

An assessment of the carbon footprint of tropical hardwood sawn timber production

ABSTRACT

The demand for sawn timber throughout the world is steady, as wood is one of the most important raw materials available to mankind. Yet, the production of sawn timber through sawmilling activities causes environmental issues and is perceived to have a potential effect on global warming. Studies on this aspect is very limited, especially for tropical hardwoods. The intention for this study was to evaluate the carbon footprint of manufacturing sawn timber from round wood using a gate-to-gate life cycle approach. The functional unit used was 1 m³ of rough green sawn timber. Primary data on yield and energy consumption during the sawmilling process were collected on a monthly basis throughout 2013. Greenhouse gas emissions, which include CO₂, CH₄, and N₂O, were determined using emission factors. The carbon footprint was then calculated on the basis of the equivalency factor, described as CO₂-eq. The carbon footprint assessment shows a result of 499 kg CO₂-eq/m³ and 696 kg CO₂-eq/m³ for Light Red Meranti and Dark Red Meranti sawn timber, respectively. The results showed that there were no significant differences in the carbon footprint of Light Red Meranti and Dark Red Meranti sawn timber production.

Keyword: Carbon footprint; Life cycle; Sawmilling; Meranti; Energy consumption