

# Measuring our progress: Putting sustainable forest management into practice across Canada and beyond



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## Putting Sustainable Forest Management into Practice Across Canada and Beyond

When Canada's forests make media headlines, the news is often bleak: the softwood lumber dispute, the mountain pine beetle epidemic, confrontations between environmentalists and licensed harvesters, and mill closures. Yet, there is a good-news story—one that has been quietly developing in the background over the past two decades. Contrary to the impression by some that all is not well in the nation's forests, this story, although worthy of a headline, has yet to grace the front pages of the nation's newspapers.

The good-news story is that of *sustainable forest management* (SFM) which, conceptually and practically, is changing the way public and private forests are being managed in Canada and around the world.

Canada has played a prominent role in bringing SFM into being and in promoting it as a wise *modus operandi* both across the country and internationally. Canada has developed and acted upon an innovative framework of *criteria and indicators* (C&I), a key tool that is now helping to make the practice of SFM a reality.



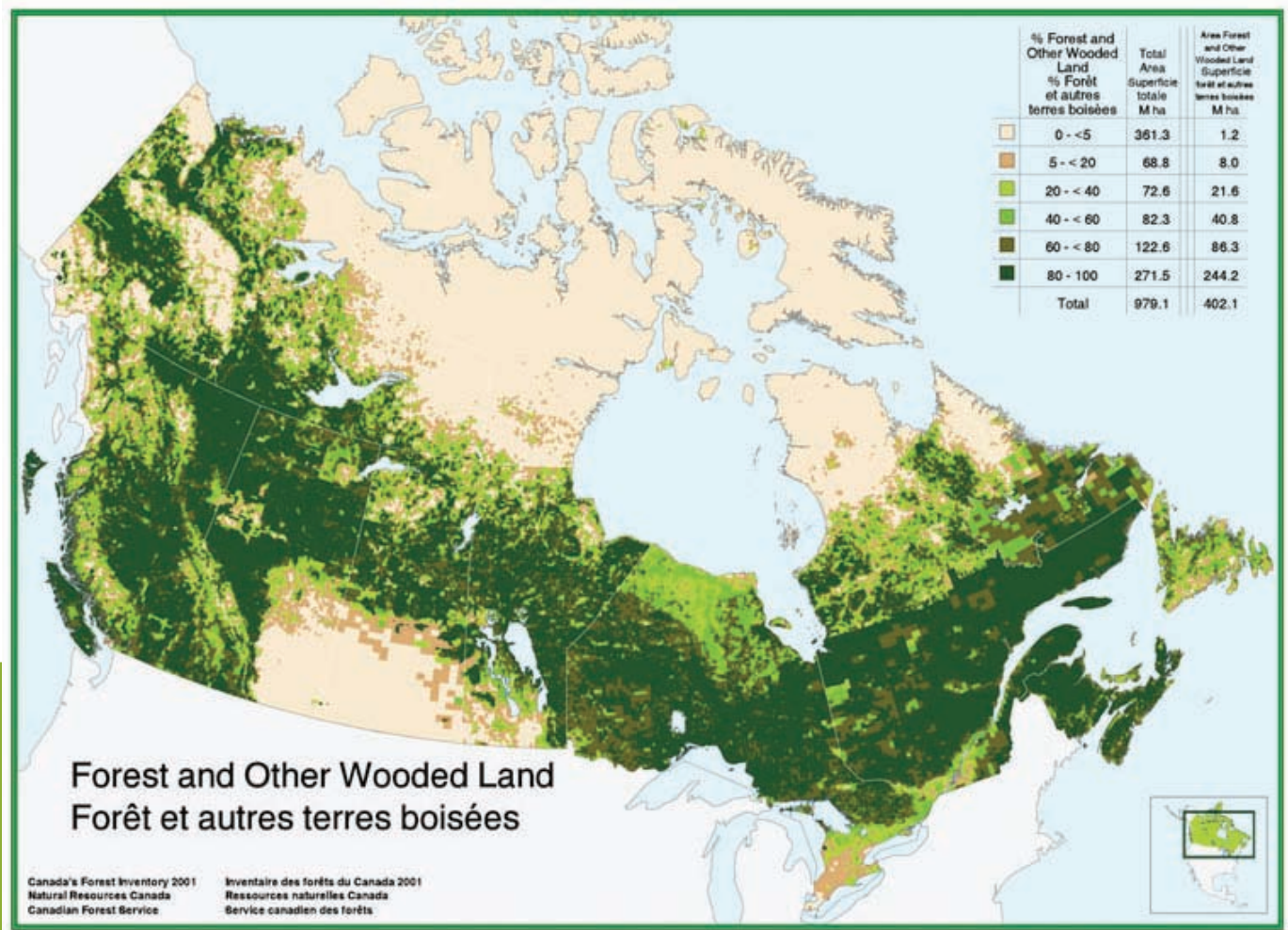
# The Challenge of Sustainable Forest Management

Canada was one of the first members of the international community to declare its support for SFM at the 1992 UN Conference on Environment and Development in Rio de Janeiro, Brazil. The “sustainable” part of SFM refers to the way we use the forest, not how much we produce from it, as was historically the case. And the “forest” part refers to a wide range of the resource’s values- not just wood volume harvested, board feet milled and jobs created— but also mushroom volume harvested, streams protected and wildlife habitats conserved. It is the combination of these ideas that make SFM so necessary and yet so challenging, as policy-makers, managers and anyone else who cares about the country’s forests work at balancing a wide range of values—environmental, economic, social and cultural—for present and future generations.

*Sustainable forest management (SFM) consists, in part, of actions or programs that are ecologically viable, economically feasible, and socially desirable. The set of values, geographic scales, and time horizons considered within the realm of SFM has expanded greatly over the last decade, adding to an already complex policy and operating environment.*

National Forest Strategy Final Evaluation Report,  
(2003-2008)

This is where criteria and indicators come in. Together “C&I” help define what SFM looks like at national, regional and local levels. A C&I framework is a means of helping any group of stakeholders recognize and manage for an array of forest values.



## The Power of Criteria and Indicators

Just as the state of a person’s health or the state of a country’s economy can be assessed based on a set of indicators, so can the state of forests be assessed. C&I serves as a practical, science-based tool giving all interests—from federal and provincial resource regulators and policy-makers to forest companies, certification bodies and small woodlot owners—the ability to define, assess, monitor and report their progress in achieving SFM on public and private lands (see sidebar).

*Criteria* define the range of forest values—environmental, economic, social and cultural—considered to underpin SFM. Each criterion describes a significant aspect of sustainability. An example from Canada’s national C&I is “Ecosystem Condition and Productivity,” which refers to the ability of forest ecosystems to cope with, and recover from, natural and human-caused disturbances while maintaining productivity.

How each criterion actually gets assessed is detailed in a set of indicators. These are objective measures for which data can be collected and summarized. Under “Ecosystem Condition and Productivity,” two sample indicators are “Additions and deletions of forest areas by cause” and “Area of forest disturbed by fire, insects, disease and timber harvest.”

By recording information on the same *indicators* over time, C&I users can monitor changes and start to see trends in both quantitative and qualitative characteristics of the forest. Awareness of changes and trends is an important management asset that supports evidence-based decision-making at all levels.

### The Benefits of Using Criteria and Indicators (C&I)

As a tool for helping sustainable forest management efforts advance and adapt to ever-evolving norms, C&I offer a host of benefits. In the simplest terms, they:

- set the stage for how to gather and integrate information by jurisdiction and by time period;
- provide a means of managing a wide range of stakeholder values and expectations;
- through adaptive management, help point the way to improving practice; and
- enable data collection and status reporting to be standardized so that a jurisdiction can track its progress over time and make improvements.



## Made-in-Canada C&I

Canada's involvement with C&I dates back nearly 15 years. In 1992, the first in-depth, multinational seminar on C&I was held in Montreal. Out of that gathering came strong support by Canada, Russia, the U.S. and nine other like-minded countries (since dubbed "the Montréal Process") for using C&I to define, measure and report on progress in SFM in boreal and temperate forests. This was followed by more than two years of effort during which government institutions, non-governmental organizations and the private sector collaborated on forging a suitable C&I tool. The results of that work—7 criteria and 67 indicators—were endorsed by the body in Santiago, Chile, in 1995. The Montréal Process C&I framework has since served as the basis for other C&I sets in all member nations.

To demonstrate its commitment to these efforts, the Canadian Council of Forest Ministers (CCFM) followed this up by developing a made-in-Canada C&I framework. This effort, according to Peter Duinker, professor of resource and environmental studies at Dalhousie University, was no small matter. Duinker has been part of the Research Planning Committee of the Sustainable Forest Management Network since 2000. "The forest sector," he points out, "was the first to grab the concept of sustainable management and make a package of C&I at the provincial and higher levels. There are no national C&I in agriculture or in fisheries, for instance. Yet we managed to achieve them in the forest sector early on. It's quite an accomplishment."

The CCFM's first national C&I framework, developed with broad stakeholder input, was released in 1995 and included 6 criteria and 83 indicators. A thorough review and revision a few years later similarly involved a host of stakeholders across the country, from all levels of government and Aboriginal communities to industry members, woodlot owners, the environmental community and other stakeholder groups. The result of this extensive collaboration was a more finely tuned, trimmed-down framework of 6 criteria and 46 indicators released in 2003.



## The Wide Influence of the CCFM's C&I

The usefulness of most tools can be judged by the extent of their uptake. Thus, the fact that the national C&I “package” is becoming so widely adopted and adapted—both at home and abroad—speaks volumes. Today, many provinces and territories, non-government organizations, industry groups, certification bodies, researchers and even other countries are looking to the CCFM's framework for the many benefits it offers (see Table 1).

### C&I Use at the National Level

In 2000, Canada was one of the first countries to use its C&I framework to measure the country's SFM progress. Canada produced its second "National Status C&I report" in 2005. Since then, Canada has used C&I in evaluating the fifth National Forest Strategy in 2008 and the C&I are now being looked at as a possible tool for measuring and assessing Canada's performance in achieving its next forest vision. Canada continues to work hard to consolidate reporting on various national and international initiatives using C&I and to make C&I a recognized source for national forest information. Canada plans to produce a series of updated reporting products in 2009 and continues to update national trends and status relating to CCFM C&I on the internet.

### C&I Use at the Provincial Level

Every province and territory has given support to the CCFM C&I process. Responsibility for forest management in Canada lies largely at this level, therefore each jurisdiction has decided for itself how best to integrate

the C&I in its forest management policies, practices and accountability. Three provinces—British Columbia, Ontario, and Newfoundland—now legally require the use of indicators to assess SFM practices. Six provinces produce state-of-the-forest or state-of-the-environment reports that have drawn from the CCFM's indicators. Forest management plans have either drawn directly from the C&I (Ontario) or indirectly (Alberta, Manitoba and Yukon).

Tom Niemann was the driving force behind British Columbia's Ministry of Forests and Range State of the Forests report, first issued in 2004 and then in 2006. Niemann, to whom the job of both developing and reporting on indicators was assigned, used the Montréal Process and CCFM indicators as a starting point to develop British Columbia's 24 indicators. The 2004 report addressed 6 of those, the 2006 report covered 12, and the next report will include all 24.



Niemann says the feedback he's received is important to note. In response to the State of the Forests 2006 report, for example, he heard from Forestry Innovation Investment, a provincial agency that supports sustainable forest management, promotes product development and fosters international markets. Senior agency representatives applauded the report for its relevant criteria, "robust" data and the even-handed perspective it brought to the "ongoing debate about forest management."

Another benefit, reports Niemann, is how indicators have helped highlight information gaps. "We've found that even published data in some cases are incomplete—forest disturbance and reforestation statistics are one example."

### C&I Use at the Local Level

The Eastern Ontario Model Forest (EOMF) is one of 11 Model Forests in the Canadian Model Forest Network set up in 1992 by the Canadian Forest Service. The Model Forests represent local and regional interests on the ground, effectively "walking the talk" of SFM policy. Model Forests were subsequently required to use the CCFM's C&I framework to develop local-level indicators—that is, measures scaled down to suit regional and local conditions. This process, according to Brian Barkley, General Manager of the EOMF, was notable for the discussion and information exchange it instigated, "as valuable," he says, "as developing the indicators themselves."

But more than that, states Barkley, is that the whole effort and its results represent a major accomplishment that today other countries are looking to emulate. "Canada did a stellar job of taking indicators at a global level and, through the efforts of many, working them down to a geographic unit that means something at the local or forest-management-unit level."

*C&I have influenced people's understanding of what a state-of-the-forest report for the region means. Other groups, such as local stewardship councils, are now interested in adopting our approach for state-of-the-environment efforts. They're using our indicators as an example of how to get organized.*

Brian Barkley, General Manager, Eastern Ontario Model Forest

The EOMF's State of the Forest Report for Eastern Ontario (1998–1999) provided benchmark data on 18 indicators of ecological, economic, and social aspects of the region's 1.5 million hectares. Elizabeth Holmes, EOMF Project and Communications Facilitator, says that framework has now evolved to include more than 50 indicators and the approach is to report on these a few at a time, "in a more timely fashion," on the EOMF website.

### C&I and Certification

In today's global market, international buyers of forest products are eager to buy wood from forests that are sustainably managed. Certification is an important way to





indicate that minimum standards of SFM in a particular area have been met. One of the main certification programs used in Canada—that of the Canadian Standards Association (CSA)—bases its performance requirements directly on the national C&I and makes use of the C&I mandatory in third-party verification audits.

Peter Hall, a member of the EOMF's Forest Science Committee (the committee that provides science advice to the EOMF), points to the value that local-level indicators have had for certification. "Where industry is concerned, the indicators can be used like a checklist for knowing what it takes to become certified. C&I, in a sense, provide the rules and expectations that cover SFM. So, if a company knows that, it knows what it needs to do to earn certification."

*Canada leads the world in forest area that has received third-party certification. As of June 2007, over 134 million hectares of forest land under license was certified across the country. And nearly 60% of that (79.3 million hectares) was through the CSA sustainable forest certification program. Two other common certification programs used in Canada are the Forest Stewardship Council and the Sustainable Forestry Initiative*

Canadian Sustainable Forestry Certification Coalition

## C&I and Research

The federal C&I are also being used in several ways to identify, plan and manage research projects.

For instance, says Peter Duinker, current Chair of the SFM Network Forest Futures Project and of the Canadian Standards Association's SFM Technical Committee, some people have used the framework to identify research



gaps. "Take Criterion 1, Biodiversity," he offers by way of illustration. "Researchers would be able to say, 'We know how to investigate biodiversity matters. So let's examine an aspect of this indicator and deliver our results back into C&I.'" The results of this process are improved reporting on an aspect of SFM, as well as opportunities to improve the way C&I are used.

Others have recognized that C&I do a good job of describing many basic environmental, economic and social aspects of forest sustainability and are therefore using the framework to organize research. As Duinker puts it, many researchers can see the value of "tapping into the stability provided by the C&I. The thinking is: Why not use the themes derived from the C&I to organize projects rather than trying to come up with a whole new set of themes?" Applying SFM at the forest-management-unit level, adds Duinker, leads to a host of challenges around criteria use, spawning a lot of interesting research possibilities.



## C&I as an Export Technology

Canada's C&I framework, and its wealth of experience in applying the tool to advance SFM efforts, has generated international interest.

Many countries, a number belonging to the International Model Forest Network, are turning to Canada for assistance in developing and implementing their own C&I process at the local level. For example, John Hall, a C&I expert with the Canadian Forest Service, was invited to Argentina in 2008 to help the Argentine Model Forest Network in its work to better select, refine and implement local-level indicators. In another example, the Mozambique Department of Lands and Forests asked for Canadian assistance in setting up its own national C&I process. Working closely with the department head, Dr. Hall provided the content for a three-day national workshop held in Maputo in 2008 and helped the 50 participants identify suitable C&I and draw up a plan to put the C&I process into action.

As interest in SFM spreads, demand for a C&I framework—and for the people skilled at developing and applying such a framework—will increase the demand for Canadian know-how in this area.

## More to Come: Opportunities for C&I Application in Future

New opportunities for the application of C&I continue to develop. There's an obvious link, for instance, between conservation of biological diversity and SFM objectives. Regional C&I processes lend themselves well to efforts in monitoring and protecting biological diversity thereby enhancing Canada's commitment to implement and report on its national biodiversity strategy.

Forest audits are another area where the application of C&I is being considered. Third-party audit assessments of forest sustainability still often rely on qualitative evaluations and professional judgment. Increased use of C&I—as they are or as adapted for regional and local use—is an effective way of bringing more quantitative rigor to audit processes.

*Criteria and indicators are being used to shape national policies, regulations and legislation on forest management and, at an international level, to help countries track and report on the status and trends in their efforts to achieve sustainable forest management.*

Efforts are under way to bring about an even closer alignment between the CCFM's C&I initiative and national strategic directions pertaining to SFM. For example, using the C&I as a reporting framework for Canada's Forest

Vision would help close the circle from an adaptive management perspective: measure-assess-report-adapt-measure-assess ... and so on...creating a Canadian good-news forest story.



*"C&I processes lend themselves well to efforts in monitoring and protecting biological diversity..."*



Table 1. Application of Criteria and Indicators (C&I) in Canada

Level	How the national (CCFM) C&I are being used:
<p><i>National</i></p>	<p><i>National Forest Strategies</i></p> <ul style="list-style-type: none"> <li>• C&amp;I have played an important role in developing Canada’s National Forest Strategies for two decades, including the latest “Vision for 2008 and Beyond”</li> <li>• C&amp;I were used in the final evaluation of the National Forest Strategy (2003–2008).</li> </ul> <p><i>State of the Forests Reporting</i></p> <p>- ways of incorporating more C&amp;I information into future federal State of the Forests reports are being looked at</p> <p><i>Data Collection and Management</i></p> <ul style="list-style-type: none"> <li>• C&amp;I are providing the framework for coordinating national and international forest information collection and management; data for national C&amp;I reporting are managed principally through Canada’s National Forestry Database Program</li> </ul> <p><i>Links to Other Federal Indicator Reporting Initiatives</i></p> <ul style="list-style-type: none"> <li>• the forest C&amp;I are being used to contribute to indicator initiatives of other federal agencies, related to sustainable development and management; one example is Environment Canada’s Environmental Signals Report, which includes indicators on Canada’s terrestrial and aquatic ecosystems and whose forest indicators have links to existing CCFM forest indicators</li> </ul> <p><i>Research</i></p> <ul style="list-style-type: none"> <li>• C&amp;I are helping guide research at the national level; for example, the Sustainable Forest Management Network—an interdisciplinary, university-based research partnership made up of more than 150 university, industry and government institutions) uses C&amp;I as one means of identifying SFM research needs</li> </ul> <p><i>International Trade Support</i></p> <ul style="list-style-type: none"> <li>• C&amp;I reports help the federal government in its efforts to demonstrate Canada’s commitment to SFM and to promote Canadian forest products to an SFM-sensitive international marketplace</li> </ul>

Level	How the national (CCFM) C&I are being used:
<i>Provincial/Territorial</i>	<p><i>Forest Policies and Regulations</i></p> <ul style="list-style-type: none"> <li>• C&amp;I are being used in varying degrees by most provinces and territories to evaluate policies and regulations related to SFM</li> </ul> <p><i>State of the Forests Reporting</i></p> <ul style="list-style-type: none"> <li>• C&amp;I are now being used by at least five provinces as the general framework for a State of the Forests report and as a mean of accounting for provincial progress in meeting their SFM objectives; other provinces are in the process of adopting and adapting the C&amp;I in some form to suit their forest management situations</li> </ul>
<i>Local: Forest Licensees</i>	<p><i>Forest Management Planning</i></p> <ul style="list-style-type: none"> <li>• C&amp;I have been used as the basis for developing local level indicators (LLI) of SFM that are meaningful at a local scale; in turn, the LLI help guide planning, data collection, reporting and decision-making to meet provincial regulatory requirements for SFM</li> </ul> <p><i>Forest Certification and Forest Audits</i></p> <ul style="list-style-type: none"> <li>• C&amp;I/LLI are being used by forest licensees in support of work to meet certification standards, and by third-party auditors to evaluate performance relative to SFM certification standards</li> </ul>
<i>Local: Model Forests</i>	<p><i>Data Collection and Management</i></p> <ul style="list-style-type: none"> <li>• C&amp;I have been used as the basis for developing local level indicators (LLI) that are meaningful at a regional or local scale; in turn, the LLI help guide planning, data collection and decision-making at a regional or local level</li> </ul> <p><i>Reporting</i></p> <ul style="list-style-type: none"> <li>• A number of Model Forests and/or their partners are using C&amp;I as the general framework for reporting progress in meeting SFM objectives</li> </ul>



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