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The development of European forest resources, 1950 to 2000

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Abstract

The study deals with the challenge of adjusting inconsistencies in the historical data series over time for the main forest resources parameters (forest area, growing stock and increment) based on the UNECE/FAO Forest Resources Assessments (FRA) source data. It describes the methods used to improve the quality of long-term series based on national inventory data and assesses trends for a number of European countries. It attempts to identify driving forces behind major long-term changes in key forest resources parameters.
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1. Introduction

The Timber Branch of the UNECE Trade Development and Timber Division carried out the study "The Development of European Forest Resources, 1950 to 2000: A Better Information Base (Gold, 2003)" in the framework of the European Forest Sector Outlook Studies (EFSOS) programme. This publication contains results of the study based on the analysis and findings for 18 European countries. Its aim is to open the discussion on the subject and to encourage further contribution from countries and individual experts in this area.

The objective of this ex-post analysis is to identify the driving forces behind the changes in main forest resources parameters (forest area, growing stock and increment) since the 1950s, i.e. it describes the impact from policy decisions, market behaviour and other exogenous factors on the evolution of forest resources in the past. The trends in the development of the forest sector and their driving forces, identified by the study, can be compared and contrasted between different countries and sub-regions, and should help to provide an outlook on the future development of the forest resources and forestry sector in the UNECE region.

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The study consists of two main components: (1) improvement of the quality of long-term inventory data, i.e. making figures comparable over time (to the extent possible), and (2) assessing the factors behind changes in forest resources.

This project follows on from the study "Forest Resources in Europe" (Kuusela, 1994), which describes, in a quantitative way, the development of European forest resources in the period 1950 to 1990. This publication was statistically based on data from the various UNECE/FAO Forest Resources Assessments (FRA) (1950–1990). Struggling to make data comparable within the multitude of countries in one FRA publication, the series of historical FRA publications does not provide a consistent set of data over time, because terms and their definitions had changed from publication to publication. The reliability of this approach, mainly the compilation of input information about forest resources, and corresponding data, was questioned due to the insufficient harmonization of the statistical basis. This is where the current project starts.

2. Statistical basis: Consistency and comparability issues

The statistical basis for this study are the various ''time related'' Forest Resources Assessment publications starting with the "Forest Inventory 1947" through the "Temperate and Boreal Forest Resources Assessment 2000" (TBFRA-2000), roughly published every 10 years. Various European Timber Trends and Prospects studies (ETTS), carried out by UNECE and FAO, as well as long-term national statistics have also been used for the harmonisation purposes. The transformation of the available FRA and ETTS data into a comparable over-time platform is a very difficult and ambitious task for the following reasons.

As terms and definitions have changed from publication to publication, it is not possible to get a comparable time series of data by simple compilation. For example, what was termed ''forest available for wood supply'' in TBFRA-2000 was reported (with some approximations) under various other terms in earlier assessments ("forest in use", "productive forest", "operable closed forest", "exploitable forest land") with changing definitions. Even the same term can be based on different definitions, e.g. ''forest in use'' in "World Forest Resources 1953" and "World Forest Inventory 1958". Taking these facts into account, it is necessary to remove, as much as possible, the data distortion due to "definitional" changes, in order to determine the "true" long-term trends, which can be used as a starting-point for a reliable policy analysis. The different interpretation of the changing definitions by the national correspondents makes this task still more complicated.

In addition to the lack of harmonization of historical FRA data, the actual availability (or non-availability) of inventory data makes it even more difficult to distil data for the years from 1950 through 2000 without missing periods. On the one hand, the study is confronted with data gaps for particular countries (especially in older publications, but also in some recent publications). On the other hand, data-tables for a lot of important terms (parameters) are completely missing, even if the definitions of these terms are reported in the publication. Particularly in older publications (prior to 1970), the combination of important parameters is missing; one can find, for example, data for ''growing stock on forest in use'', but no data for ''growing stock on forest" or "growing stock on accessible forest''.

Arithmetic difficulties arise from the fact that the FRA and ETTS publications have not been published at regular intervals. The following FRA publications have been published so far: "Forest Inventory 1947" (FAO, 1948), "World Forest Resources 1953" (FAO, 1955), "World Forest Inventory 1958" (FAO, 1960), "World Forest Inventory 1963" (FAO, 1963), "Forest Resources of the European Region 1970" (FAO, 1976), "Forest Resources of the UNECE Region 1980" (UN-ECE/FAO, 1985), "Forest Resources of the Temperate Zones 1990" (UN-ECE/FAO, 1992), "Temperate and Boreal Forest Resources Assessment 2000" (UN-ECE/FAO, 2000). Additionally, within these publications, the inventories to which the given data are referring took place in different periods (depending on the different countries). These inventory periods differ significantly from country to country. Worse yet is that especially in older publications sometimes no year/period of reference is indicated in the data-tables at all. In these cases, it is a serious problem for analysts to decide to which year a figure should be assigned.

For getting usable time series data for the last 50 years, the changes on the political map, namely

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