Innovative systems for forestry data management and analysis

Improving accessibility and quality of forest-related data to inform decision making

Reliable data is key for appropriate decision-making and implementation of effective policy. Easy access to data and robust data management systems are especially useful for improving sustainable forest management.

Context

In an era of many sources of rich datasets, modern database management system needed to efficiently manage them. When data are stored in various formats and different locations, it becomes a tedious and time-consuming task to compile the information, one really needs for reporting and analysis. Large amounts of data are collected by various national entities and organizations but a lack of proper archiving, referencing, documentation and accessibility limits users to benefit from and contribute to its body of knowledge. Therefore, decision makers are not properly informed, and planning and monitoring is impacted.

National forest management requires information such as maps, field data, models from different entities and different sectors. Documentation about the process of the collection of these data and their analyses is crucial for all levels of data users to understand the stages of data production. When the data are properly documented and made accessible, a data analysis expert can prepare robust and reliable results that are fundamental to fully support decision-making process. Moreover, institutional arrangements between national entities by sectors contribute to the establishment of robust platforms for knowledge and data exchange and their availability to data operators to provide the necessary information.

FAO is supporting the Bangladesh Forest Department to strengthen institutional collaborations, data management and analysis as well as developing interoperable platforms using the latest technological advances in close collaboration with the Bangladesh Computer Council under the framework of digital Bangladesh.
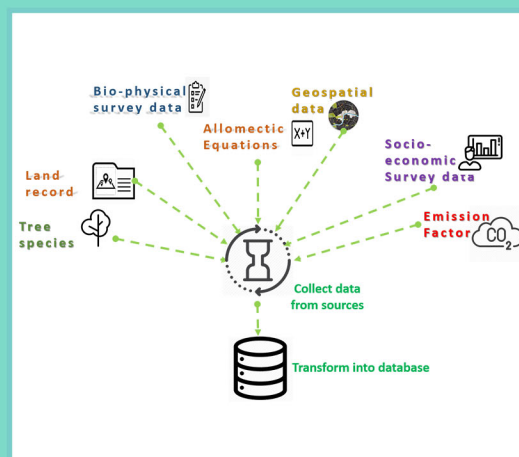
Transformation of data into database.

Objectives

- To enhance national capacity in data collection, archiving, documentation, management and analysis using the latest technological advances and open source software.
- To strengthen institutional arrangements, collaboration and data accessibility.
- To support dissemination of reliable and transparent information for natural resources and forest management and conservation.
- To facilitate access of forest related information to users.

Process

- **Engage national and international stakeholders:** Representatives of universities, national and international entities collaborated by exchanging technical expertise and information.
- **Strengthen governmental, academic and research capacities:** Technical trainings focused on data collection, archiving and management, use of free and open source software have been conducted using internationally recognized tools and technologies.
- **Data sharing policy:** A data sharing policy under the Bangladesh Forest Department has been developed and submitted to the Ministry of Environment, Forest and Climate Change to facilitate access of forestry-related data to stakeholders involved in forestry.
- **Develop the Bangladesh Forest Information System (BFIS):** The BFIS administered by BFD provides access to well-documented and robust forest-related data.

Results

- The capacity of 200 officers from BFD has been strengthened in data collection, archiving, management and analysis.
- Four web-based modules have been developed under the BFIS. The modules provide information and data on country-specific emission factors, allometric equations, forest land records, forest cover, BFI data and tree species.
- In total, twenty-five agreements have been signed with universities, national and international organizations for providing technical support for the development of maps, databases and manuals. With the support of national and international stakeholders, seventy maps, six databases and seventeen manuals have been produced and published on the BFIS.
- More than twenty R scripts have been produced for statistically analyzing the biophysical and socio-economic data obtained from the Bangladesh forest inventory (BFI).
- Country-specific databases developed for emission factors for GHG and allometric equations, wood density and carbon for tree biomass calculation, R scripts for forest inventory data analysis, tree species, land record, land cover 2015, cadastral survey maps.

Training on open source data collection tool Open foris.
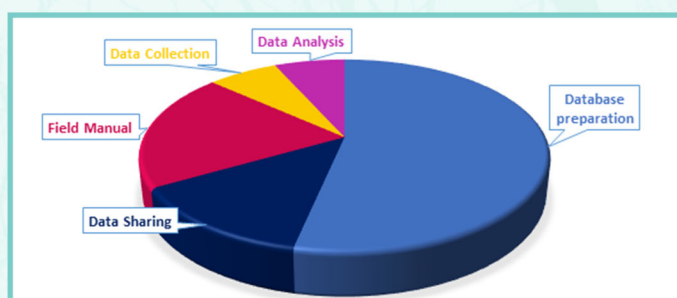
Number of agreements signed with institutions for providing technical support.

Selected references

1. Islam, K. M. N., et al., 2016. "Proceedings of the National Training Workshop on data sharing, institutional arrangements and tools for GHG gases for the Agriculture, Forestry and Other Land use sector". Bangladesh Forest Department, Food and Agriculture Organization of the United Nations. Dhaka, Bangladesh.
2. BFD, 2018. "Data Sharing Policy of the Bangladesh Forest Department". Bangladesh Forest Department, Food and Agriculture Organization of the United Nations internal document. Dhaka, Bangladesh.

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