



The Bangladesh Forest Inventory

A robust tree and forest monitoring system for sustainable forest management and conservation

National tree and forest resources have been declining for many years in the face of immense population pressure and expanding agricultural and industrial activities. Information about the status and extent of these resources is necessary to ensure sustainable forest management and conservation.

Context

The Bangladesh Forest Inventory (BFI) is a multi-source and multi-purpose national forest monitoring system that assesses, evaluates, interprets and reports the status of trees and forest resources nationally. It includes both biophysical measurement and also a socioeconomic component that is integrated by a land cover map. In 2015 the BFI was launched and involved hundreds of national and international experts from more than 40 institutions. The BFI considers five geographic zones and acknowledges the diversity among stakeholders and environments to better understand the relationship between people and forests and maximize the potential benefits of targeted policy and investment.

The BFI uses the latest technological advances for field data collection, processing, analysis and dissemination. The Open Foris platform, developed by FAO and its partners, was used to collect and manage the inventory data. Differential Global Positioning System (DGPS) and Radio Frequency identification (RFID) technologies were used to make the inventory plots permanent. Open source software like QGIS and R was used for mapping and data analysis. An android-based tree identification application allows field teams to identify tree species very easily.



The latest technologies are used for field measurements of the Bangladesh Forest Inventory.

Objectives

- To collect, manage, archive and make accessible information about tree and forest resources nationwide.
- To transfer technical knowledge on forest mensuration, socio-economic survey, data analysis, and valuation of forest ecosystem services.
- To support national entities for sustainable forest monitoring and reporting to national and international frameworks such as REDD+ and contribute to mitigate climate change through forestry.
- To provide data and information that guide interventions in the forestry sector and sustainable land management.

Process

- **Engage national stakeholders:** An active National Forest Monitoring System (NFMS) working group was formed in the BFD for designing and monitoring the inventory process.
- **Strengthen capacities in forest monitoring:** In total, 808 individuals from 43 national organizations participated in 45 capacity building activities. Trainings focused on a wide range of disciplines, from remote sensing to legal aspects.
- **Collect field data:** In total, 1858 plots were measured, and 6400 households were surveyed for better understanding of the relationship between forests and communities at national scale.
- **Analyze data:** Data were prepared both manually and through automated checks using R-scripts. Processes for reporting national statistics on forest resources were developed.
- **Disseminate information:** The Bangladesh Forest Information System (BFIS) was developed to better access and update the BFI, and facilitate knowledge sharing between national entities.
- **Institutionalize the BFI:** A BFI unit will support the BFD to sustainably monitor trees and forest.

Results

- The capacity of 100 BFD officers was strengthened and nine training manuals were written on topics such as field data collection and management, quality control, analysis, and reporting.
- Modern and innovative technologies were used and deployed to ensure a cost-effective, robust and sustainable process (e.g. use of DGPS, tablets, Apps., high resolution images, RFID chips, new equipment, etc.).
- Collaboration with academic and research organizations was strengthened to ensure the sustainability of the capacity building activities as well as the operationalization of the BFI.
- The BGD Trees application was developed (available in Google Play Store) with the support of the Bangladesh National Herbarium to help field teams identify trees.
- A soil archive room was established at Khulna University for storing soil samples collected from inventory plots for further analysis and monitoring.
- Databases were developed for country specific allometric equations, plant species, and wood densities to improve biomass and carbon estimations.
- The results from the BFI, as well as the documentation related to the data analysis process, are made accessible under the BFIS to ensure their use by national stakeholders.



Field attribute data collection in Bangladesh Forest Inventory.

Selected references

1. Akhter, M., et al. 2017. Proceedings on the R training - Checking the Biomass data and detection of potential errors, 19-24 February 2017, Bangladesh Forest Department, Food and Agriculture Organization of the United Nations. Dhaka, Bangladesh.
2. BFD (2017). Field Instructions for the Bangladesh Forest Inventory Socioeconomic Survey Dhaka, Bangladesh Forest Department, Food and Agriculture Organization of the United Nations. Dhaka, Bangladesh.
3. Costello, L., et al. 2016. Field instructions for the Bangladesh Forest Inventory: Bangladesh Forest Department, United States Forest Service, Food and Agriculture Organization of the United Nations. Dhaka, Bangladesh.
4. Iqbal, Z., et al. 2016. The Bangladesh Forest Inventory Design: Methodological Approach. Bangladesh Forest Department, Food and Agriculture Organization of the United Nations. Dhaka, Bangladesh.
5. Kumar, M. F., L. et al. 2017. Bangladesh Forest Inventory Data Management Protocol. Bangladesh Forest Department, Food and Agriculture Organization of the United Nations, Dhaka, Bangladesh.

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