



# Introduction

## OVERVIEW

In late 1995, on the recommendation of the FAO Advisory Committee on Paper and Wood Products, the FAO Forestry Department initiated the Global Fibre<sup>1</sup> Supply<sup>2</sup> Model (GFSM). The study was intended to respond to several important policy questions: What sources of wood fibre exist today and where could we go in the future to find wood fibre to meet the growing demand for forest products? How much productive forest is needed to supply sustainably expected future fibre demand?

These challenging questions have important biological, economic, social, cultural and political aspects. This study does not make claims to address all these dimensions; rather, the work undertaken should be viewed as a "first step" in the FAO's more extensive and ongoing efforts to address these issues particularly through regional and global outlook studies. This first step is certainly an important one and is intended to make a significant contribution to progress in the development of supply and demand forecasting models<sup>3</sup>.

In general terms the study contributes to forest policy development by highlighting and underscoring the pressing need for reliable data, information and analysis on industrial fibre sources and their utilization. The study includes a compilation of the recent forest inventory statistics along with recovered and non-wood fibre data. The focus is primarily on the sources of industrial fibre as raw material for the sawmilling, wood-based panels, and pulp and paper industries.

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<sup>1</sup> Fibre is defined broadly as fibrous wood and non-wood raw material for primary industries producing sawn timber, wood-based panels, and pulp and paper products. While the majority of this fibre is harvested from forests and plantations, other kinds of fibre considered in this report include recovered paper, and non-wood fibres.

<sup>2</sup> Economists define supply in terms of a price-quantity relationship. Foresters also use the word supply to describe the physical capability of the forest to produce wood coupled with recognition of some constraints on availability imposed due to physical barriers, transport distance and legislation. Supply in this report means the wood production capacity of the forest adjusted for current and reasonable future limitations on availability.

<sup>3</sup> Binkley (1987) said: "The quality of extant data severely constrains further empirical work on timber supply models. A unit of effort spent on improving the data series available for timber supply analysis will have a greater return than the same unit of effort spent on estimation techniques or the inclusion of additional explanatory variables."

Brooks (1987) said "The most serious difficulty encountered in assembling a model of forest resource dynamics is not, however, the choice of an appropriate methodology, but the lack of consistent, comparable data for many regions."



A simple model was constructed and linked to the statistics to begin to reveal some of the issues affecting future developments in fibre supply. This modelling provides a first look at some of the major factors affecting supply for important producer countries in Asia/Oceania, Latin America and Africa.

## REPORT OBJECTIVES

The objectives of this report are to:

- ❑ Present current statistics useful in analysing fibre supply by region and a sample of what is available by country from the statistical database.
- ❑ Describe a simple model that could identify some of the potential sources of fibre supply and illustrates many of the major factors which have an impact on supply as we look to the future.
- ❑ Display some preliminary forecasts for Africa, Asia-Oceania and Latin America. These forecasts are offered to both invite further discussions on methodology and promote a discussion of the key factors influencing fibre availability.
- ❑ Summarize some lessons learned in the GFSM exercise and give direction for future development of the work.

This report summarizes a larger body of work completed in the GFSM efforts. Complementing this work is a series of working papers, a special edition of *Unasylva*, and a user-friendly database and computer model.

## UNIQUENESS

The GFSM builds a bridge between two existing priority programmes in the FAO Forestry Department – the Outlook Studies and the Forest Resources Assessment 2000 (see Figure 1). It does this by focussing on statistics currently weak or missing such as the collection and compilation of commercial forest volume inventory, forest growth and potential removal data for the developing regions – Africa, Asia-Pacific, and Latin America and the Caribbean. It will strengthen FAO's Outlook Studies in these rapidly developing regions by improving our statistics on wood fibre potential and complement existing econometric modelling of demand for forest products.

The GFSM is being monitored by representatives from the forest products industry, governments and research institutes. A special Steering Committee is providing guidance on the scope of the project and feedback on the information generated. Participation is encouraged through regional workshops, four of which have already been held.

The study was deliberately designed to avoid duplication of effort with other agencies working in the area of fibre supply. Therefore, to meet the terms of reference and for the sake of completeness, it incorporates statistics and forecasts from the International Institute of Applied Systems Analysis (Russia), the Economic Commission for Europe and FAO Geneva (Europe), and the Canadian and United States Forest Services (North America).

# FAO APPROACH

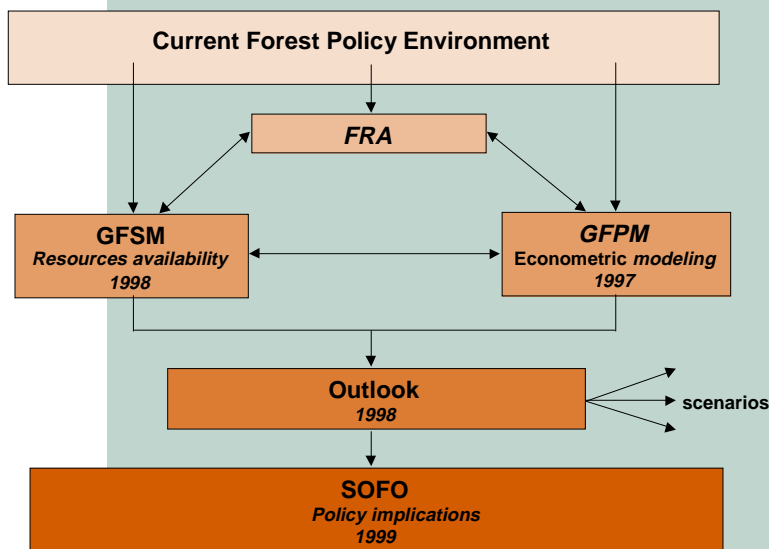
FAO has adopted a multiple-pronged approach in preparing outlook studies. The *Forest Resources Assessment (FRA)* provides foundation data on forest area and key characteristics of the forest resource. A *Global Fibre Supply Model (GFSM)* is providing a simulation model to forecast fibre supply potentials under different scenarios. Likely developments in the consumption, production and trade of forest products are provided through a *Global Forest Products Model (GFPM)*. These three components provide the analytical foundation necessary to support a set of scenarios to be presented as the FAO global *Outlook for Forests and Forest Products*. The scenarios developed will describe the adjustments required in forest

management, wood products production, consumption and trade in order to achieve certain desired future conditions for the forestry sector. The global *Outlook for Forests and Forest Products* will be developed after consultation with governments, industry and non-governmental organizations. The implications for policy will be summarized in the *State of the World's Forests 1999* (FAO's biennial review).

The approach described above is an iterative process, which will be

carried out on a periodic basis, with FRA2000 being the beginning of the cycle once again. Through it, the FAO Forestry Department hopes to contribute more effectively to the global forest policy debate on issues such as sustainable forest management, biological diversity and climatic change. In addition, it will assist in addressing questions such as: How will we meet the growing demand for wood products? Will technological advances offset changes in wood availability? What role can recycling and non-wood fibres play?

**Figure 1**  
*Forestry statistics and outlook studies processes*



# REPORT STRUCTURE

The report is organized as follows:

Section 2	Description of methodology
Section 3	Background for the study
Section 4	Current fibre supply situation
Section 5	Impact of major supply factors
Section 6	Alternative futures
Section 7	Discussion and conclusions
Annex 1	Statistical summary of forest area, growth, volume, harvesting intensity (potential removals) and alternative fibres and plantations plus summary of possible futures for some regions
Annex 2	Major definitions and classification