Mohiuddin Tipu	Associate Manager	Sustainable Finance Unit, BRAC Bank
33	Rabeya Begum	Director, Programme	Shariatpur Development Society (SDS)
34	Dr. Mohammad Muzammel Hoque	Project Manager	ICBAAR, UNDP
35	Arif M. Faisal	Programme Specialist	UNDP
36	Samiya Selim	Director, CSD	ULAB
37	Asif Ibne Yousuf	Chair	Crafts for Conservation
38	Dr. Mohammad Moshiur Rahman	Assistant Professor and Chair	ESM, North South University
39	Saify Iqbal	Senior Research Assistant	CPRD
40	Shanta Soheli Moyna	RMO	CNRS
41	Afsari Begum	Sr. Specialists-DRR	Practical Action
42	Abu Hena Mostofa Kamal		Arayannak Foundation
43	Sobrun Nessa Chowdhury		BCAS
44	Raquibul Amin	Country Director	IUCN
45	Tasnova Farheem	Programme Officer	INAFI
46	Prof. Nathalie Seddon	Professor and Director	NBSI, University of Oxford
47	Dr. Cécile Girardin	Technical Lead	NBSI, University of Oxford
48	Dr. Saleemul Huq	Director	ICCCAD
49	Saqib Huq	Coordinator	ICCCAD
50	Jennifer Khadim	Coordinator	ICCCAD
51	Ashraful Haque	Research Officer	ICCCAD
52	Laura Bahlman	Visiting Researcher	ICCCAD
53	Daniel Adel	Visiting Researcher	ICCCAD
54	Tasfia Tasnim	Research Associate	ICCCAD
55	Adnan Qader	Research Officer	ICCCAD
56	Hafizur Rahman	Project Officer	ICCCAD
57	Noor E Elahi	Junior Researcher	ICCCAD
58	Rukhsar Rahman	Research Officer	ICCCAD
59	Farah Anzum	Junior Research Associate	ICCCAD

ANNEX IV: PHOTO GALLERY



Figure 1: Welcome remarks by Dr. Saleemul Huq, Director, ICCAD



Figure 2: Introduction on the NbS workshop concept by Prof. Nathalie, Director, NBSI, University of Oxford



Figure 3: Remarks by the Chief Guest Mr. Saber H Chowdhury

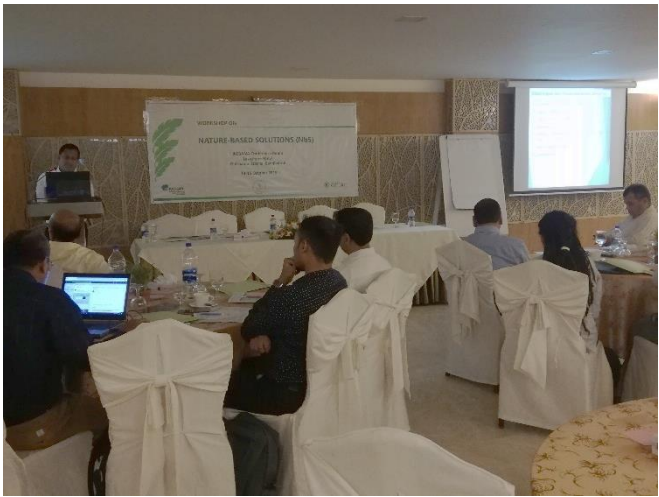


Figure 4: Examples of NbS in Bangladesh – Presentations in different contexts by key experts



Figure 5: Presentation and group exercise by Dr. Cécile Girardin, Technical Director, Nature Based Solutions initiative, University of Oxford



Figure 6: Question-answer and feedback session by workshop participants



Figure 7: Group activities of the workshop participants

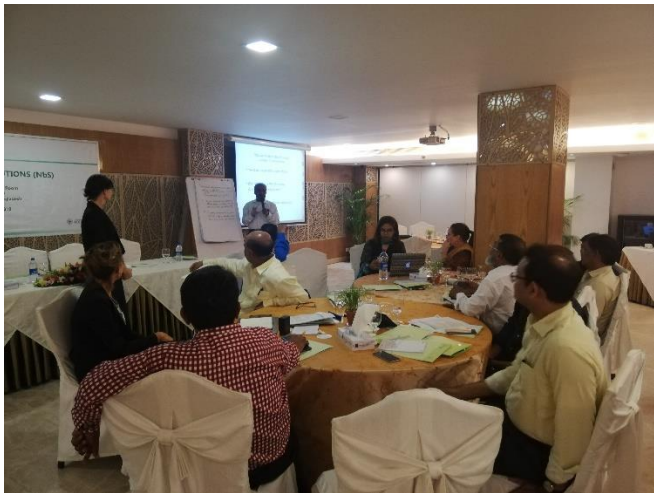


Figure 8: Report back on the group activities



Figure 9: Closing remarks by the Chief Guest – Dr. S. M. Munjurul Hannan Khan, Additional Secretary, Ministry of Environment, Forest and Climate Change (MoEFCC)



Figure 10: Group photo

Workshop on Nature-based Solutions (NbS)

14-15 October 2019

Lakeshore Hotel Gulshan, Dhaka

CONCEPT NOTE

The **International Centre for Climate Change and Development (ICCCAD)** at Independent University, Bangladesh (IUB) and the **University of Oxford** are jointly hosting a two-day **Workshop on Nature-based Solutions (NbS)** from 14-15th October 2019 at Lakeshore Hotel Gulshan, Dhaka.

Nature-based Solutions (NbS) involve working with and enhancing nature to help address societal challenges while also providing biodiversity benefits. They encompass a wide range of actions, such as the **protection and management of the natural environment**, the incorporation of **green and blue infrastructure** in urban areas, and application of **ecosystem-based principles to agricultural systems**. The concept is grounded in the knowledge that natural and carefully managed ecosystems produce a diverse range of goods and services on which human well-being depends, from storing carbon, controlling floods and stabilizing shorelines and slopes to providing clean air and water, food, fuel, medicines and genetic resources. NbS is an ‘umbrella concept’ for other established nature-based approaches such as ecosystem-based adaptation (EbA) and mitigation (EbM), eco-disaster risk reduction (Eco-DRR), and Green Infrastructure (GI).

NbS are emerging as an integrated approach that can reduce trade-offs and promote synergies among the Sustainable Development Goals. For example, restoring forests in upper catchments can help to protect communities downstream from flooding, at the same time as increasing carbon sequestration and protecting biodiversity. Meanwhile, planting trees and increasing green space in cities can help with cooling and flood abatement, while storing carbon, mitigating against air pollution, and providing recreation and mental health benefits. In a nutshell, **NbS have the potential to tackle climate change impacts at relatively low-cost whilst delivering multiple benefits for people and nature**. Consequently, NbS were endorsed in both recent IPCC Reports and are one of several keys “action portfolios” at UN Climate Summit in New York in September 2019. Meanwhile, the World Economic Forum’s (WEF) Global Risks Report 2019 specifically recognises the risks posed by biodiversity loss and ecosystem collapse and the need for **nature-positive business solutions**. NbS are increasingly being viewed as a way to reconcile economic development with the stewardship of ecosystems, and in doing so effectively enable sustainable development.

Purpose

The overall goal of this workshop is to **bring together a diverse range of stakeholders to enhance understanding of the current and future role of NbS in Bangladesh and to develop a roadmap for increasing their implementation in the region**.

Specific aims are:

- i. **To bring together relevant stakeholders** (policy makers, practitioners, researchers and members of the business community) from the development and conservation communities, especially those involved in adaptation planning and including those implementing NbS initiatives and developing adaptation policy in Bangladesh and beyond.
- ii. **Clarify and enhance the level of understanding about NbS** among stakeholders, map out their knowledge and knowledge needs and **identify how national and international research could better inform the design and implementation of NbS in Bangladesh;**
- iii. **Identify best practice in the implementation of NbS in Bangladesh,** as well as major obstacles to policy uptake and practice across urban-to-rural spectrum.
- iv. **Gain feedback on science and policy tools being developed by the Nature-based Solutions Initiative** to make them more useful and accessible to decision makers and practitioners in Bangladesh and in general.

In particular, we are seeking feedback on the online platform that includes,

 - a) A scientific evidence tool linking climate change impacts with nature-based interventions and their effectiveness: <https://www.naturebasedsolutionsevidence.info/>
 - b) Searchable bibliography on NbS in general: <https://www.naturebasedsolutionsinitiative.org/bibliography/>
 - c) An interactive global database on the prominence of NbS in national policy, aimed at facilitating the process by which climate policies are revised www.nbspolicyplatform.org

Also, the feedback session aims to explore ‘What other functionalities are needed? What might a Bangladesh **NbS Knowledge Platform** look like?’
- v. Explore the possibility of establishing from **this Nature-based Solutions Task Force** for Bangladesh.

Workshop on Nature-based Solutions

AGENDA

DAY ONE: MONDAY, 14 OCTOBER 2019		
TIME	DETAILS	RESPONSIBLE PERSON(S)
09:30 am – 10:00 am	Registration of participants	ICCCAD Team
10:00 am – 11:00 am	HIGH LEVEL OPENING SESSION	
10:00 am – 10:15 am	Welcome remarks <ul style="list-style-type: none"> - Introduce the goals and objectives of the workshop 	Dr. Saleemul Huq Director, ICCCAD
10:15 am – 10:30 am	Remarks by the Chief Guest	MP Saber H. Chowdhury Honorary President, Inter-Parliamentary Union
10:30 am – 11:00 am	Introduction to NbS <ul style="list-style-type: none"> - What are NbS? Defining NbS - Global overview: are NbS effective? Mapping the evidence that NbS are a useful adaptation tool, with benefits for nature and people - Question-Answer session 	Prof. Nathalie Seddon Director, NBSI & Professor, University of Oxford
11:00 am – 11:20 am	TEA BREAK	
11:20 am – 12:30 pm	Examples of NbS in Bangladesh – Presentations in different contexts <ul style="list-style-type: none"> - Inland/Terrestrial Forest - Fisheries - Wetlands - Coastal mangrove 	Chair: Dr. Huq, ICCCAD Dr. Haseeb Irfanullah, ULAB Prof. Md Monirul Islam, DU Dr. Mokhlesur Rahman, CNRS Mr. Arif Faisal, UNDP
12:30 pm – 01:00 pm	Open Discussion: <ul style="list-style-type: none"> - Are NbS a valuable adaptation tool in Bangladesh? 	Workshop Participants Facilitated by Prof. Nathalie Seddon
01:00 pm – 02:00 pm	LUNCH	
02:00 pm – 03:00 pm	NbS Policy and Evidence Toolkit: <ul style="list-style-type: none"> - Brief overview of the work of the NBSI - Demonstration of toolkit followed by feedback 	Dr. Cécile Girardin Technical Director, NBSI, University of Oxford
03:00 pm – 03:15 pm	TEA BREAK	
03:15 pm – 04:15 pm	Group activities (three tables with computers + internet) <ul style="list-style-type: none"> - Opportunity to explore the NbS Policy and Evidence Tool-kit 	Workshop Participants One rapporteur per table
04:15 pm – 04:45 pm	Open Discussion and Feedback <ul style="list-style-type: none"> - How to fine tune the tools to meet Bangladesh's needs? - What other tools or platforms might be needed? 	Workshop Participants Facilitated by Dr. Cécile Girardin
04:45 pm – 05:00 pm	Concluding Remarks	Dr. Saleemul Huq

Workshop on Nature-based Solutions

AGENDA

DAY TWO: TUESDAY, 15 OCTOBER 2019		
TIME	AGENDA	RESPONSIBLE PERSON(S)
10:00 am – 10:10 am	Recap from day 01	Prof Nathalie Seddon
10:10 am – 10:20 am	Overview of aims for day 02	Prof Nathalie Seddon
10:20 am – 11:10 am	People and ecosystems: NbS success stories and knowledge gaps in Bangladesh <ul style="list-style-type: none"> - Intro: What are the knowledge needs around NbS? - Break out groups – three tables, three rapporteurs 	Dr. Cecile Girardin
11:10 am – 11:30 am	TEA BREAK	
11:30 am – 12:30 pm	Financing and governing NbS: what models are working in Bangladesh? <ul style="list-style-type: none"> - Intro: How to finance and govern Nature-based solutions? - Break out groups– three tables, three rapporteurs 	Prof. Nathalie Seddon
12:30 pm – 01:00 pm	Open Discussion on the two group activities <ul style="list-style-type: none"> - Report back 	Workshop Participants, Facilitated by Prof Nathalie and Dr. Cécile
01:00 pm – 02:00 pm	LUNCH	
02:00 pm – 02:50 pm	Nature-based Solutions in policy <ul style="list-style-type: none"> - Overview: What is the current level of ambition for NbS in climate change policy, globally and in Bangladesh? - Challenges – linking adaptation and mitigation - Break out groups– three tables, three rapporteurs - Report Back 	Dr. Saleemul Huq Prof. Nathalie Seddon and Workshop Participants
02:50 pm – 03:20 pm	TEA BREAK	
03:20 pm – 04:00 pm	HIGH LEVEL CLOSING SESSION	
03:20 pm – 03:30 pm	Remarks by the Chief Guest	Dr. Munjurul Hannan Khan (TBC) Additional Secretary, MOEFCC
03:30 pm – 04:00 pm	<ul style="list-style-type: none"> - What have we learnt about the relevance and potential of NbS? - What are the next steps for NbS policy and practice? - Developing a “Task Force for NbS” in Bangladesh 	Dr. Saleemul Huq Prof. Nathalie Seddon