

product end life and cascading into other products or uses (e.g. bioenergy). HWP sequestration does not take place just by production of HWP but by adding more HWP to the pool than what is being released back to the atmosphere.

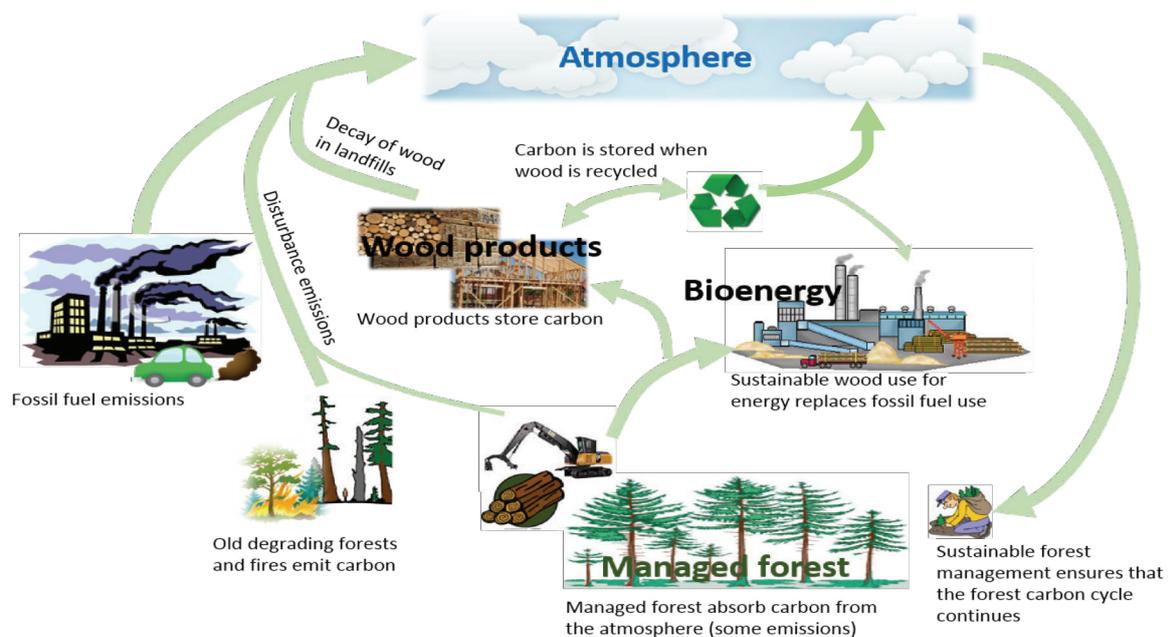


Figure A.1: A schematic representation of GHG flows between the atmosphere and forestry related activities including forest management, disturbances, wood processing emissions, net HWP storage and product substitution.

Product substitution is based on the concept of avoidance of emissions by replacement of processes or products using wood as a substitute (Stare and O Connor, 2010). Life cycle analysis (LCA) of wood products provides a way of measuring the CO₂ savings that can be made by use of wood products and replacement of high CO₂ emission potential products such as energy, cement etc. (Oliver, 2014). However, the accounting of product substitution is not included in C offsetting mechanisms, emission trading and C tax schemes due to methodological complexities and detailed data required to determine the extent of substitution. Potential sequestration can vary considerably depending on assumptions used and the system boundary used in the LCA (Stare and O Connor, 2010).

In order for emissions and removals to be accounted under International Climate Change Targets (e.g. Kyoto Protocol), C trading platforms or C tax schemes, certain well adopted principles should be adhered to such as permanence, additionality, leakage, robustness and avoidance of double accounting. Permanence of accounted removals is a particularly complex issue to address in the context of forest activities. All accounted forest and HWP removals should in principle be permanent to reflect real removals from the atmosphere. In this context, the relationship between emissions associated from harvest from forestland, the production of HWP and the decomposition of the HWP pool needs to be taken into account (i.e. accounting must ensure mass balance of relevant C flows).

Additionality is another principle which is difficult to deal with in the land use sector, in particular, accounted removals should be directly human induced and additional to historical trends to ensure