

Forest Carbon Management: Next Steps

An FPAC/WWF-Canada Status Update
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Context

The Forest Products Association of Canada (FPAC) and its members have established a goal to achieve industry-wide carbon neutrality by 2015, without the purchase of offsets. Accomplishing this goal will require action on a variety of fronts, including: reducing the direct and indirect emissions from manufacturing and transportation; enhancing the ability of forests to sequester and store carbon; and collaborating with forest product users to maximize the long-term potential of forest products to store carbon. WWF-Canada and FPAC are working together to develop strategies, plans and proposed actions to meet FPAC's goal and support the implementation of actions.

With specific regard to forest carbon management, an objective of the initiative is to help build the information base enabling FPAC members to make informed decisions that will create enhanced capacity for forests under their management to sequester and store carbon, while at the same time meeting social, economic and environmental objectives, including but not necessarily limited to the conservation of biodiversity.

Supporting documents

Numerous documents related to the Carbon Neutral Initiative and with specific reference to forest carbon, have been developed by or for FPAC.

- a) ***The Greenhouse Gas and Carbon Profile of the Canadian Forest Products Industry*** was prepared by the National Council for Air and Stream Improvement (NCASI) in 2007. This report provides a comprehensive assessment of the carbon profile of the forest sector in 1990 and 2005.
- b) The ***Scope and methodology for measuring the Greenhouse Gas (GHG) and Carbon Profile of the Canadian Forestry Industry*** was developed jointly by FPAC and WWF-Canada in October 2008. It summarizes the specific categories to be included in measuring FPAC's progress towards its carbon-neutral commitment and how they will be measured. It concludes with a preliminary list of potential measures that could be undertaken in order to reduce the sectoral carbon profile.
- c) ***Discussion of measures identified under the proposed FPAC/WWF scope and methodology ...*** (NCASI, January 2009). This report provides an initial qualitative assessment of potential GHG mitigation measures applicable to the forest sector.

- d) ***Potential climate change mitigation measures towards a carbon-neutral forest industry in Canada.*** This matrix, prepared by FPAC and WWF-Canada, provides a summary assessment of proposed measures, highlighting those that have the most potential for collective actions by FPAC and WWF to stimulate progress.

These documents are available at <http://wwf.ca/fpaccarbonneutral>. All of them address the full scope of activities included in the forest sector's carbon profile.

Three important qualifications

1. Collaborative work between WWF and FPAC on forest carbon management is intended to support FPAC's carbon-neutral commitment, and is primarily focused on exploring actions that could be carried out on the land base that provides fibre for the forest products sector.
2. While Canada's commitments under the Kyoto Protocol (2008-2012) include reporting and accounting for deforestation and afforestation, carbon stock changes due to forest management are not accounted for when it comes to determining compliance with Canada's overall target of 6% below 1990 levels. The details of any post-2012 international agreement, including eligible forest-related activities, are currently under negotiation. Our investigation of potential actions does not take specific consideration of the current or likely future inclusion of forest management activity in Canada's international climate change commitments.
3. There continues to be an interest in the possibility of "forest carbon offsets" that could be sold either in the voluntary offsets market or into various regulatory cap-and-trade systems. Our investigation of forest carbon management opportunities is intended to be "without prejudice" to any forest carbon market opportunities that may emerge. Eligibility for the offsets market(s) will depend on variables outside of our control (e.g. policies and protocols on eligibility, baselines, additionality, leakage and permanence), and it is not our intention to anticipate or address these considerations, nor to restrict ourselves to them when considering actions that might be undertaken by the forest industry.

Measures into Actions

Opportunities associated with forest carbon management and sequestration are being explored along three lines:

- a) Increasing the area of forests
- b) Maintaining and/or increasing the volume of carbon stored in existing forests; and
- c) Reducing deforestation.

Based in part on preliminary observations gleaned from the qualitative assessment prepared by NCASI (referenced above), ten specific actions for consideration have been identified. It is important to note that these actions, although listed separately, may affect each other. Thus, the net carbon impact is not necessarily a simple combination of two separate actions. Likewise, actions that increase or decrease the volume of forest products produced from a particular forest may affect the total volume of carbon stored in forest products and/or result in “leakage” impacts in other forests. For these reasons, it is difficult to make sweeping generalizations about the net impact of a particular action, and in the table below emphasizes the need for site-specific analysis.

a) Increasing the area of forests	
Creating new forests or plantations (afforestation)	Could be carried out by forest managers, but is more likely to be done by other landowners. Estimates suggest there are 11 million hectares of non-forest land across Canada having the potential for afforestation. High potential, but benefits are slow to accrue in the first years after plantation establishment. Environmental impacts will vary, based on the site condition prior to planting and the choice of species.
b) Maintaining and/or increasing the volume of carbon stored in existing forests	
Increased fire, insect and disease control	Could involve forest managers and/or government. Potential is relatively high, especially given observed and predicted trends that are influenced by climate change, but long-term impacts are uncertain, and there could be environmental concerns.
Lengthening rotation ages	Requires site-specific analysis, but could increase the forest (and carbon) volume by increasing the average age of managed stands. Increased risk of losses due to natural disturbances or mortality. Could result in reduced AAC levels, at least in the short term, but in some circumstances this loss may be offset by higher volumes and wood quality in future harvests. Generally positive biodiversity impacts, by increasing typically scarce late seral stage habitats.
Site restoration and rehabilitation	Could apply to forest managers as well as to other landowners with forest lands that have become degraded over time for a variety of reasons. Requires site-specific analysis, but potentially covers a wide variety of measures, including restocking NSR and degraded lands. Generally positive biodiversity impacts.
Reduced soil disturbance	Requires site-specific analysis, but could include the use of machinery and/or harvest methods with a “lighter footprint,” resulting in less soil exposure or disturbance, and thereby less decomposition and resulting carbon emissions to the atmosphere. Generally positive environmental impacts.
Avoidance of slash or broadcast burning	Requires site-specific analysis, but could involve using harvesting methods that redistribute logging slash and other methods intended to reduce the harvest-related losses of above-ground biomass. Generally positive environmental impacts.
Thinning	Requires site-specific analysis, and could include both commercial thinning as well as pre-commercial thinning. Carbon impacts vary over time and depend on site conditions. Long-term carbon storage potential is low to medium, and environmental impacts will vary.

Reducing harvest levels	Requires site-specific analysis, but could have a carbon-positive impact in situations such as the conversion of primary (old-growth) forests to managed secondary forests. Social, economic and environmental impacts will vary. See also the following action.
New logging deferrals or protected areas	Requires site-specific analysis, but could include a variety of actions (e.g. creation of new protected areas, logging deferrals in intact or old-growth forests, high-conservation forests or critical caribou habitat). Often requires involvement of government for long-term effectiveness. In general, these actions are primarily carried out in order to conserve biodiversity, and the additional carbon storage is typically an important secondary benefit.
c) Reducing deforestation	
Reducing deforestation	Could involve efforts by a variety of actors to reduce their footprints, including forest managers (reduced impacts of roads and landings) as well as woodlot owners, the agricultural sector and municipalities (reduced forest conversion to other uses). Hectare for hectare, reducing deforestation has greater carbon sequestration impact over the short term than planting new forests.

Information needs to support effective decision-making by forest managers

WWF and FPAC's collective objective is to encourage, support and assist FPAC members companies to incorporate forest carbon considerations in their forest management planning and activities. An important way to support good forest carbon management is to make the best possible information available to forest managers, in a practical format that will enable them to assess the potential relevance of various management options. As such, for each action deemed as having good potential to improve carbon sequestration an initial qualitative assessment was conducted, reviewing the actions in view of five considerations.

- a) relevance and potential scope of the action;
- b) costs and benefits (financial and other);
- c) case studies of successful or model approaches;
- d) barriers to implementation, and proposed ways to address those barriers; and
- e) potential impacts on the conservation of biodiversity

The qualitative assessment, carried out by NCASI, provided some preliminary information on these points in the broad context. This will in turn be helpful in determining more detailed information needs pertaining to specific actions. Ideally, this information will allow a forest manager to make an initial assessment of the actions having the most potential on a particular land base

Further site-specific analysis may also follow, for example with the aid of appropriate forest carbon modeling tools. One such tool is the Carbon Budget Model developed by the Canadian Forest Service (CBM-CFS3) which can be used to estimate current values and project future changes in above- and below-ground carbon within specific forest management units, based on management scenarios determined by the forest manager.

Next steps

The next steps include the following:

- 1. Ensure we have adequately identified specific actions that warrant further consideration. Could others be added? Which actions are likely to have the greatest potential relevance to forest managers?***
- 2. Identify the critical forest carbon information needed to support informed decision-making by forest managers. What information is already available? How can we best address any gaps?***

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