Forest statistics improve in Latin America

An independent evaluation of ITTO statistical development projects in Latin America finds that the projects have added significantly to the ability of countries to collect and analyse reliable forestry-related data

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ITTO recognises that reliable and timely forest statistical information is a strategic element in the development of policies for sustainable forest use. In 1996 the International Tropical Timber Council approved specific guidelines for the formulation of statistical development proposals in its member countries and has funded several such projects across the three tropical regions. Assessing the value of statistics' projects is important not only for ensuring that future projects build on the lessons learned, but also for taking stock of the state of forestry statistics and identifying remaining deficiencies.

At its 28th Session, the Council recommended the ex-post evaluation of four ITTO statistics-related projects and one pre-project (denoted PPD below) implemented in Bolivia, Colombia, Panama and Peru. These were:

- PD 34/94 REV.1 (M): 'Establishment and implementation of a forest statistical information system (Colombia)';

- PPD 5/94 (M): 'Implementation of a forest statistical information system (Peru)';

- PD 27/95 REV.3 (M): 'Establishment and operation of a forest strategic information centre (Peru), Phase I and Phase II – Stage 1';

- PD 44/96 REV.2 (M): 'Establishment of a forest statistics information system (Panama)'; and

- PD 1/97 REV.1 (M): 'Implementation of a national forest statistical information system (Bolivia)'.

The ex-post evaluation involved a review of technical documents and reports produced by the Council's Committee on Economic Information and Market Intelligence (CEM), interviews with project directors, and visits to the projects' areas of influence. The objectives of the ex-post evaluation were to determine the general efficiency and effectiveness of the projects, assess the degree to which they achieved their objectives, identify the lessons learned, and make recommendations for future projects. This article highlights the main aspects of the final report submitted to the CEM in November 2002.

Project context

Prior to the implementation of this suite of projects, the forest statistics' situation in the four countries was characterised by a limited availability of reliable and timely data, a wide dispersion of responsibilities, and a lack of integration and coordination between the institutions responsible for data processing. Moreover, the available hardware and software were inadequate and the human resource base lacked the necessary skills to manage and disseminate the data effectively.

Background

The evaluated projects were implemented between 1995 and 2001 by governments with the participation of governmental, non-governmental and private organisations. The main objective in all the projects was the establishment and development of a forestry statistical information system (Sistemas de Información Estadística Forestal—SIEF), comprising data collection, storage, processing, analysis, dissemination and access subsystems through the various stages of the forest production chain. The projects usually focused on staff training and the establishment of regional nodes that would collect data and transfer them via the internet or on disks, according to the region, to the system's headquarters.

The SIEFs developed under the ITTO projects can be visualised as 3-dimensional systems *(see figure)*. The first dimension (*x* axis) shows the methods, processes and outputs of the various statistical subsystems. The second dimension (*z* axis) shows the stages of the forest production chain at which data are collected. The third dimension (*y* axis) reflects the system's regional and national coverage. The three dimensions are intertwined and vary in nature depending on specific features in each country. *Table 1* shows a comparative analysis of some of the important characteristics of the developed systems.
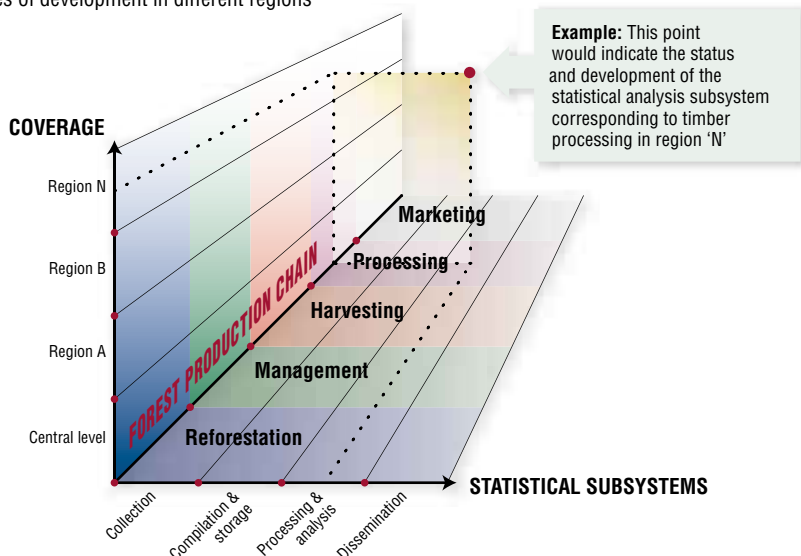
Project results

The SIEFs were implemented successfully under the ITTO projects and are currently operating with national coverage in each country, thus satisfying information needs at various stages of the forest production chain with the required data quality, timeliness and adequacy. Even though the projects were not designed to establish full national and regional networks, each of the four countries is continuing to expand coverage. Standard methodologies are in place for the statistical subsystems (data collection, compilation and storage, processing and analysis, and dissemination), with corresponding functional designs and databases established and operational.

The impact of the SIEFs can be seen, for example, in Bolivia. Forest authorities there reported that the availability of more reliable, timely and easy-access information has

Dimensions of a SIEF

A SIEF system typically comprises several subsystems at various stages of development in different regions

Example: This point would indicate the status and development of the statistical analysis subsystem corresponding to timber processing in region 'N'

Sieving the SIEFs

Table 1 SIEF characteristics in Latin America

	Bolivia	Colombia	Panama	Peru
Responsible institutions	Ministry of Agriculture and Rural Development (MAGD)	Ministry for the Environment. Currently, Institute for Hydrology, Meteorology and Environmental Studies (IDEAM)	National Environmental Authority (ANAM)	National Institute for Natural Resources (INRENA)
Project duration	March 1998–March 2001; 36 months	March 1996–February 1999; 36 months	October 1997–February 2000; 28 months	October 1996–September 2001; 52 months
Coverage	Headquarters in La Paz. Covers forest regions throughout the country. Nodes: Santa Cruz, Beni, Pando, Cochabamba, Oruro, Sucre, Potosí and Tarija	Headquarters at IDEAM, Bogota. Covers main forest regions in the country through regional autonomous corporations (CARs)	Headquarters in Panama City. Covers all forest regions	Headquarters at INRENA, Lima. Covers main forest regions. Nodes: Ucayali, Loreto, Madre de Dios and San Martín
Data collection subsystem	Partial use of MAGD intranet. Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through internet networks with local offices	Problems of integration between system institutions and difficulties in implementation due to political unrest in the country	Partial use of ANAM intranet. Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through internet networks with the Customs Directorate and Comptroller's Office (Dirección de Aduanas y la Contraloría)	Weaknesses in following up the capture of some basic variables. In the process of interconnected integration through networks
Compilation and storage subsystem	Central server in La Paz. Updated hardware/software. Intranet available	Good information technology (IT) at the central level and poor IT at the regional level. System being redesigned	Updated hardware and software. Intranet available. Interactive with geographic information system	Updated hardware and software. Intranet available. Interactive with geographic information system
Analysis subsystem	No major development after project completion. Stored data with great use potential	Partial development due to delays in data collection	No major development after project completion. Stored data with great use potential	No major development after project completion. Stored data with great use potential
Dissemination subsystem	Access to databases through the intranet at the central level and at the local offices of the Forestry Commission (Superintendencia Forestal)	Dependent on the development of above subsystems	Access to databases through the intranet at the central level and at the regional administration level	Access to databases through the intranet at the central level and at the regional administration level
Current status	Continues under ITTO Project PD 34/00 Rev.1 (M), which is extending the SIEF to forest production units (unidades productivas de bosque—UPB): www.siforbol.gov.bo	In transition to new Colombian Forest Statistical System (Sistema Estadístico Forestal de Colombia—SEFC) and Environmental Information System (Sistema de Información Ambiental—SIA): www.ideam.gov.co	The SIEF is being integrated into the new Forest Information System (Sistema de Información Forestal—SIF): www.anam.gob.pa/Sif2002/index.htm	Continues under Phase II Stage 2 of the ITTO project, which will incorporate new nodes in Junín and Pasco: www.inrena.gob.pe

assisted them in promoting, regulating and controlling the sustainable use and conservation of forest resources. In addition, the Bolivian Forestry Chamber, a private association of forest industrialists, reported that the SIEF had assisted it in its strategic planning activities, market surveys and forest product promotion.

The quality of statistical data in the targeted Latin American countries has improved significantly, although there are still some weaknesses, particularly in relation to the data collection and analysis subsystems (*see table*). Newsletters and statistical yearbooks are being published, which are proving to be excellent tools for dissemination and user-support. In addition, the websites of the various institutions responsible for these systems complement the dissemination process (web addresses are given in the table).

In terms of efficiency, the projects were implemented according to their workplans. A significant factor

in the high level of achievement and the quality of outputs was the personnel trained by the projects, who showed a high level of expertise and responsibility. The establishment of steering committees with the participation of major information-generating institutions in each country was another important factor. These steering committees monitored project progress and, in coordination with ITTO's CEM, were able to provide sound guidance to project implementation. This proved to be very useful because all the projects were affected by external structural, institutional, legal and technological changes.

An effective interrelation between human skills, the required technological level (mainly related to aspects of specialised hardware and software), and good project organisation and coordination as a whole were also key factors in project success. The implementation of these projects led to the development of workplans and approaches for institutional integration, but several difficulties remain that need to be addressed through the strengthening of inter-institutional cooperation.

The new SIEFs have satisfied to a great extent the information needs of users, meeting the expectations envisaged at the beginning of the projects. In all

countries the SIEFs now have legal and institutional bases and are likely to be sustainable. The projects have contributed effectively, both directly and indirectly, to the objectives and priorities of the ITTO Action Plan.

Main lessons learned

The design and implementation of projects to establish a complex information system such as a SIEF should be sufficiently flexible to adjust to the changing conditions of each country. The project steering committees can play a significant role in this respect. Institutional changes that can potentially affect the SIEF should be considered and reviewed carefully so that project workplans and strategies can be redesigned if necessary.

Project designs should take into account the nature of the institutional system, particularly whether it is decentralised or centralised. Where the structure is decentralised, regional bodies should be given greater responsibility than just the collection of primary data to encourage their participation; they can also play a significant role in other statistical subsystems related to data processing, analysis and dissemination. The scope of the regional bodies' functions and responsibilities should be agreed jointly with the central bodies according to the nature and operation of each of the statistical subsystems.

The host countries of the evaluated projects have differing degrees of regional development. These differences should be particularly considered in the development of a SIEF. For the initial phases of system development in particular, a strategy should be adopted that seeks the support of the stronger regions first and then allows for the gradual incorporation of other, lesser-developed regions.

The SIEFs have played and are still playing a catalytic role in discussions on forest issues at the national level in each of the four countries and have become active in joint initiatives. One of their major achievements has been to serve as points of convergence for various sector stakeholders.

Recommendations

In designing similar projects, we recommend that the scope of the development objective be limited to a minimal number of strategic and absolutely essential requirements, with a view to a gradual and progressive development of the system to achieve national coverage. The specific characteristics of the participating institutions should be taken into account in the construction and implementation of the system. In particular, project documents should:

- state specific objectives clearly and precisely, demarcating the four basic subsystems of the statistical process;

- clearly define the appropriate level of operational decentralisation for the system in accordance with the characteristics of existing institutional frameworks; and

- ensure flexibility for the adjustment of project workplans, both at project start-up and throughout the implementation period.

To ensure the wide use of statistical outputs, we recommend the publication of regular statistical newsletters, including by electronic means such as the internet, CDs and diskettes. Statistical methods to improve and optimise the data collection subsystem should be used, and there should be a focus on data analysis, especially in the use of data that have already been processed and stored to facilitate projections and forecasts.

We also recommend strengthening the connectivity between the regional and central networks of the various institutions participating in the system.

The latest communication technology, particularly the internet, should be used, not only for the dissemination of information but also for consultations and to facilitate the sharing of the various network and institutional databases.

Information reliability should also be addressed. Actions should be identified to address data collection anomalies, such as those arising from undocumented timber harvesting and transportation, timber seizure and subsequent auctioning, and timber stored and later sold. It is also necessary to identify and support the institutions and technical groups responsible for the processing of the ITTO/FAO/EUROSTAT Joint Forest Sector Questionnaire in each country to ensure that international data reporting obligations are met. Special consideration should be given to import and export data and to addressing the problem of unit conversion for different products.

In terms of system efficiency, we recommend that arrangements, plans and measures be established to develop and stabilise the integration and operational relations between the various central and regional institutions that make up the SIEF. For example, the Bolivian SIEF's mutual cooperation agreements concluded with major forest sector stakeholders throughout the country clearly specify the rights and obligations of each party in the system.

SIEF efficiency can be improved by establishing multidisciplinary teams for the duration of the project cycle and for the post-project period, especially in the fields of communication and information technology, forestry and environment, and statistics. Regional networks should continue to be strengthened through logistical support and technology transfer mechanisms, particularly via the central bodies and through the implementation of specific programs and actions at the national and international levels.

Acknowledgments