

BOOK OF ABSTRACTS

FORESTS & SOCIETY
TOWARDS 2050



STOCKHOLM 2024
WORLD CONGRESS
26th **IUFRO**
FORESTS & SOCIETY TOWARDS 2050

Stockholm, Sweden
23–29 June 2024

Estimating GHG substitution effects in the building sector based on LCA data and statistics in line with IPCC requirements

T2.3 Contribution of wood-based products to climate change mitigation: State-of-the-art and research directions

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Abstract: The greenhouse gas emissions associated with the use of the renewable material wood can be divided into three main effects. On the one hand, The biogenic CO₂ emissions and their removals in sinks associated with the two carbon pools "forest" and "Harvested "Wood Products" as part of the biogenic carbon cycle. The third impact relates to the other emissions of the wood processing industry as part of the manufacturing sector.

The quantification of these climate relevant effects is carried out by means of various calculation methods on different scale levels with mostly different system boundaries (land or product system) and concerns temporally and spatially divergent dimensions (retro- and prospective effects). However, a well-founded and robust analysis of the climate relevance of the forest-based sector must always take into account all effects and impacts. This, in particular, applies to the estimation of possible indirect greenhouse gas reduction effects (substitution potentials) associated with the use of wood. For this purpose, several sources of data must thus be consistently combined with each other in accordance with the relevant methodological requirements.

Whereas the biogenic CO₂ emissions and their removals are best estimated in line with the the methodological requirements of the Intergovernmental Panel on Climate Change, the non-biogenic emissions of the wood processing industries cannot be determined with methods provided for national greenhouse gas inventories. This is why other approaches must be used. For this purpose, the internationally standardised Life Cycle Assessment method provides a sound basis. Especially for the construction sector, a European horizontal set of standards allows for consistently assessing the environmental performance of building products and buildings, including their Global Warming Potential.

The presentation shows how potential emission reduction effects associated with an increased utilization of wood in the construction sector can be assessed in line with requirements of Intergovernmental Panel on Climate Change and those international Life Cycle Assessment standards from the construction sector on the basis of a combination of i) standard-compliant and representative Life Cycle Assessment data of real existing wooden buildings and their functional equivalents ii) national building statistics, and iii) well-founded housing market forecasts.