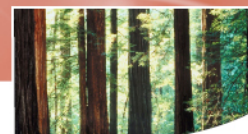




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# Data Sources and Methods: Sustainability of Timber Harvest Indicator

July 2011

Cat.#: En4-144/14-2011E-PDF  
ISBN: 978-1-100-18975-8

Canada

# 1 Introduction

The Sustainability of Timber Harvest indicator is part of the Canadian Environmental Sustainability Indicators (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues.

## 2 Description and rationale of the Sustainability of Timber Harvest indicator

This indicator compares the volume of timber actually harvested with the wood supply, an estimated volume of timber that could be harvested without endangering the forest resource in the long-term. It is one measure of Canada's forest stewardship and is more than a simple measure of volume of trees in the forest versus the volume harvested. This is because the estimation of wood supply involves a complex array of factors.

Sustainable forestry involves a timber harvest that is equal to, or just below, a sustained wood supply.

Wood supply levels are estimated for forests that are actively managed for timber, which is a subset of forests and other wooded land. In the List of Silvicultural Terms in Canada<sup>1</sup> of the Canada's National Forestry Database, a forest is defined as "an area managed for the production of timber and other forest products, or maintained under woody vegetation for such indirect benefits as the protection of watersheds, the provision of recreation areas, or the preservation of natural habitat". Other wooded land is defined in the State of Canada's Forests<sup>2</sup> as "areas of land where 1) tree canopies cover 5-10 percent of the total area and the trees, when mature, can grow to a height of 5 metres; or 2) shrubs, bushes and trees together cover more than 10 percent of the area. These areas include treed wetlands (swamps) and land with slow-growing and scattered trees. They do not include land that is predominantly agricultural or urban."

## 3 Data

Data for this indicator come from the National Forestry Database (NFD) which is maintained by the Canadian Forest Service at Natural Resources Canada. The data contained in the NFD are provided by provincial or territorial resource management organizations<sup>3</sup> and federal government departments.

The total area of Canada is from Natural Resources Canada's Atlas of Canada.<sup>4</sup>

## 4 Methods

Total wood supply is compared to total harvest:

Wood supply, the volume of timber available for harvest, is estimated for each province and territory. Provincial and territorial wood supplies are summed to estimate Canada's total wood supply.

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<sup>1</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database, List of Silvicultural Terms in Canada](#). Retrieved on 21 December, 2010.

<sup>2</sup> Natural Resources Canada (2010) [The State of Canada's Forests Annual Report 2010, Statistical Profile Source and information](#). Retrieved on 21 December, 2010.

<sup>3</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database, Partners](#). Retrieved on 21 December, 2010.

<sup>4</sup> Natural Resources Canada (2001) [The Atlas of Canada: Land and Freshwater Areas](#). Retrieved on 21 December, 2010.

Each provincial or territorial contribution to total wood supply<sup>5</sup> is the sum of:

1. the estimated Annual Allowable Cuts (AAC, known as Allowable Annual Cut in B.C.) for province-owned or “provincial Crown” lands

This is volume of wood, estimated by professional foresters, that may be sustainably harvested each year from provincial Crown lands. Provincial Crown lands make up 77% of Canada’s forest and other wooded land, but the proportion varies by province. (Details on land ownership by province can be found in The State of Canada’s Forests Annual Report 2010.<sup>6</sup>) Most provinces establish AAC levels for their Crown lands based on a policy of maintaining a non-declining future wood supply while considering a complex range of factors. For example, AAC levels may be decreased in order to maintain animal habitat or increased in light of silvicultural investments like tree planting. The importance of individual factors to the AAC varies significantly among provinces and even among forest management areas within provinces because of regional differences in forestry policies. The extensive rationale behind an AAC determination for an individual forest management area is under provincial jurisdiction and additional information may be obtained from provincial resource management organizations.<sup>3</sup> with

2. estimates of wood supply on federal, territorial and private lands.

Federal and private lands account for 16 and 7%, respectively, of Canada’s forest and other wooded land. Wood supply estimates are based on sustainable management plans (when available) or on past harvest levels. Estimation methods may be similar to those used for AAC but such estimates are not standardized among private woodlot owners.

The 2009 ownership (provincial Crown vs. federal, territorial and private lands) breakdown of wood supply by province is available from the NFD.<sup>7</sup>

**Total harvest** (from the NFD Table 5.1 D6<sup>8</sup>) volumes refer to roundwood,<sup>9</sup> which includes: sections of tree stems, with or without bark, logs, bolts, pulpwood, posts, pilings, industrial fuelwood and household firewood. It does not include other forest products like Christmas trees. Canada’s total harvest is an aggregate of

1. the reported total roundwood harvested from provincial Crown lands

Provincial laws require harvest from such lands to be reported and compared against the AAC value for individual forest management areas. Though the harvest must not exceed the AAC over multi-year regulation periods, a deviation by as much as 50% may be allowed in a given year. Regulation periods are 5 to 10 years in most cases. This provides the forestry industry with flexibility to respond to market conditions, while periodic limits ensure the long-term sustainability of supply.

and

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<sup>5</sup> Canadian Council of Forest Ministers (2011) [National Forestry Database, Wood Supply – Background](#). Retrieved on 21 December, 2010.

<sup>6</sup> Natural Resources Canada (2010) [The State of Canada’s Forests Annual Report 2010](#). Retrieved on 21 December, 2010.

<sup>7</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database, Wood Supply Quick Facts](#). Retrieved on 21 December, 2010.

<sup>8</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database, Total roundwood harvested](#). Retrieved on 21 December, 2010.

<sup>9</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database, Glossary – Forest Products](#). Retrieved on 21 December, 2010.

2. the roundwood harvested from federal, territorial and private lands.

Because there is generally no legislated mechanism to report harvest on these lands, these volumes are estimates by either provincial or federal forest authorities. Harvest from such lands is unregulated, meaning that harvesters are not required by law to compare their harvest to a sustainable level.

## 5 Caveats and limitations

- In some cases, figures are either unavailable or too small to be expressed or included in the national aggregate values. Detailed caveats on the quality or completeness of annual data from individual provinces, including explicit indications of which data are estimates, can be found by generating customized reports from the NFD.<sup>10</sup> Using this database, supply and harvest can be viewed by year, wood type (hardwood/softwood) and by land jurisdiction (provincial, private, federal and territorial).
- National aggregation can mask harvests above or below the AAC in individual provinces. Similarly, the provincial aggregates can mask variability among management areas. If harvest above the AAC occurs in a portion of a reporting period, it may be balanced elsewhere such that the overall AAC of the reporting period is not exceeded.
- A large percentage of forest land in Atlantic Canada is privately owned. According to the State of Canada's Forests 2010,<sup>6</sup> forest land is 50% private in New Brunswick, while it is 68% private in Nova Scotia and 91% private in Prince Edward Island. In Newfoundland and Labrador, forest land is 99% provincially owned, but 69% of the timber rights on this land is leased on 99 year leases to pulp and paper companies, and so it is treated as private property. Because of the high percentage of private lands in Atlantic Canada, provincial agencies that determine AACs also must assess the potential timber supply on private lands. The assumed percent of private forest available for harvest differs by province. In New Brunswick, for example, 100% of private woodlots are considered available for timber supply, while in Nova Scotia only 60% are assumed available for harvesting. Because private woodlots are unregulated, there is uncertainty associated with this portion of the wood supply equation.
- Wood supply estimates for federal, territorial and private lands are sometimes based solely on the average of actual past harvests, which are unregulated. For now, even though estimates are provided, it is difficult to be certain whether harvest is sustainable for these lands.
- CESI uses the total area of Canada (land and water) to calculate the proportion of the country covered by forest and other wooded land. Figures in The State of Canada's Forests and the National Forestry Database include "other land with tree cover" and exclude uninventoried areas.

## 6 References and further reading

The State of Canada's Forests, Natural Resources Canada Annual Report 2010  
(<http://canadaforests.nrcan.gc.ca/rpt>)

National Forestry Database  
([http://nfdp.ccfm.org/index\\_e.php](http://nfdp.ccfm.org/index_e.php))

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<sup>10</sup> Canadian Council of Forest Ministers (2010) [National Forestry Database. Create Your Own Report.](#)  
Retrieved on 21 December, 2010.

Canada's National Forest Inventory  
(<https://nfi.nfis.org/home.php?lang=en>)

Natural Resources Canada  
(<http://www.nrcan.gc.ca/com/index-eng.php>)  
Canada's Forests  
(<http://canadaforests.nrcan.gc.ca/>)  
Sustainability indicators  
(<http://canadaforests.nrcan.gc.ca/indicator>)

Canadian Council of Forest Ministers Criteria and Indicators Report 2009: [Marking Canada's Progress in Sustainable Forest Management](#)