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META-EVALUATION OF PREVIOUSLY EVALUATED ITTO PROJECTS

Lessons learned & good practices towards sustainable management of tropical forests

Summary Report

1. Inventory, mapping, zoning and monitoring of the tropical forest resource

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THEMATIC SUMMARY REPORT No. 1

INVENTORY, MAPPING, ZONING AND MONITORING OF THE TROPICAL FOREST RESOURCE

1. INTRODUCTION

Elaboration of regional and national forest land management plans starts with an overview of all land uses and land use changes, of which forest is one important part. Zoning is made based on mapping of the designated areas to orient economic and conservation activities. Periodic forest resource assessment provides information for monitoring on the extent and characteristics of the forests on national and subnational levels that is necessary for policy design and planning of investments. There is also an increasing need to integrate forest resource information with complementary biophysical and socio-economic data for monitoring and planning purposes.

At the level of forest management unit (FMU), detailed mapping and periodic inventories are necessary for estimating the characteristics of the forest and its production potential of various goods and services. Forest inventory forms the basis of forest management planning, including zoning of the forest area for production, protection and multiple-use purposes. Inventory also provides baseline information for monitoring of changes in the extent and characteristics of the forest cover.

The development objectives of most projects in this area focus on the essential role of forest inventory and monitoring as necessary tools for effective conservation and sustainable management of national forest resources. The information on the resource is also related to data on production and trade in timber and non-timber forest products to monitor that the utilization of the forest resource is sustainable.

2. KEY ISSUES

- While technologies allow improved precision in assessing and monitoring forest resources, the needs for information have increased covering also environmental and social aspects. This is associated with forest management planning becoming more sophisticated, needs to monitor illicit activities in the forest areas, and necessity to have reliable information on the role of forests in climate change mitigation and adaptation, as well as on other environmental forest services.
- Engagement of a broad range of relevant stakeholders in policy development and forest monitoring also brings new challenges for the accuracy, coverage and timeliness of information on forest resources.
- Forest communities, landowners, forest industry and NGOs are major players in the forestry sector, and they are often identified as beneficiaries of the inventory and monitoring projects. However, they are not always meaningfully involved in the project design and implementation.
- The private sector needs information on national and sub-national forest inventories and resource assessments for planning their investments. In addition, enterprises are usually obliged to carry out inventories for forest management planning in areas which they are managing. However, the quality of their inventory work is not always adequate.
- Climate change has become a factor with major implications for SFM, especially issues related to REDD+. Resource assessments and inventories will increasingly have to include quantified information on the existing carbon stocks and their changes for regular monitoring.
- The same holds true with information on biodiversity, water, soil, and other natural resources. Several indicators on these environmental services can be included in forest resource assessments and inventories but others may require specific baseline studies and tailored monitoring approaches.
- Unauthorized activities, illegal logging and mining, and many other factors (often outside forest areas) impact sustainable forest management and may need to be addressed in the project design on resource assessment and monitoring.
- Markets for legal and sustainably produced timber require that the origin of products can be traced to the source where trees were harvested. This represents a new challenge for the accuracy of forest

monitoring systems.

- Lack of information or inconsistent and inaccurate data produced by different information systems is a major problem for policy design and monitoring of progress towards SFM. Inconsistencies are usually due to the lack of integration of various information systems in the country. A related issue is overlapping geographic boundaries of administrative units, tenure arrangements, and ecological zoning which calls for using Geographic Information Systems (GIS) but their establishment may need separate projects.
- Common other issues to address in resource inventory and assessment projects have included
  - insufficient national inter-agency coordination and cooperation in land-use zoning at appropriate institutional levels
  - lack of formal approval of land-use and zoning plans
  - need for tailoring forest inventory in logged over areas, secondary forests and trees outside forests
  - in pilot projects there is a need for provisions for necessary follow-up action to cover the whole country
  - inadequate quality of mapping and zoning has reduced the reliability of forest management planning
  - weak capacity in data elaboration and analysis
  - inadequate reporting on the status of the forest resources although data may exist
  - limited access to data by relevant stakeholders
  - absence of effective strategies for data dissemination and information sharing

3. LESSONS LEARNED

Project design

- If relevant stakeholders are not involved in the planning of resource assessment, the results are unlikely to meet their information requirements reducing project impacts and efficiency.
- Good planning of the inventory design and implementation in pilot areas can lead to a standardized methodology to be applied in the whole country.
- Adequate Logical Framework Matrix is critical for effective project design and implementation in inventory and monitoring projects.

Project implementation

- Previous projects might have already had enabled the country to develop a system for collecting, processing and reporting forest resource data, but had not addressed e.g. establishing baselines or setting up a monitoring system. In such cases, new projects should fill the gaps in the existing system.
- There is often a need to link forest inventory data with other biophysical data and socioeconomic information (e.g. for elaboration of national natural resources development strategies, environmental monitoring, or poverty reduction strategies). Many projects have failed or their effectiveness has remained limited due to the lack of integration with other relevant data.
- Climate change needs to be addressed as an integral component of SFM to ensure that the forest sector can have access to the benefits from associated financing schemes. Considering these links at the planning phase has improved project effectiveness and efficiency.
- In the absence of previous adequate information on the forest resource, the inventory results can lead to

revisions of forest policy and legislation. Such potential implications should be considered already in the project design. However, the experience shows that policy change based on the project outcome can only be possible if there is a political will to adopt necessary changes.

- Lack of adequate expertise and specialized human resources in the Executing Agency to implement forest inventory tasks has often hindered the delivery of key outputs.
- If adequate training is not included in the project, sustainability of the inventory and monitoring activity after the project is not ensured. Rotation of trained specialized staff should be carefully considered as it can adversely impact project effectiveness and sustainability.
- Institutionalization of national forest inventories and associated monitoring of forest resources has proved to be necessary for the sustainability of projects in this field.

4. GOOD PRACTICES

Project design

- Forest inventory, mapping and zoning are long-term endeavors to be carried out periodically and they require detailed planning, specialized human resources and adequate financing.
- A detailed schedule is needed for inventory design, data collection, programming of fieldwork activities, as well as data processing, analysis and reporting, allowing effective monitoring of the project implementation.
- Inventory should be stratified to elaborate results for different geographic levels and forest types. The use of satellite images is usually necessary for stratification.
- Including indicators on biodiversity, water and soil, carbon in forest inventories is necessary for planning and implementing of SFM but it requires additional expertise and resources.
- Shortage of professional staff and expertise in key areas can require the use of external specialists. Their tasks should include training of national staff to ensure sustainability of the project. Staff rotation should be minimized during the project implementation period.
- Over reliance on external inventory and assessment consultants can be detrimental for building up national capacities and follow-up action in the long run. Adequate provisions in the project design should therefore be made to develop national capacities. In this regard, close collaboration with universities which have the expertise would be beneficial in training of relevant staff.
- Participation of universities and research institutes can ensure further development of the forest inventory methods and combining the physical forest data with socioeconomic information.
- Strong involvement of the private sector organizations helps obtain information on user needs and disseminate the project results.
- Participation of other relevant stakeholders on national and local levels (i.e. the level on which the data is collected and information is produced) in the project design is useful as they would also be key beneficiaries.

Project implementation

- Institutional strengthening as an explicit element in resource assessment and forest inventory projects can ensure broad impacts. In addition to the Executing Agency, other relevant institutions responsible for mapping, land-use planning and zoning, and environmental management can be strengthened.
- Analysis of inventory results needs to be related to data on timber production and harvesting of NTFPs to assess sustainability of forest utilization.
- Inventory data on non-commercial lesser-used species allows promotion of their utilization and marketing.

- A network of permanent sample plots throughout the country can provide on-going monitoring data on the detailed characteristics of the state (baseline) and change of the forest resource. Permanent plots would also crucial for continuous development of the inventory methodologies. Re-measurement is periodically needed and the results should be calculated and reported.
- A baseline report on the status of the forest resource should be produced incorporating the data gathered on socio-economic aspects, biodiversity, wildlife, and human impacts on forests, as appropriate.
- Annual budget allocations of the responsible Executing Agency ensure financing of the recurring costs of periodic forest resource assessments, re-measurement of the monitoring plots, as well as data analysis and reporting. Sustaining adequate budgetary resources may have to involve engagement of collaborating agencies and other users of data.
- An end-project workshop can validate the results and prepare for the next step. This is particularly needed in pilot projects to ensure their broader impact and formally incorporate inventory data in SFM planning processes contributing to project effectiveness and sustainability.

SOURCES

This thematic summary is based on the ex-post evaluation reports of the following projects:

PD 109/90 Rev.4 (I)	ASSISTANCE TO MODERNIZATION, RESTRUCTURING AND DEVELOPMENT OF WOOD-BASED INDUSTRIES IN CÔTE D'IVOIRE
PD008/95 Rev.1 (F)	MULTIPLE RESOURCES STRATIFICATION, MAPPING AND INVENTORY FOR THE FIRST FOREST ZONE IN GABON - PHASE I
PD063/97 Rev.3 (F)	SPECIALIZATION PROGRAM FOR FOREST TECHNICIANS ON SUSTAINABLE TROPICAL FOREST MANAGEMENT IN BOLIVIA
PD049/99 Rev.2 (F)	PILOT PLAN FOR THE SUSTAINABLE MANAGEMENT OF 10,000 HECTARES OF SECONDARY FOREST IN SAN LORENZO, ESMERALDAS
PD014/00 Rev.5 (F)	INTEGRATED PLAN FOR THE CONSOLIDATION OF THE BAGRE HIGHLANDS BIOLOGICAL CORRIDOR, PROVINCE OF DARIEN
PD023/00 Rev.4 (F)	PROMOTION AND TRANSFER OF KNOWLEDGE ON SUSTAINABLE FOREST MANAGEMENT MODELS TO TIMBER PRODUCERS
PD 85/01 Rev.2 (I)	STRATEGIES FOR THE DEVELOPMENT OF SUSTAINABLE WOOD-BASED INDUSTRIES IN INDONESIA
PD002/93 Rev.1 (F)	INTEGRATED PILOT MANAGEMENT OF THE NGUOA II FOREST NORTH - PHASE I: THE PREPARATION OF A MANAGEMENT PLAN
PD195/03 Rev.2 (F)	TO ESTABLISH A NATIONAL MONITORING INFORMATION SYSTEM FOR THE EFFECTIVE CONSERVATION AND SUSTAINABLE MANAGEMENT OF THAILAND'S FOREST RESOURCES