

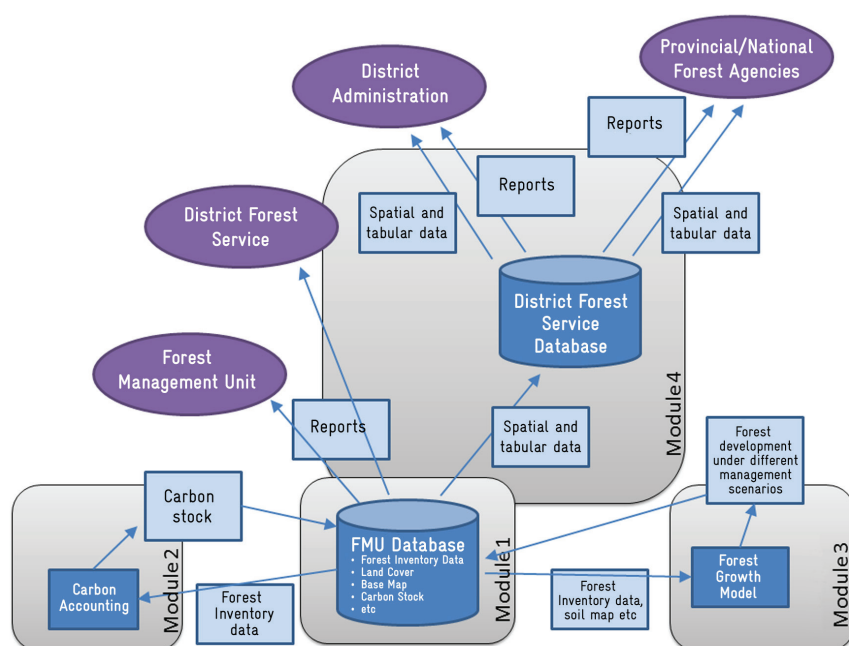
Support for the Setup of a District Forest Management Information System (DFMIS)

Why Support the Development of a DFMIS?

Modern forest management systems provide advanced controlling, planning, monitoring and analysis tools and procedures. Rational decision making for Sustainable Forest Management (SFM) and spatial planning needs reliable and trustworthy up-to-date information based on technical, ecological, economic and social data. An information system is one tool that can be instrumental for informed decision making in forestry. The scope of DFMIS will be to collect, store, process and analyse data of planned Forest Management Units (FMU) and of district's forest areas. The challenge is not only to provide continuously updated data on all forest functions but also to customize the system according to regional and local conditions. Forecasting tools regarding the steady growth process of forests hold the possibility to calculate alternative scenarios of sustainable management including various market strategies and management objectives for all forest functions. These tools will also provide data to support REDD+ activities that help to mitigate climate change and to adapt forest resources to climate change through silvicultural treatments and reforestation if necessary. The information system will also provide accumulated data for a Monitoring, Reporting and Verification (MRV) system and political decision-making at the provincial and national level by supporting a defined reporting system. Linking the DFMIS concept to the institutional and administrative structures of FMUs (see FMU box) will ensure that the information provided by the District Forest Management Information System is used where it is needed.

In 2010 Indonesia's Ministry of Forestry issued regulation P.02/Menhut-II/2010 on Forestry Information Systems (Sistem Informasi Kehutanan). This regulation provides a catalogue of data that should be managed by all Forestry agencies, with specific lists of data for the National, Provincial, District and FMU level. The DFMIS-concept of FORCLIME takes these requirements into account and will enable District Forestry Services and FMUs to fulfil reporting needs based on the above-mentioned regulation.

The structure and modules of the planned District Forest Management Information System (DFMIS)



Module 1: Database for Spatial and Tabular Data

Information about forests and forest-related activities is usually spatial information. Geographic Information Systems (GIS) are the tools of choice for creating, storing, processing and displaying spatial information and therefore GIS is used as the base for the District Forest Management Information System. Be it information about forest inventories, concessions, or stored carbon, when displayed in a map the interpretation and analysis of this data becomes more intuitive and clear. The major use of DFMIS will be in planning and management of forest areas, which is an intrinsically spatial task. Nonetheless a number of datasets without spatial reference also have to be stored and used. Therefore FORCLIME supports the development of a database for spatial and tabular data that can be used for a wide variety of management tasks related to forestry.

Module 2: Carbon Accounting

To prepare for the implementation of future REDD+ activities, detailed information about forest carbon stock and historical emissions are needed. To estimate these a combination of remote sensing methodology and field inventories is usually applied. The carbon accounting module will supply a series of carbon stock estimations that are generated from field inventories, allometric relationships and land cover change analysis. As input for the carbon stock estimates, it will be possible to use data from specific carbon stock inventories as well as data from inventories that are routinely carried out by forest services in Indonesia (IHMB; Inventarisasi Hutan Menyeluruh Berkala). Using IHMB data, empirical relationships between timber volume and overall carbon stock will be applied. The resulting estimations on carbon stock, baseline emission as well as projected carbon stock will be stored in the GIS module of DFMS and can provide input for an MRV system in the REDD+ context.



Module 3: Forest Growth Model for Prediction of Timber Growth and Carbon Stock

Sustainable management of tropical forests takes into account a number of factors, for example the socio-economic benefit, growth rates of forests or biodiversity aspects. In the context of the Reduced Emissions from Deforestation and Forest Degradation (REDD+) scheme, topics such as carbon sequestration and avoidance of CO₂ emissions also have to be considered. To allow forest managers to study the results of different management scenarios, a Forest Growth model is an invaluable tool. Growth models use data from forest inventories, permanent sample plots as well as supplementary information (soil or rainfall data for example) to predict the periodic development of a forest area in regard to its timber production, biomass and carbon content, as well as biodiversity. FORCLIME's approach is to couple the DFMS with such a growth model to allow the comprehensive assessment of different possible forest management options and their economic and environmental implications. As such, the DFMS is an important decision making tool for forest managers.

FORCLIME Programme

The Forests and Climate Change Programme (FORCLIME) is jointly implemented by the Indonesian Ministry of Forestry, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and KfW Entwicklungsbank (KfW).

The technical cooperation module supported by GIZ has three components:

Component I: Policy Advice, Strategy Development and Institution Building.

Component II: Implementation of Strategic Plans for Sustainable Forest Management.

Component III: Nature Conservation and Sustainable Development in the Heart of Borneo Area.

Module 4: Data Exchange and Reporting

For spatial planning at district level up-to-date information about forest areas is needed. In future all forest areas will be managed by FMUs. The detailed information from the FMUs needs to be accumulated and aggregated at district level. This extends the need for a pure reporting system but requires original data to be transferred regularly to the district forest service where it is then aggregated and can be used for spatial planning purposes, as well as reporting needs to the provincial and national level (based on P.02/Menhut-II/2010). DFMS supports the direct data exchange between FMUs and the corresponding district forest services, and the accumulation of data will enable them to improve their decision making processes. The exchange of forest carbon data with the national carbon accounting / MRV system will also be supported.

A Forest Management Unit (FMU) is an operational unit of manageable and controllable size predominantly covered by forests. The FMU has clear economic, social and ecological management objectives and a long-term management plan closely related to the main forest functions (e.g., protected forest, production forest). Operational and administrative tasks are determined by long-term management objectives and by forest managers (commercial companies, communities, state forest companies) operating in the area. The FMU is a legally established entity with clearly and permanently demarcated boundaries. The FMU is responsible for ensuring that all functions and services of the forests in the area are maintained, and that Sustainable Forest Management (SFM) is implemented. This is achieved by:

- Approving and controlling the forest management plans and operations of private forest managers.
- Providing advice/services and approving and controlling forest management plans and forest operations carried out by local communities.
- Directly managing forests not given to third parties for management (i.e., state forest operations).
- Helping to resolve overlapping claims that cause conflicts and may threaten forest functions.

Where there are plans to convert forestland to other types of land use, the FMU provides its expertise to higher forest authorities to ensure that their decision-making process considers the ecological, social and economic functions of the forests for which the FMU is responsible.

Forests and Climate Change Programme (FORCLIME)

Manggala Wanabakti Building, Block VII, 6th Floor
Jl. Jenderal Gatot Subroto, Senayan
Jakarta 10270
Indonesia

Tel: +62 (0) 21 572 0214

Fax: +62 (0) 21 572 0193

<http://www.forclime.org>