

## Forest Management Practices as a Tool for Carbon Cycle Management in Forest Ecosystems. Experience of Canada

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**Key words:** Climate change, carbon balance, carbon sequestration by forests, carbon emissions, carbon stock, forest management practice.

*The adaptive capacity of forests to climate change and assessment of forest management as a tool to prevent and mitigate the greenhouse effect need to be further explored. The analytical evaluation of forest management that makes a substantial contribution to increase the carbon stocks, prevent and reduce the greenhouse gas emissions to the atmosphere is given.*

*The article summarizes the results of long-term research in Canadian province of Ontario. The main factors influencing on the carbon accumulation capability of boreal forests and the role of forest management to increase the carbon storage in forest ecosystems represented. Analytical studies supported by simulation with CBM-CFS software complex considered the national standard in Canada.*

*The strengthening the forest fire protection and forest damage prevention from pests and diseases also and gentle ways of logging contribute to prevention and reduction of carbon emissions. Outbreaks of insects in Canadian forests resulted in large-scale biomass losses are at greater risk than natural fires and logging turning the forests into the carbon emitter. Wood losses in forests from pests and diseases vary on average from 3.92 to 11.23 million m<sup>3</sup>, which is about 2/3 to 1/2 of the annually harvested timber volume in the Ontario.*

*The forest management focused on the preferential use of silvicultural techniques to prevent the biomass losses in forests since the public impedes to use as chemical and biological agents to control pests. The positive and negative effects of substitution the forest protection activities by silvicultural techniques that include the planting of mixed and uneven-aged stands resistant to damage represented.*

*Impact of different harvesting scenarios on amount of carbon stored in forests and derived wood products evaluated by computer simulation. This simulation found that impact of logging on carbon sink in boreal forests under the restrictions of sustainable forest management in the long-term perspective (100 years) is negligible. The impact of increasing the harvest rotation length on the accumulation of carbon in forest biomass and the impact of different methods of timber harvesting on carbon flows considered. The mean annual timber losses in forests that allow you to get an idea about the disturbances of the Ontario forests and the actual level of forest management summarized. Simulation results concluded that forest management activities promote to limit and reduce emissions of carbon dioxide in order to increase the carbon stock in forests and wood products.*