

Session 18. Wood as a green building material

Summary report

1- Past or present impacts of climate change on forests

Concrete and steel are major contributors to GHG emission. In Sweden life cycle analysis (LCA) of wood processing (from seed to mill) shows that the major energy consumption is in transportation (50 percent), logging and hauling (30-40 percent). Meantime public perception is fairly positive towards use of wood in construction and facilitated adoption of the environmental legislation in some countries. For instance policies on green building are in place in New Zealand and are underway in few other countries.

2- Future impacts of climate change on forests

Wood should be used to substitute concrete and steel in construction to reduce GHG emissions. The ecological footprint (CO₂ emission) in construction of wood houses can be further significantly reduced by using low emission energy technology, efficient production (drying and sawing) and short distance transportation. After being used as construction material, wood can be re-used to generate energy, substitute fossil fuels, and reduce future forest harvesting.

3- Future impacts of climate change on people and institutions

Utilization of wood for construction reduces energy use for construction, but does not significantly reduce energy to operate the buildings. Efficient energy supply system such as bio-based CHP plants, may reverse CO₂ emission of both production and space heating during the building lifetime. This would require wood processing wastes to be used to replace fossil fuels for the building heating.

4- Adaptation

Wood preservation can prolong lifespan of the wooden constructions. Most treatments are toxic, but there are also environmentally friendly hydrophobic treatments, e.g. oil. No negative effects on wood properties have been observed. Harvesting residues and recovered wood should be utilized in construction and heating to address forest conservation and adaptation targets.

5- Policies

The clear message to use wood as green and environmentally friendly building material has to be communicated much better, in particular to respond to negative campaigns by the cement lobby. Green building certification is an essential competitive tool for the wood construction promotion. Policies should support energy efficient wood based construction and utilization of recovered wood and wastes for energy generation.

Land-filling should be avoided in general, due to the emission of CO₂ and methane from landfills. Rather use of wood waste for energy is to be encouraged. Legislations already exist in Sweden. European legislation would be desirable. Carbon emission standards should be included in the building codes. A post-Kyoto protocol should address this issue. Collaboration in the forest sector is needed to promote wood as environmentally friendly building material.