



# Stakeholder Analysis

## National Forest Monitoring System in Bangladesh

Delilah Jaworski

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## Introduction

The USDA Forest Service (USFS), through the SilvaCarbon program, is advising on the development of a national forest monitoring system (NFMS) in Bangladesh. The development of an NFMS requires an understanding of potential users of forest data and their pathways to access and comment on information. Consideration of NFMS stakeholders will help to create a constituency and promote sustainability of the NFMS. This stakeholder analysis is based on a series of meetings held in Bangladesh in February and March 2015.

## Stakeholder Identification

Individuals and organizations from the public sector, international community, NGOs, academia, businesses, and community-based organizations may use and contribute to a national forest inventory. The following table identifies a preliminary list of stakeholders and their roles in the development and maintenance of an NFMS in Bangladesh.

**Table 1: Key NFMS Stakeholders**

Organization	Role in NFMS	NFMS Goals/Expectations	Influence in NFMS
Forest Department – Directly under Chief Conservator of Forests	Lead development and maintenance of NFMS.	NFMS will identify forest boundaries to help resolve land disputes. NFMS will contribute to sustainable forest management and reporting requirements under international agreements.	Chief responsibility for NFMS.
Forest Department – Social Forestry	Local and district-level staff will contribute to NFMS data collection.	NFMS data will improve local-level decision-making.	Local buy-in on NFMS monitoring is essential for success.
Forest Department – Planning	Resources Information Management System (RIMS) Unit may be responsible for managing an NFMS database.	NFMS will provide data that contributes to management planning and monitoring and evaluation.	Decisions about data storage and dissemination may be made at this level. These decisions could affect NFMS effectiveness, support, and sustainability.
Forest Department – Forest Management	Local and district-level staff will contribute to NFMS data collection.	NFMS data will improve local-level decision-making.	Local buy-in on NFMS monitoring is essential for success.
Ministry of Environment and Forests (MoEF) – Bangladesh Forest	Provide advice on inventory design. Past and on-going work may	NFMS data will complement existing work on monitoring,	Accuracy of BFRI inputs (e.g., species lists and allometric equations)

Research Institute (BFRI)	contribute to inventory (e.g., species list).	inventory, and forest health in BFRI.	will affect credibility and sustainability of NFMS. BFRI researchers may influence design and maintenance through connections with Forest Department leadership.
Forest Department – Forest Academy and Forestry Science and Technology Institute (FSTI)	Train Forest Department employees and others in forest monitoring and inventory methods.	NFMS data will be available in a format to contribute to forester training.	FSTI and Forest Academy training of employees on monitoring and inventory methods will affect success of NFMS.
United Nations Food and Agriculture Organization (FAO)	Coordinate with United States Government (USG) SilvaCarbon Program on inventory design. Support NFMS implementation.	Align with United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) Measurement Reporting and Verification (MRV) process.	Funding source. Alignment of MRV and NFMS will influence effectiveness and credibility of NFMS.
United States Agency for International Development (USAID)/Bangladesh	Coordinate USG involvement in inventory design.	NFMS contributes to sustainable forest management, reporting for REDD+ and other international reporting requirements.	Ability to influence NFMS development and maintenance through funding.
USFS	Provide technical assistance to contribute to inventory design. Provide SilvaCarbon team coordination.	NFMS is sustainable and meets management needs of Forest Department and other stakeholders.	Technical credibility may influence decisions related to NFMS design, which will influence sustainability of the NFMS.
National Aeronautics and Space Administration (NASA)	Provide technical assistance to improve remote sensing and GIS capabilities. Contribute to inventory design.	Involvement in NFMS development will contribute to NASA research on satellite monitoring of global forests.	Technical expertise and training may contribute to sustainability of NFMS.
University of Maryland (UMD)	Provide technical assistance to the Forest Department to monitor forest change, using	Involvement in NFMS capacity building and development will contribute to	Technical expertise and training may contribute to sustainability of NFMS.

	remote sensing technology.	University of Maryland research.	
Department of Environment (DoE)	Consumer of NFMS data for greenhouse gas (GHG) reporting.	NFMS data will align with the Intergovernmental Panel on Climate Change (IPCC) National GHG inventory requirements related to forestry.	DoE is housed in the same ministry as the Forest Department and this connection may increase its ability to influence design and maintenance relative to other government agencies.
Space Research and Remote Sensing Organization (SPARRSO)	Provide remote sensing capabilities for NFMS data collection.	NFMS data collection is high quality and can be used to validate satellite-based forest monitoring conducted by SPARRSO.	Technical credibility of the agency may contribute to uptake of SPARRSO recommendations.
USAID Climate-Resilient Ecosystems and Livelihoods (CREL) Program	Standard Operating Procedures for protected area inventory may influence design and implementation of NFMS. Use NFMS data to complete monitoring of protected areas.	That NFMS data will be consistent with protected area monitoring to enable impact assessment without further data collection.	Connections between CREL staff and Forest Department staff may contribute to uptake of CREL recommendations.
Arannayk Foundation (AF)	AF and its grantees may use NFMS data to identify areas of concern and conduct impact assessments.	NFMS data allows for continuous monitoring at a scale that contributes to local-level decision-making.	Connections between AF staff and Forest Department staff may contribute to uptake of AF recommendations.
Center for Environmental and Geographic Information Services (CEGIS)	Potential to provide technical advice or support for GIS, remote sensing, and database management.	NFMS data will be publicly available and provide useful inputs for environmental impact assessments and other project analyses.	Connections between CEGIS staff and Forest Department staff may contribute to uptake of CEGIS recommendations.
International Union for Conservation of Nature (IUCN)	Past project-level inventory efforts may inform development of NFMS.	NFMS will be sustainable to allow for repeated monitoring and data comparability.	Connections between IUCN staff and Forest Department staff may contribute to uptake of IUCN recommendations.
Academia	Consumer of NFMS data for research projects. Potential to provide technical	NFMS data will be readily available (e.g., online) in a raw format to enable its use in	Connections between university faculty and Forest Department staff may contribute to

	advice or support to Forest Department, including database hosting and student participation in inventory efforts.	research projects.	uptake of university recommendations.
Co-management councils (CMC)	May collect monitoring data that is part of NFMS or serves to verify NFMS data.	Use NFMS data to understand local-level forest changes.	CMC support may contribute to sustainability of NFMS if CMCs participate in formal forest monitoring.
Social forestry groups and cooperative associations	May collect monitoring data that is part of NFMS or serves to verify NFMS data.	Use NFMS data to understand local-level forest changes.	Limited influence at a national level. Relationships between social forestry participants/associations and local Forest Department staff (e.g., beat and range officers) may be a channel to influence the Forest Department.
Nursery associations	Consumer of NFMS data as an input to business decisions.	The NFMS will provide data on species type and distribution. Data will be shared with nursery associations.	Limited influence in NFMS design and maintenance at a national scale.
Timber merchants	Consumer of NFMS data as an input to business decisions.	The NFMS will provide data on timber location, age, and species. Data will be shared in a useable format.	Limited influence in NFMS design and maintenance at a national scale.
Furniture makers	Consumer of NFMS data as an input to business decisions.	The NFMS will provide data on timber location, age, and species. Data will be shared in a useable format.	Limited influence in NFMS design and maintenance at a national scale.

Not all stakeholders were involved in the February and March 2015 meetings. Outreach is suggested to the following agencies and organizations:

- Ministry of Agriculture
- Ministry of Disaster Management and Relief

- Ministry of Land
- Ministry of Planning
- Ministry of Railways
- Ministry of Water Resources
- Department of Fisheries
- Bureau of Statistics
- Local government
- Bangladesh Institute of Social Research (BISR)
- Bangladesh Centre for Advanced Studies (BCAS)
- Bangladesh Agricultural Research Council (BARC)
- Community Development Centre (CODEC)
- Center for Natural Resource Studies (CNRS)
- Young Power in Social Action (YPSA)

A list of directed questions (contained in appendix B) can be shared with these organizations to understand their interests in, and potential contributions to, an NFMS in Bangladesh.

In addition, the following categories of stakeholders were identified at the National Forest Inventory Information Needs Workshop (March 3 and 5, 2015). Further discussion and outreach are needed to identify appropriate contacts within the following broad categories:

- Judges
- Law enforcement
- Media
- Policymakers
- Ecotourism operators

## Stakeholder Meeting Summary

Stakeholder meetings were conducted with Forest Department staff, officials of other government agencies, staff of international organizations, and civil society. These individuals identified the types of NFMS data that would most contribute to their work, in what format that data would be most useful, pathways of accessing information from the Forest Department, and opportunities and challenges related to the implementation of an NFMS in Bangladesh. This section summarizes the findings from these meetings.

## Current Data

Stakeholders identified several issues with current forest monitoring activities and related data:

- Existing data collection is very labor-intensive at the beat-level. Beat officers and participants (in social forestry) inventory trees in their area. The data they collect are then verified at the range and district level. This data collection is paper-based and stored in beat, range, and district

offices. These data are not housed in a central, accessible database and often if it updated at one level, the updates are not made elsewhere.

- Past project-specific monitoring activities have provided some useful information, but differences in sampling methodologies and inventory designs make time series analysis difficult or impossible. The inability to track changes in forests over time hampers the ability of Forest Department staff to evaluate management actions and prioritize resources.
- The flow of data within the Forest Department is typically one-way. The field will send data to headquarters, but field staff does not see products that result from those data. It is unclear to Forest Department staff in the field how the data they provide are used.
- The Bangladesh Bureau of Statistics collects some data on socioeconomic conditions related to forests (e.g., employment in the agriculture, forestry, and fishing sector), but the data are typically provided by the Forest Department. Given the intensity of human-forest interaction in Bangladesh, many Forest Department staff indicated that they need additional socioeconomic data. Coordination with Bangladesh Bureau of Statistics will be important moving forward to ensure that appropriate socioeconomic data is available alongside the biophysical data that will be contained in the NFMS.

## Desired Data

The workshop report (Gottlieb) and Trip Report (Scott and Kuegler) contain detailed information on the types of data that stakeholders hope to see in the NFMS.

## Forest Data Accessibility

Data accessibility is a key issue given the diversity of stakeholders and the availability of technology. Stakeholder meetings highlighted the following considerations:

- A centralized database of NFMS data is essential to ensuring data consistency and availability.
- Some stakeholders expressed concerns that the Forest Department will be hesitant to share NFMS data with the public due to the potential increased scrutiny of Forest Department activities. However, other stakeholders noted that the culture of the Forest Department was shifting toward increased openness.
- Beat and range offices typically lack computers and access to the internet. Some of these offices are also without electricity. A centralized database containing NFMS data, while important, is not sufficient to meet the needs of Forest Department staff in the field.
- Some stakeholders outside of the Forest Department also lack access to the internet and/or are uncomfortable using computers.
- Data interpretation would be useful for non-expert audiences. For example, the creation of pamphlets or brief reports for social forestry associations, CMCs, Community Patrol Groups (CPG), nursery associations, and other forest-related business groups would enable these stakeholders to use NFMS data without undertaking costly (in terms of time and expertise) analysis of raw inventory data.



- Some stakeholders would prefer non-written materials. Several stakeholder groups requested data dissemination occur via in-person meetings with the Forest Department or a television broadcast.

## Opportunities and Challenges

Stakeholders discussed a number of institutional challenges, the potential to leverage existing resources, and opportunities for collaboration between the Forest Department and NFMS stakeholders.

- The Forest Department is a top-down organization and the success of the NFMS requires a cultural shift among senior managers to support monitoring activities and public data sharing.
- The Resource Information Management Unit (RIMS) in its current state is not equipped to house and manage NFMS data. Stakeholders noted that the lack of career ladder within RIMS means that many talented employees leave. Furthermore, frequent movement of employees within the Forest Department makes it difficult to build capacity in RIMS. Some stakeholders noted that while there are technically-capable people within the Forest Department, human resource practices cause them to be assigned to areas that may not take advantage of their skills in GIS. Along those lines, they highlighted that the Forest Department needs to create incentives or mechanisms to retain good employees. Widespread institutional capacity, not just a handful of individuals, is needed for NFMS sustainability.
- A number of NFMS stakeholders may be able and willing to engage in forest inventory and monitoring activities that could support the NFMS. Stakeholders noted that university students, co-management committee members, social forestry associations, and community patrol groups are capable and willing to help with forest inventory and monitoring activities.
- A couple stakeholders identified opportunities for South-South coordination on the NFMS. In particular, Forest Department staff may be able to train with the Forest Survey of India to increase technical capacity related to NFMS implementation.

## Recommendations

1. **Specialized NFMS Outreach Products:** As discussed above, given the diversity of NFMS stakeholders, a number of different products will be needed. Products should vary both in terms of content and accessibility. A centralized and publicly database, printed reports/pamphlets, and meetings should all be used to disseminate NFMS data to interested parties. The NFMS implementation team social scientist and a communication expert should be involved in the development and distribution of NFMS data products.
2. **Social Science Involvement through NFMS Development and Maintenance:** The relationship between humans and forests in Bangladesh is critical to both human well-being and forest health. As a result, the NFMS stakeholders are a diverse group. A social scientist should continue to be engaged in the development and maintenance of an NFMS to ensure consideration of stakeholder interests.
3. **Data Sharing with Bangladesh Bureau of Statistics:** Similarly, it would be valuable to link inventory data and socioeconomic data collected by the Bangladesh Bureau of Statistics

(Ministry of Planning). In particular, data on employment in agriculture, forestry, fishing and household fuel use alongside NFMS data would be useful to Forest Department decision-making. Such data would also be useful in the compilation of written reports for stakeholders. Likewise, the Bangladesh Bureau of Statistics relies on Forest Department input for their data products. The Forest Department and Bangladesh Bureau of Statistics should develop a mechanism for effectively sharing data and information between agencies.

4. **User Group Involvement in NFMS:** Past and on-going inventory and monitoring efforts have built capacity for forest monitoring. Existing relationships with user groups (e.g., co-management committees and social forestry associations) can contribute to the sustainability of monitoring for the NFMS. A permanent role for user groups should be established in the NFMS.
5. **Institutionalize Data Sharing Processes:** A number of stakeholders noted that access to data relies on personal relationships with staff in the Forest Department. An NFMS that has broad stakeholder support will require a shift from personal to institutional data sharing. The Forest Department should designate an office responsible for sharing NFMS data and develop protocols to ensure that the data is easily accessible to the general public, such as on the web and in printed materials available at range offices.
6. **Ongoing Stakeholder Involvement:** The NFMS Implementation team should engage additional stakeholders identified in workshop (see pages 4 and 5) to ensure those parties have opportunities to become engaged in and/or familiar with the NFMS.

## Appendix A: Meeting Participants List

Name	Affiliation	Title	Email Address
Mariam Ahkter	Forest Department	Assistant Conservator of Forests	<a href="mailto:mariamahkter2002@yahoo.com">mariamahkter2002@yahoo.com</a>
Tariq Aziz	Forest Department	Research Officer	<a href="mailto:tariqaziz9718@yahoo.com">tariqaziz9718@yahoo.com</a>
Ummey Habiba	Forest Department	Deputy Conservator of Forests	<a href="mailto:habiba_fo@yahoo.com">habiba_fo@yahoo.com</a>
R S M Munirul Islam	Forest Department	Divisional Forest Officer	<a href="mailto:munir.bfd@gmail.com">munir.bfd@gmail.com</a>
Md. Nurul Karim	Forest Department	Assistant Conservator of Forests	<a href="mailto:nurul_karim96@yahoo.com">nurul_karim96@yahoo.com</a>
Md. Rakibul Hasan Mukul	Forest Department	Deputy Conservator of Forests	<a href="mailto:rakib@bforest.gov.bd">rakib@bforest.gov.bd</a>
Abu Naser Mohammed Yaseen Newaz	Forest Department	Incoming head of Management Plan Division	<a href="mailto:newaz.y@gmail.com">newaz.y@gmail.com</a>
Hossain Mohammed Nishad	Forest Department	Divisional Forest Officer	<a href="mailto:hmnishad@gmail.com">hmnishad@gmail.com</a>
Gazi Hafizur Rahman	Forest Department	Forester (Field Surveyor)	<a href="mailto:ghrctg@gmail.com">ghrctg@gmail.com</a>
Md. Baktiar Nur Siddiqui	Forest Department	Divisional Forest Officer	<a href="mailto:baktiar1971@gmail.com">baktiar1971@gmail.com</a>
Raihana Siddiqui	Forest Department	Deputy Conservator of Forests	<a href="mailto:raihana003@yahoo.com">raihana003@yahoo.com</a>
Mohammed Salah Uddin	Forest Department	Divisional Forest Officer	<a href="mailto:salahuddin.evergreen@gmail.com">salahuddin.evergreen@gmail.com</a>
Fatima Tuz Zohora	Forest Department	Deputy Conservator of Forests	<a href="mailto:fatima26bd@yahoo.com">fatima26bd@yahoo.com</a>
Md. Motiar Rahman	BFRI	Soil Science Division	<a href="mailto:delowarhossain84@yahoo.com">delowarhossain84@yahoo.com</a>
Md. Abdul Hasnat Shahjalal	BFRI	Divisional Officer, Forest Inventory Division	<a href="mailto:bfrishahjalal@gmail.com">bfrishahjalal@gmail.com</a>
S M Kaisher	Forest Academy	Deputy Conservator of Forests	<a href="mailto:smkaisher@gmail.com">smkaisher@gmail.com</a>
Md. Abdur Rashid Talukder	Forest Academy	Instructor, Botany	<a href="mailto:rashidfoac@gmail.com">rashidfoac@gmail.com</a>
Saifuddin Mohammed Farhad	Forestry Science and Technology Institute	Instructor, Sociology	
Md. Delwar Hossain	Forestry Science and Technology Institute	Instructor, Forestry Science	<a href="mailto:delowarhossain84@yahoo.com">delowarhossain84@yahoo.com</a>
Amal Krishna	Forestry Science and	Instructor, Soil	

Mandal	Technology Institute	Science	
Mirza Shawkat Ali	Department of Environment	Deputy Director	<a href="mailto:mirzasa1@yahoo.com">mirzasa1@yahoo.com</a>
Ram Sharma	Climate Resilient Participatory Afforestation and Reforestation Project	Forest Policy Analyst	<a href="mailto:ramsharma.or@gmail.com">ramsharma.or@gmail.com</a>
Colin Holmes	USAID	Environment Officer	<a href="mailto:cholmes@usaid.gov">cholmes@usaid.gov</a>
Karl Wurster	USAID	Deputy Director – Economic Growth Environment	<a href="mailto:kwurster@usaid.gov">kwurster@usaid.gov</a>
Liam Costello	FAO	GIS and Information Management Officer	<a href="mailto:liam.costello@fao.org">liam.costello@fao.org</a>
Farid Uddin Ahmed	Arannayk Foundation	Executive Director	<a href="mailto:farid@arannayk.org">farid@arannayk.org</a>
Mohd. Abdul Quddus	Arannayk Foundation	Senior Program Officer	<a href="mailto:quddus@arannayk.org">quddus@arannayk.org</a>
Mohammad Shahidul Islam	CEGIS	Director, Remote Sensing	<a href="mailto:sislam@cegisbd.com">sislam@cegisbd.com</a>
Md. Nasrat Jahan	CEGIS	Senior Professional, Remote Sensing	<a href="mailto:njahan@cegisbd.com">njahan@cegisbd.com</a>
Md. Mizanur Rahman	CEGIS	Professional, Remote Sensing	<a href="mailto:mmrahman@cegisbd.com">mmrahman@cegisbd.com</a>
Ruhul Mohaiman Chowdhury	CREL Program	Monitoring and Evaluation Specialist	<a href="mailto:rmchowdhury@winrock.org">rmchowdhury@winrock.org</a>
Darrell Deppert	CREL Program	Chief of Party	<a href="mailto:ddeppert@winrock.org">ddeppert@winrock.org</a>
Shital Kumar Nath	CREL Program	Climate Change and Protected Area Management Officer	<a href="mailto:smati71@yahoo.com">smati71@yahoo.com</a>
Sunbeam Rahman	CREL Program	Research Officer	<a href="mailto:sunbeam.rahman@bcas.net">sunbeam.rahman@bcas.net</a>
A K M Shamsuddin	CREL Program	Coordinator, Forestry	<a href="mailto:akmshamsuddin@winrock.org">akmshamsuddin@winrock.org</a>
Md. Shams Uddin	CREL Program	Manager, Landscape Planning	<a href="mailto:suddin@field.winrock.org">suddin@field.winrock.org</a>
Abdullah Abraham Hossain	GIZ Dhaka	Senior Advisor	<a href="mailto:nobu_fd@yahoo.com">nobu fd@yahoo.com</a>
Ishtiaq Uddin Ahmad	IUCN	Country Representative	<a href="mailto:ishtiaq.ahmad@iucn.org">ishtiaq.ahmad@iucn.org</a>
Dr. Jarin Akhter	University of Chittagong	Professor, Institute of Forestry and Environmental Sciences	<a href="mailto:jarinakhter@yahoo.com">jarinakhter@yahoo.com</a>
Dr. Mohammad Mosharraf Hossain	University of Chittagong	Associate Professor, Institute of Forestry	<a href="mailto:mosharraf@ifescu.ac.bd">mosharraf@ifescu.ac.bd</a>

		and Environmental Sciences	
Dr. M. Danesh Miah	University of Chittagong	Professor, Institute of Forestry and Environmental Sciences	<a href="mailto:danesh@cu.ac.bd">danesh@cu.ac.bd</a>

## Appendix B: Stakeholder Questions

1. What information about forests would be most helpful for your work?
2. How would you use this information?
3. How would you like that information to be presented? In a meeting? As printed materials? Some other form?
4. What do you currently monitor or measure in a forest?
5. Where do you store your monitoring information?

## Appendix C: Meeting Notes

### 21 February 2015

#### *Gazipur Social Forestry Field Visit*

We traveled to Gazipur with Mr. Baktiar and members of the Forest Department and visited with social forestry participants. We attended a felling and spoke with the plot participant, female participants from nearby plots, and the timber merchant who had purchased the wood from the plot. Next, we attended a meeting with more than dozen beneficiaries. We heard several key points at these meetings: (1) trust between community members and the Forest Department has increased, encouraging more investment in the plots. (2) A very labor-intensive monitoring process is conducted for the plots and captured in written reports. Beat officers and participants have detailed knowledge on the number and size of trees on their plots. However, this information is not collected at regular intervals.

#### Contact Information:

Md. Baktiar Nur Siddiqui  
Divisional Forest Officer (DFO)  
Dhaka Forest Division  
Tel: 02-8833700  
Mobile: 01711-819670  
Email: [baktiar1971@gmail.com](mailto:baktiar1971@gmail.com)

### 22 February 2015

#### *Social Forestry, Dhaka Division*

We met with the DFO for social forestry in the Dhaka Division (Hossain Mohammad Nishad) and about a half dozen of his colleagues (including range officers and Assistant Conservators of Forests). Key points from this meeting include: (1) a centralized database would be useful, but not sufficient since officers in the field typically lack access to computers. (2) Information on socioeconomic conditions related to forestry (e.g., employment in forestry sectors and household fuel use) are needed as well as biophysical forest data. (3) Multiple forms of inventory data will be needed for different audiences. (4) The DFO expressed that the Forest Department is open to making inventory data publicly accessible.

#### Contact Information:

Hossain Mohammed Nishad  
Divisional Forest Officer  
Social Forest Division, Dhaka  
Tel: 02-9883530

Mobile: 01715005677 01761494743

Email: [hmnishad@gmail.com](mailto:hmnishad@gmail.com); [dfosdhaka@gmail.com](mailto:dfosdhaka@gmail.com)

*Climate Resilient Participatory Afforestation and Restoration Project*

We met with Ram Sharma, who is working on the World Bank-managed Climate Resilient Participatory Afforestation and Reforestation Project to revise forest policy in Bangladesh. Key points from this meeting include: (1) RIMS in its current state is not equipped to house and manage NFMS data. (2) Suggestions on improving RIMS effectiveness is part of the revised forestry plan. (3) There is increasing pressure for data to be in the public domain.

Contact Information:

Ram Sharma

Forest Policy Specialist

Climate Resilient Participatory Afforestation and Reforestation Project

Mobile: 01786270229

Email: [ramsharma.or@gmail.com](mailto:ramsharma.or@gmail.com); [sharma\\_or@hotmail.com](mailto:sharma_or@hotmail.com)

*USAID/Bangladesh*

We met with Karl Wurster and Colin Holmes to discuss our planned activities for the user analysis detail. We discussed the administrative structure of the Forest Department and constraints timber harvesting and other activities in forest lands. We agreed to develop a list of stakeholder questions that can be distributed at more formal and/or larger group meetings. Colin indicated that he may be able to solicit answers to these questions during his visit to the Sundarbans. Finally, we discussed the timeline for meetings with the Minister, Secretary, CCF, Ambassador, and USAID Chief of Mission for the following week.

Contact Information:

Karl Wurster, Ph.D.

USAID/Bangladesh

Deputy Director – Economic Growth Environment

Economic Growth Office

Tel: (+88) 02 885 5500

Mobile: (+88) 01755 648961

Email: [kwurster@usaid.gov](mailto:kwurster@usaid.gov)

Colin Holmes

Environment Officer

Office of Economic Growth

USAID/Bangladesh

Office: (+88) 02 5566 2656

Mobile: (+88) 01711 593252



Email: [cholmes@usaid.gov](mailto:cholmes@usaid.gov)

*USAID-funded Climate-Resilient Ecosystems and Livelihoods (CREL) Program*

We met with Ruhul Mohaiman Chowdhury, a CREL Monitoring and Evaluation Specialist. Ruhul is collecting inventory data on project areas in Bangladesh. Key points from this meeting include: (1) Ruhul reaffirmed perceptions of increased openness to making inventory data publicly accessible. (2) Ruhul shared CREL's Standard Operating Procedures for Forest Carbon Inventory, which may provide useful inputs for the DTIM workshop.

Additionally, Rahul suggested the following organizations as potential stakeholders:

- Co-management committees
- Village conservation groups
- Community patrol groups
- Universities
- Department of Fisheries
- Department of Environment
- Technical agencies, including: [Bangladesh Bureau of Statistics](#), [Bangladesh Agricultural Research Council](#), and [Bangladesh Forest Research Institute](#)
- NGOs, including: [CODEC](#), [CNRS](#), [BCAS](#)

Contact information:

Ruhul Mohaiman Chowdhury

CREL Program

Monitoring and Evaluation Specialist

Mobile: (+88) 0172 6892305

Email: [rmchowdhury@winrock.org](mailto:rmchowdhury@winrock.org); [ruhulforester@yahoo.com](mailto:ruhulforester@yahoo.com)

**23 February 2015**

[Center for Environmental and Geographic Information Services \(CEGIS\)](#)

We met with Shahidul Islam and Md. Nazrat Jahan of the Remote Sensing Division in CEGIS. Key points from this meeting include: (1) the Forest Department may be reluctant to share information and collaborate with others due to a concern that transparency will lead to blame and criticism, especially if data quality is poor or inconsistent. (2) Technical capacity is low in the Forest Department. (3) The attitude of the Forest Department toward openness is changing under the current Chief Conservator of Forests.

Contact Information:

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Mohammad Shahidul Islam  
Director, Remote Sensing  
Center for Environmental and Geographic Information Services (CEGIS)  
Tel: 8821570 1 8817648-52  
Email: [sislam@cegisbd.com](mailto:sislam@cegisbd.com)

Md. Nasrat Jahan  
Senior Professional  
Remote Sensing Division, CEGIS  
Tel: 8817648-52, 8821570-1 (Ext: 401)  
Mobile: 01817592864  
Fax: 880-2-8823128, 880-2-8855935  
Email: [njahan@cegisbd.com](mailto:njahan@cegisbd.com); [njageodu@gmail.com](mailto:njageodu@gmail.com)

*Arannayk Foundation*

We met with the Executive Director and Senior Program Officer at Arannayk Foundation. Key findings from this meeting include: (1) RIMS lacks the capacity to meet data needs. (2) NFMS data is important to academia and CMCs. (3) Small-scale maps would be particularly useful for grantees. Local-level data is needed for planning. (4) The Forest Department should provide printed reports and maps for local-level use in addition to a national central database. (5) Agricultural data currently being provided at the sub-district level by the Bangladesh Agricultural Research Council (BARC) is a good model for the NFMS. (6) Forest Department capacity is the issue. They stressed that the Forest Department will need a unit set up to manage NFMS. There are people capable in GIS within the Forest Department, but due to human resource practices, they are not necessarily doing work that uses their skills in this area. Along those lines, they highlighted that the Forest Department needs an incentive or mechanism to retain good employees. Widespread institutional capacity, not just a handful of individuals, is needed for sustainability. (7) CNRS, BARC, and the Soil Resource Development Institute (SRDI) are better equipped than the Forest Department to maintain NFMS data. (8) Farid recommends collaboration between CEGIS and the Forest Department on the NFMS using a cost-recovery approach. (9) Universities are not ideal repositories of NFMS data because their capacity is typically based on individual faculty members, rather than institutional capacity. (10) The Forest Department should produce an annual report on the state of the forests; no such reporting currently occurs. (11) Train Forest Department through the Forest Survey of India. (12) The RIMS Unit needs a career ladder to retain talented employees. (13) NFMS must be publicly accessible. This will be a change for the Forest Department, which has previously been reluctant to share information.

Contact Information:  
Farid Uddin Ahmed  
Executive Director  
Arannayk Foundation  
Tel: 2-8711240, 8715116

Mobile: 01713040583

Email: [farid@arannayk.org](mailto:farid@arannayk.org)

Mohd. Abdul Quddus

Senior Program Officer

Arannayk Foundation

Tel: 2-8711240, 8715116

Mobile: 01715023283

Email: [quddus@arannayk.org](mailto:quddus@arannayk.org)

*Forest Department – RIMS Unit, Legal Unit, Monitoring and Evaluation Unit*

We met with Forest Department staff in RIMS, the legal unit, and the monitoring and evaluation unit.

Key findings from this meeting include: (1) Most data requests are for maps. (2) There is a need data for boundary mapping, which is used for resolving land disputes. (3) Local-level data for decision-making is needed. The FAO National Forest Assessment (NFA) is not at a scale appropriate to decision-making. (4) BBS data comes from the Forest Department – they are an important stakeholder. (5) Data on which ecosystem services are provided is needed. (6) NFMS will be important for responding to parliamentary requests.

Contact Information:

Raihana Siddiqui

Deputy Conservator of Forests

Resource Information Management System (RIMS) Unit

Email: [raihana003@yahoo.com](mailto:raihana003@yahoo.com)

Fatima Tuz Zohora

Deputy Conservator of Forests

Legal Unit

Email: [fatima26bd@yahoo.com](mailto:fatima26bd@yahoo.com)

Ummey Habiba

Deputy Conservator of Forests

Monitoring Unit

Email: [habiba\\_fo@yahoo.com](mailto:habiba_fo@yahoo.com)

Mariam Ahkter

Assistant Conservator of Forests

RIMS Unit

Email: [mariamahkter2002@yahoo.com](mailto:mariamahkter2002@yahoo.com)

Tariq Aziz

Research Officer

RIMS Unit

Email: [tariqaziz9718@yahoo.com](mailto:tariqaziz9718@yahoo.com)

Md. Nurul Karim

Assistant Conservator of Forests

Legal Unit

Email: [nurul\\_karim96@yahoo.com](mailto:nurul_karim96@yahoo.com)

Abdullah Abraham Hossain

Senior Advisor

GIZ Dhaka

Email: [nobu\\_fd@yahoo.com](mailto:nobu_fd@yahoo.com)

### *IUCN/Bangladesh*

We met with Ishtiaq Uddin Ahmad, the IUCN Country Representative and former CCF of the Forest Department. Key points from the meeting include: (1) Previous inventories lacked continuous monitoring. This must be remedied for the NFMS to be valuable for decision-making and learning. (2) NFMS data will only be beneficial if it is available and used across all levels of the Forest Department. (3) Forest Department culture is not very comfortable with computers. People prefer documentation and maps on paper. This requires a mindset change. (4) A non-timber forest products (NTFP) inventory for protected areas would be valuable. (5) The Forest Department is a top-down organization and for this to be successful, the culture must change at the top. (6) The NFMS database must be housed in the Forest Department to be sustainable. It should be in an independent and reorganized RIMS Unit.

#### Contact Information:

Ishtiaq Uddin Ahmad

IUCN Country Representative

Tel: 2-9859673

Mobile: 01712085944

Email: [ishtiaq.ahmad@iucn.org](mailto:ishtiaq.ahmad@iucn.org)

### **24 February 2015**

#### *CEGIS pt. 2*

We met with Md. Mizanur Rahman, CEGIS remote sensing professional. Key points from this meeting include: (1) It currently takes at least a month to get data from the Forest Department – public availability is very important. (2) Multiple layers and procedures are required to access data. (3) The NFMS should have a centralized database and offer web-based Excel files for the general public. (4) Currently within the Forest Department knowledge of data availability and storage is individual, not institutional.

#### Contact Information:

Md. Mizanur Rahman  
Professional  
Remote Sensing Division, CEGIS  
Mobile: 01674126830  
Email: [mmrahman@cegisbd.com](mailto:mmrahman@cegisbd.com)

**25 February 2015**

*Forest Department – Large Group, Dhaka*

We met with a large group of stakeholders from both the Forest Department and civil society. In addition to Forest Department staff, attendees represented nursery owners, furniture makers, timber traders, social forestry participants, and an employee of British American Tobacco.

Key points from the nursery owners include: (1) Nursery association members would like to know where there are gaps in forest product availability so that they can open nurseries in those areas. (2) They believe there has been a management failure in the Sundarbans related to salvage harvest of diseased trees. Monitoring data may help to improve this type of management. (3) NFMS data would be most useful in printed materials, presented in both meetings and on the internet. (4) Roadsides need more planting of fruit plants for biodiversity and food.

Key points from furniture makers include: (1) They want to know the year that plantations were planted, since they have concerns about the accuracy of the information provided by timber traders. (2) Furniture makers want easily accessible data on quantity, species, location, and age. (3) It would be most useful to have printed materials that is regularly updated on the internet.

Key points from social forestry participants include: (1) They are interested in participating in monitoring activities. (2) They want information on which species are the fastest growing and on the soil index. (3) Access to information would be most useful in printed leaflets or a television broadcast. Printed documents could also be housed in the local library. Meetings are time-consuming and are a less favored method of sharing data.

Key points from Forest Department social forestry staff include: (1) Currently, data is kept for records but is not being used for management. (2) Computers are needed to access information. (3) Bottom-up approach – if data are available to communities, they can do their own project management.

Contact information:  
Hossain Mohammed Nishad  
Divisional Forest Officer  
Social Forest Division, Dhaka  
Tel: 02-9883530  
Mobile: 01715005677 01761494743  
Email: [hmnishad@gmail.com](mailto:hmnishad@gmail.com); [dfosdhaka@gmail.com](mailto:dfosdhaka@gmail.com)

*FAO*

We met with Liam Costello, who will soon be joining FAO's MRV team. Key points from this meeting include: (1) Liam is developing a communications plan for MRV. (2) The United Nations Development Programme (UNDP) should be engaged in this process.

Contact information:

Liam Costello

FAO

GIS and Information Management Officer

Mobile: 01795201413

Email: [liam.costello@fao.org](mailto:liam.costello@fao.org)

**26 February 2015**

*CREL Program*

CREL is a program that is working in every major protected area and wetland in Bangladesh to implement a robust, REDD+-ready, monitoring program. They have completed work in 8 protected areas and expect to complete work in 5 more in 2015. Together with prior data for other protected areas, CREL will establish a baseline for all protected areas in Bangladesh. CREL hopes to be able to use NFMS data to conduct impact assessments.

Key points from this meeting include: (1) Make use of existing resources – do not reinvent the wheel. (2) CMCs are involved in data collection process. (3) Workshops with Forest Department to develop CREL's SOP have been well-received. (4) Various inventory processes should not diverge. (5) There are human resource and manpower issues in the Forest Department. (6) There is a need for a career ladder in RIMS to keep good people. (7) Need a moderate mindset – utilize what we have in the best way; we can't have everything. (8) CMCs would like to learn if there are changes in forest degradation in their forests over time. (9) CMCs can be very effective and should be actively involved in NFMS. (10) Involve students from University of Chittagong and elsewhere in monitoring. (11) Outside of PAs, use social forestry associations for monitoring where CMCs don't exist. (12) CPGs can also help with monitoring and inventory.

Contact Information:

Darrell Deppert

Chief of Party

USAID/Bangladesh Climate Resilient Ecosystems and Livelihoods (CREL), Winrock International

Email: [ddeppert@winrock.org](mailto:ddeppert@winrock.org)

A K M Shamsuddin

Coordinator, Forestry

Climate Resilient Ecosystems and Livelihoods Project

Email: [akmshamsuddin@winrock.org](mailto:akmshamsuddin@winrock.org)

Md. Shams Uddin

Manager, Landscape Planning

USAID/Bangladesh Climate Resilient Ecosystems and Livelihoods (CREL), Winrock International

Email: [suddin@field.winrock.org](mailto:suddin@field.winrock.org)

Shital Kumar Nath

Climate Change and Protected Area Management Officer

USAID/Bangladesh Climate Resilient Ecosystems and Livelihoods (CREL), CODEC

Email: [smati71@yahoo.com](mailto:smati71@yahoo.com)

Sunbeam Rahman

Research Officer

USAID/Bangladesh Climate Resilient Ecosystems and Livelihoods (CREL), Bangladesh Centre for Advanced Studies

Email: [sunbeam.rahman@bcas.net](mailto:sunbeam.rahman@bcas.net)

#### *Department of Environment*

We met with Mirza Shawkat Ali from the Department of Environment. Key points from this meeting include: (1) Need NFMS data on GHGs from forestry sector. (2) BBS has some data quality issues (relevant for data needs related to socioeconomic elements of forestry). (3) Government-to-government data sharing works well, but sometimes informal channels work better than formal channels.

#### Contact Information:

Mirza Shawkat Ali

Deputy Director

Department of Environment

Email: [mirzasa1@yahoo.com](mailto:mirzasa1@yahoo.com)

#### **27 February 2015**

#### *Forest Department – Management Plan Division, Chittagong*

We met with staff from the management plan division in Chittagong. Key points from this meeting include: (1) Data goes from the field to the RIMS Unit and does not come back to the field. (2) RIMS does not consult field about what data are needed for management planning. (3) Most monitoring is in plantation. There is very little monitoring in natural forests and protected areas (except where afforestation/reforestation has occurred). (4) The lack of computers at beat and range offices inhibits data sharing and accessibility. (5) BBS requests data from the Forest Department, but the Forest Department does not get data from BBS. (6) If field offices in the Forest Department want data from

other agencies, it is typically requested through the Chief Conservator of Forests unless the agency is based in Chittagong. (7) Young Power in Social Action (YPSA) and Arannayk Foundation partner with the Forest Department on livelihood issues. (8) For REDD+, data must be free and open.

Contact Information:

Mohammed Salah Uddin  
Divisional Forest Officer  
Management Plan Division, Chittagong  
Email: [salahuddin.evergreen@gmail.com](mailto:salahuddin.evergreen@gmail.com)

Abu Naser Mohammed Yaseen Newaz  
Director, Botanical Garden Chittagong  
(Incoming head of Management Plan Division)  
Email: [newaz.y@gmail.com](mailto:newaz.y@gmail.com)

R S M Munirul Islam  
Divisional Forest Officer  
Chittagong Coastal Division  
Email: [munir.bfd@gmail.com](mailto:munir.bfd@gmail.com)

Gazi Hafizur Rahman  
Forester (Field Surveyor)  
Management Plan Division, Chittagong  
Email: [ghrctg@gmail.com](mailto:ghrctg@gmail.com)

*BFRI*

We met with staff from the forest inventory division at BFRI. Key points from this meeting include: (1) Requests to BFRI for assistance are typically made through the CCF. (2) BFRI collects data from all forest types – sometimes this data is housed in RIMS and sometimes in BFRI. (3) Usually other Forest Department wings identify which data are needed and BFRI determines methodology for data collection. (4) BFRI gets most of its data from local forest offices (e.g., plantation journals) not RIMS.

Contact Information:

Md. Abdul Hasnat Shahjalal  
Divisional Officer, Forest Inventory Division  
Tel: 031681647  
Email: [bfrishahjalal@gmail.com](mailto:bfrishahjalal@gmail.com)

Md. Motiar Rahman  
Soil Science Division  
Email: [delowarhossain84@yahoo.com](mailto:delowarhossain84@yahoo.com)

*University of Chittagong*



We met with three professors from the Institute of Forestry and Environmental Sciences. Key points from this meeting include: (1) Essential to include carbon NFMS. (2) Perception that Forest Department (and public sector generally) are reluctant to share data. (3) If they get data from the Forest Department, they typically go to beat or range offices and not RIMS. (4) Limited coordination between universities and the Forest Department. (5) In order to host an NFMS database, infrastructure support is needed – both the Forest Department and University of Chittagong lack dedicated Information Technology staff. (6) Hardware, software, and Human Resources all need to be geared up to support NFMS. (7) FD research wing lacks manpower. (8) Data digitization is essential. (9) The culture of the CCF and Minister will determine success. (10) Agriculture Department is stronger than FD in terms of professionalism and manpower. (11) BFRI is declining due to less funding and retirement. (12) Outdated HR policies make recruitment difficult.

Contact Information:

Dr. M. Danesh Miah  
Professor at Institute of Forestry and Environmental Sciences  
University of Chittagong  
Tel: 0312606144  
Email: [danesh@cu.ac.bd](mailto:danesh@cu.ac.bd)

Dr. Mohammad Mosharraf Hossain  
Associate Professor at Institute of Forestry and Environmental Sciences  
University of Chittagong  
Tel: 0312606414  
Email: [mosharraf@ifescu.ac.bd](mailto:mosharraf@ifescu.ac.bd)

Dr. Jarin Akhter  
Professor at Institute of Forestry and Environmental Sciences  
University of Chittagong  
Tel: 0312602600110  
Email: [jarinakhter@yahoo.com](mailto:jarinakhter@yahoo.com)

**28 February 2015**

*Forest Academy and Forestry Science & Technology Institute, Chittagong*

We met with staff from the Forest Academy and Forestry Science & Technology Institute. Key points from this meeting include: (1) Forest Academy and FSTI provide training for field workers. (2) These institutions would incorporate NFMS data in training. (3) Bangladesh Technical Education Board develops curriculum. However, new classes do not need to be approved by the board.

Contact Information:

S M Kaisher

Deputy Conservator of Forests  
Forest Academy, Chittagong  
Email: [smkaisher@gmail.com](mailto:smkaisher@gmail.com)

Md. Abdur Rashid Talukder  
Instructor, Botany  
Forest Academy, Chittagong  
Tel: 0312606414  
Email: [rashidfoac@gmail.com](mailto:rashidfoac@gmail.com)

Md. Delwar Hossain  
Instructor, Forestry Science  
Forest Science and Technology Institute (FSTI), Chittagong  
Email: [delwarhossain84@yahoo.com](mailto:delwarhossain84@yahoo.com)

Amal Krishna Mandal  
Instructor, Soil Science  
FSTI, Chittagong

Saifuddin Mohammed Farhad  
Instructor, Sociology  
FSTI, Chittagong

*Forest Department – Large Group, Chittagong*

We met with a large group of stakeholders from both the Forest Department and civil society in Chittagong. In addition to Forest Department staff, attendees represented co-manage committees, community patrol groups, CREL staff, and timber traders.

Key points from beat officers include: (1) information is needed on growing stock, damage and encroachment patterns, number of people dependent on the forest, and number of wildlife. (2) Data would be most useful in printed form, but it should be posted on the website and presented in meetings too.

Key points from ranger officers include: (1) Information is needed on water resources, climate change, invasive species, and the extent of top-dying disease in the Sundarbans. (2) Data should be shared on the Forest Department website or Facebook, video, and maps.

Key points from co-management committee members include: (1) need data at the protected area-scale. (2) Permanent printed documents would be best, but data should also be available on the website. (3) The Forest Conservation Club is an active student group that discusses issues related to forestry and climate change. Data should be available to them.

Key points from community patrol group members include: (1) most of their information comes from interactions with beat officers. (2) Information on human-wildlife conflict is needed.

Key points from CREL include: (1) data is needed on the location of timber and non-timber forest products, encroachment, forest-dependent people, and carbon in forests. (2) Data would be most useful in booklet form and maps that are available in the Forest Department offices and on the Ministry website. (3) NFMS data will be useful for climate change strategy, national forest management plan, awareness building, and private sector decision-making.

Key points from Forest Department wildlife staff include: (1) prior inventories provided little information on wildlife. (2) The new NFMS should contribute to wildlife management by collecting data on habitat quality, structure of ecosystems, water resources, and the number of rare and endangered species. (3) Information on human interaction with the forests is also useful – on recreation and aesthetic resources and the number of people engaged in forest-related activities. (4) Information should be housed in a centralized portal for easy access. This portal should contain NFMS data as well as past studies.

Key points from the private sector include: (1) information is needed on the location of harvestable old growth, wildlife species (for recreation purposes), available timber for harvest (quantity, quality, and species), number of sawmills, nurseries, and other forest-based enterprises, soil quality, and Forest Department manpower. (2) Current information flow is poor and beat officers often lack information needed to do their jobs. (3) Information needs to be available in Bangla (e.g., a past wildlife study was only posted in English). (4) There is a gap between policy and implementation.

Contact Information:

Md. Rakibul Hasan Mukul

Deputy Conservator of Forests

Wildlife Management and Nature Conservation Division, Chittagong

Tel: 031684420

Mobile: 01761494710

Email: [rakib@bforest.gov.bd](mailto:rakib@bforest.gov.bd)

**1 March 2015**

*Forest Department – Monitoring and Evaluation (M&E), Legal, RIMS units*

We met with Forest Department staff from the M&E, Legal, and RIMS units. USFS Forest Inventory and Analysis (FIA) experts and NASA staff led this discussion. Key points from this meeting include: (1) RIMS is not well-connected with the other units. (2) Past monitoring and inventory efforts have not used consistent plot design and sampling methods.

Contact information:

Fatima Tuz Zohora

Deputy Conservator of Forests

Legal Unit

Email: [fatima26bd@yahoo.com](mailto:fatima26bd@yahoo.com)

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Ummey Habiba  
Deputy Conservator of Forests  
Monitoring Unit  
Email: [habiba\\_fo@yahoo.com](mailto:habiba_fo@yahoo.com)

Mariam Ahkter  
Assistant Conservator of Forests  
RIMS Unit  
Email: [mariamahkter2002@yahoo.com](mailto:mariamahkter2002@yahoo.com)

Tariq Aziz  
Research Officer  
RIMS Unit  
Email: [tariqaziz9718@yahoo.com](mailto:tariqaziz9718@yahoo.com)