Fact sheet: the Global Forest Trade Model (GFTM) in the Bioeconomy modelling framework

Francesca Rinaldi, Ragnar Jonsson, Jesús San-Miguel-Ayanz

2015
Abstract

The Global Forest Trade Model (GFTM) is a partial equilibrium model of the global forest sector, with a European focus. GFTM shares the classical economic-mathematical formulation used by similar models, such as (most notably) the Global Forest Products Model and the Global Trade Model. GFTM is a stand-alone model, but designed to be fully integrated into a modelling framework for the Bioeconomy module of FISE. In particular, the GFTM will work in close cooperation with a forest resource assessment model, the European Forestry Dynamics Model (EFDM), both receiving inputs from and proving outputs to it. GFTM provides projections of consumption, production, and international trade of wood-based products (sawlogs, pulpwood, sawnwood, wood-based panels, pulp, paper, and wood pellets) for 48 countries and global sub-regions.
The Global Forest Trade Model (Jonsson et al. 2015) is a partial equilibrium model of the global forest sector. GFTM shares the classical economic-mathematical formulation used by similar models, such as (most notably) the Global Forest Products Model (Buongiorno et al. 2003) and the Global Trade Model (Kallio et al. 1987).

GFTM is a stand-alone model, but designed to be fully integrated into a modelling framework for the Bioeconomy module of the Forest Information System for Europe (FISE) of the JRC. In particular, the GFTM will work in close cooperation with a forest resource assessment model, the European Forestry Dynamics Model (Packalen et al. 2014), both receiving inputs and proving outputs. GFTM provides projections of consumption, production, and international trade of wood-based products (sawlogs, pulpwood, sawnwood, wood-based panels, pulp, paper, and wood pellets) for 48 countries and global sub-regions.

The feedback from one model to the other works as follows: EFDM provides as input to the GFTM the maximum sustainable supply of woody biomass for a given European country, accounting for legal restrictions and other bounds. This information is in turn used in GFTM as a constraint on the equilibrium supply of raw materials. Then GFTM derives equilibrium quantities of produced wood-based products in the country in question, and sends back to EFDM information concerning the amount needed to be harvested. Given this information, EFDM then updates the potential timber supply. This is a novelty compared to existing European modelling frameworks that so far have neglected the full loop from the economic model to the forest resource assessment model, with consequent propagation over time of systematic estimation errors.
The content of the information sent back to EFDM can, subject to the detail as regards forest land ownership in the data used by EFDM, be enriched by means of an external stand-alone model, the Expected Value Asymmetries (Rinaldi & Jonsson 2013; 2014). This latter model has a strong focus on forest owner characterization. Thus, EVA considers different categories of forest owners, characterized according to their preferences and objectives, and derives the preference-based optimal harvest level in order to satisfy the wood demand provided by GFTM. This is essential, since forest owner heterogeneity makes the distribution of forestland on owner types non-trivial, affecting the intensity as well as the allocation on forest age classes of harvesting activity, with an ensuing owner-type specific impact on forest development (Rinaldi et al. 2015).
References


Europe Direct is a service to help you find answers to your questions about the European Union.
Freephone number (*): 00 800 6 7 8 9 10 11
(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server http://europa.eu.

**How to obtain EU publications**

Our publications are available from EU Bookshop (http://bookshop.europa.eu),
where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents.
You can obtain their contact details by sending a fax to (352) 29 29-42758.

---

European Commission
EUR 27426 EN – Joint Research Centre – Institute for Environment and Sustainability

Title: **Fact sheet: the Global Forest Trade Model (GFTM) in the Bioeconomy modelling framework**

Authors: Francesca Rinaldi, Ragnar Jonsson, Jesús San-Miguel-Ayanz

Luxembourg: Publications Office of the European Union

2015 – 4 pp. – 21.0 x 29.7 cm

EUR – Scientific and Technical Research series – ISSN 1831-9424 (online), ISSN 1018-5593 (print)

ISBN 978-92-79-50918-6 (print)

doi:10.2788/237058
JRC Mission

As the Commission’s in-house science service, the Joint Research Centre’s mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

Serving society
Stimulating innovation
Supporting legislation

doi:10.2788/237058