Annals of Tropical Research 25[2]:37-51(2003)

Philippine Forest Ecosystems and Climate Change: Carbon stocks, Rate of Sequestration and the Kyoto Protocol

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ABSTRACT

Tropical forests have a valuable role in relation to climate change, being a source and sink of carbon. This paper reviews the state of knowledge on carbon stocks and rate of sequestration of various forest ecosystems in the Philippines. Carbon density ranges widely from less than 5 t/ha to more than 200 t/ha in the following order: old growth forests > secondary forest > mossy forest > mangrove forest > pine forest > tree plantation > agroforestry farm > brushlands > grasslands. Carbon sequestration ranges from less than 1 t/ha/yr in natural forests to more than 15 t/ha/yr in some tree plantations. Land-use change and forestry make an important contribution in the national emissions and sinks. It is estimated that Philippine forest lands are a net sink of greenhouse gasses (GHG) absorbing 107 Mt CO_2 equivalent in 1998, about equal to the total Philippine GHG emissions. The clean development mechanism (CDM) presents a clear opportunity for Philippine forestry, if the threats are properly addressed.

Keywords: tropical forests; carbon budget; carbon sequestration; Kyoto Protocol.