



Discussion and Conclusions

STATISTICS – LAND AND FOREST

The most significant contribution this study has made is the systematic collection, electronic storage, standardization and reporting of forest resources statistics which are directly relevant to the discussion of sustainable forest management, particularly for three regions: Africa, Asia and Oceania, and South and Central America. This process started with, and built on, the extensive efforts of the 1980 and 1990 Forest Resources Assessments.

- ❑ The GFSM has produced a statistical structure, which can be greatly improved over time to be a permanent forest reporting system at the global level. The statistical framework can also be modified to meet forest statistical reporting needs at the country level, thereby helping individual countries to meet their specific reporting requirements.

Obtaining good quality data requires extensive cooperation. Many countries have scattered subnational (frequently outdated) inventories as well as various field and research studies related to essential data needs. The data collected thus far conforms to the internationally agreed-upon definitions developed for the Forest Resources Assessment 2000 and for the sake of completeness includes comparable statistical data provided for Russia, Europe, Canada and the United States. Any inconsistency is due to the formidable challenges faced in translating data developed with a country's set of definitions and standards to internationally agreed-upon definitions and standards.

- ❑ More emphasis should be placed on the development of national forest inventories and appropriate linkages with many subnational forest inventories.
- ❑ Governments, NGOs, industry, research institutes, universities, and international agencies could benefit from a renewed commitment to a vastly improved process for sharing data and information on forests and their related resources.

Once a forest related statistical structure has been developed it needs improvement to include additional relevant statistics, input of new data as it is provided by countries and other sources and a constant analysis of data to ensure that the information is reflecting the situation in the country. The database also needs more input from other institutions that collect part of the data set used to conduct global studies.



- ❑ FAO could allocate more resources to the maintenance and continual improvement of the statistical database and models produced in the GFSM and related exercises.

Even the best forest statistics require extensive interpretation by analysts at virtually any spatial scale from the field level to the country level. The interpretation process could be greatly improved by more effective dialogue between analysts and major policy stakeholders.

- ❑ For FAO the credibility of the forest statistics would be improved by countries placing more emphasis on improving the interpretation process using a multistakeholder/expert review.

Forest available for fibre supply will eventually be converted, in most countries, from undisturbed to disturbed forest. The big proviso, of course, is whether the forest in question is likely to be economically accessible. Maintaining the same fibre supply from these forests, with the same fibre quality, will depend to a large extent on the prevailing types of the harvesting/silvicultural systems employed.

- ❑ To promote more concrete discussions over sustainable forest management it is necessary to start an expansion of the statistical system for the monitoring of prevailing harvesting/silvicultural systems and related price and cost information in order to better assess the amount of fibre available from natural forests and plantations.

Research conducted in the course of this project indicates that a serious issue in forest management globally is not deforestation but degradation which in the long run means the lack of higher quality fibres for use particularly in the sawmilling and veneer industry. Forest degradation is also related to issues such as biodiversity and the argument could be made that managing forest for higher quality fibres is likely very compatible with managing forest for biodiversity and a host of other ecological and social benefits.

- ❑ Special studies on low impact harvesting, improvement cutting and prevailing harvesting/silvicultural practices could be conducted in order to help with the assessment of forest degradation and to help propose solutions which will ameliorate negative forest conditions. These studies would provide valuable material for a multi-objective analysis of forest.

Industrial plantation fibre will play an increasingly significant role in the future in most regions as indicated by the current global afforestation rate and the significant increases in development gains being produced in plantations.

- ❑ The available plantation statistics and related models need to be developed further to allow for a description of forest plantations by more species groups and by age class.

For trees outside of forests, other wooded land and "other land" the statistics are far less clear. The data is simply not available to assess the role of these fibre sources in the future. These fibre sources are, and will continue to be, very significant in some regions.

- ❑ More attention could be paid to developing standardized definitions, methodologies for sampling, and data collection systems for trees outside of forests, other wooded land and other lands on which forests grow.

Overall, the statistics to assess potential fibre availability from natural and semi-natural forests, plantation forests and trees outside of forests and other land are inadequate in most countries. Many, including developed countries, still do not have adequate inventories at the national scale to reflect the dynamics of forest management.

- ❑ Continuous forest inventory systems would substantially improve the possibility to plan the management of forests, particularly the sustainable management of forests. FAO could work with its member countries to develop and maintain such systems.

Developing sustainable data collection and analysis systems requires that appropriate training capability be incorporated. With emerging communication tools there is an opportunity for far more effective interaction with country representatives at a comparatively low cost. The insights gained from having access to local expert knowledge are invaluable to the forest statistician.

- ❑ There is an urgent need for more capacity building in the area of forest statistics and to maintain a stronger network of contacts in all countries for the collection and review of data.

STATISTICS – NON-WOOD AND RECOVERED FIBRES

Non-wood fibre is likely to play an increasing role in the future as a product in itself and as a complementary fibre source for pulping. Utilization of non wood-fibre is not just a phenomenon of developing countries. Recent activities in developed countries suggest they are examining its potential as a major source of supply. The GFSM analysis of non-wood fibre is still very preliminary. A major concern relates to the environmental consequences of processing non-wood fibres.

Utilization of recovered fibre has technical limitations but there exists great opportunity to further utilize it as a major source of supply in some developing regions. Changes in public policies linked to the collection of recovered fibre could ameliorate shortfalls from other fibre sources. On the other hand, technological progress means these fibres are now also beginning to find uses in engineered wood products such as medium density fibreboard.

- ❑ Given the dynamics of change in fibre sources it is useful and necessary to monitor, on a more frequent and continual basis, recovered and non-wood material as a source of fibre.

FORECAST MODEL

A decision made in the GFSM project was to keep the modelling component relatively simple, readily transparent, flexible and user friendly. The study team also tried to build links between the model and some of the



critical factors that are directly related to supply. The primary reason for this strategy is that the team did not want the modelling portion of the exercise to detract from the main focus of the work – the systematic collection and storage of forest inventory data. When the forest statistics are of sufficient quality, then more complex models can be developed and utilized.

Forecasting for different regions and countries with different methodologies, assumptions, definitions and forecasting tools leads to different results. Unfortunately, there was not time to build a complex forecasting model that could be applied to all regions. More effective communication mechanisms with governments and their industry counterparts will be essential if global presentations are to be made in the future; otherwise it is legitimate to say we are comparing apples and oranges as far as forecasting is concerned since we do not have a common basis from which to start the modelling exercise.

It is also important that the forecasting or simulation tools be made even more flexible so that all critical variables can be easily manipulated to explore the impact of their change. For example, it is useful to have the ability to manipulate variables related to forest growth and mortality and the commercialization of species since these types of factors can have a huge impact on sustainable forest management.

- ❑ The modelling component of the GFMS could include more variables to help with the manipulation of the factors that influence fibre supply.

The plantation model used in this exercise was inadequate given the critical role plantations will play as a source of fibre since it should include more detailed age class and species group information to improve our forecasts. The assumptions used were developed by a group of plantation experts and translated by modellers into a framework that was compatible with our work.

- ❑ FAO could undertake a more extensive modelling exercise with plantation forests since the statistics warrant a more complex approach than for the natural forest.

PRICES, COSTS AND TECHNOLOGY

Throughout the text it has been noted that this is not an economic supply study and the focus of the efforts thus far has not been on price and cost information. This is a shortfall of the study but it became quickly obvious that the inclusion of such data was simply beyond the timeline and budget for the project.

The challenges in collecting this type of information in a credible way at a global scale are formidable for a number of reasons including: forest operations and governments are often very reluctant to release cost information since for competitive reasons it is a secret; log market prices are seriously distorted by policy-driven decisions such as export bans; transfer pricing in private operations is often driven by efforts to save on taxes; and, finally, there are no competitive markets for the forest fibre so prices are artificially established.

- ❑ Collecting price and cost information will require a substantial effort in order to develop a credible statistical system with this type of information. Despite the challenges it remains one of the logical next steps in the development of a comprehensive forest and forest products information system.

The role of technology has been highlighted in the study as a serious issue. Assumptions with respect to the role material efficiency will play are frequently unsubstantiated, from a statistical point of view.

- ❑ Material efficiency studies by major forest products group could be conducted in order to assess better the historic developments and future trends. These studies could include extensive research on conversion factors used to build links between forest products, raw material and forest resources.

POLICY DIRECTION FOR SUSTAINING OR INCREASING FUTURE FIBRE SUPPLY

Most analysts agree that demand for forest products will continue to increase. The potential availability of fibre to meet demand is the central question the GFSM starts to address.

Countries can and do make policy choices that will either maintain, or increase their fibre supplies. These include:

- ❑ Increase in the use of recovered and non-wood fibre;
- ❑ Expansion of the industrial forest plantation area;
- ❑ Intensification of investment in development (genetic and silvicultural) gain;
- ❑ Improved utilization of the natural forest fibre resource through better forest management planning and manufacturing processes;
- ❑ Changing or modification of harvesting/silvicultural practices to improve the long-term sustainable yield of the forest and at the same time protect the multitude of other forest values;
- ❑ Technological improvement to better utilize species and volumes.

There are, of course, many more policy levers that can be manipulated but they are beyond the terms of reference for this particular study. The movement of the levers is dependent on the decisions made by governments, industry, NGOs and the investment community and these agencies all depend on reliable statistical information as a starting point in the development of appropriate forest policies. Despite the shortcomings, it is hoped that the process developed and the statistics presented here can encourage a vigorous debate over the next steps the international community will take to encourage sustainable forest management.



