

**ENCULTURATION OF SUSTAINABLE FOREST  
MANAGEMENT SYSTEMS:  
LEARNING FROM THE CANADIAN EXPERIENCE**

**PAULA SHEEHAN**

**GOTTSTEIN FELLOWSHIP REPORT**

The information contained in this report is published for the general information of industry. Although all reasonable endeavour has been made to verify the accuracy of the material no liability is accepted by the Author for any inaccuracy therein nor by the Trustees of the Gottstein Memorial Trust Fund. The opinions expressed are those of the author and do not necessarily represent the opinions of the Trustees.

Copyright © Trustees of the J.W. Gottstein Memorial Trust Fund 1994. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the Trustees.

## JOSEPH WILLIAM GOTTSTEIN MEMORIAL TRUST FUND

The Joseph William Gottstein Memorial Trust Fund was established in 1971 as a national educational Trust for the benefit of Australia's forest products industries. The purpose of the fund is *"to create opportunities for selected persons to acquire knowledge which will promote the interests of Australian industries which use forest products for the production of sawn timber, plywood, composite wood, pulp and paper and similar derived products."*

Bill Gottstein was an outstanding forest products research scientist working with the Division of Forest Products of the Commonwealth Scientific Industrial Research Organization (CSIRO) when tragically he was killed in 1971 photographing a tree-felling operation in New Guinea. He was held in such high esteem by the industry that he had assisted for many years that substantial financial support to establish an Educational Trust Fund to perpetuate his name was promptly forthcoming.

The Trust's major forms of activity are,

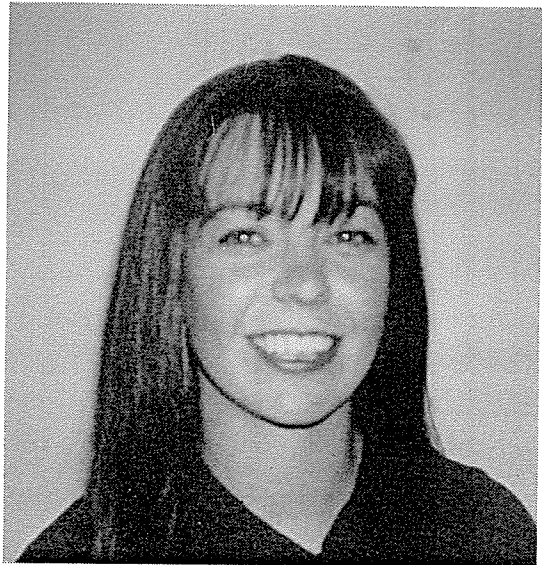
1. Fellowships - each year applications are invited from eligible candidates to submit a study programme in an area considered to be of benefit to the Australian forestry and forest industries. Study tours undertaken by Fellows have usually been to overseas countries but several have been within Australia. Fellows are obliged to submit reports on completion of their programme. These are then distributed to industry if appropriate.
2. Seminars - the information gained by Fellows is often best disseminated by seminars as well as through the written reports.
3. Wood Science Courses - at approximately two yearly intervals the Trust organises a week-long intensive course in wood science for executives and consultants in the Australian forest industries.
4. Study Tours - industry group study tours are arranged periodically and have been well supported.

Further information may be obtained by writing to,

The Secretary,  
J.W. Gottstein Memorial Trust Fund,  
Private Bag 10,  
Rosebank M.D.C.,  
Clayton, Victoria, 3169 Australia

Paula Sheehan gained her Bachelor's degree in Forest Science at the University of Mebourne in 1994. She joined Amcor Plantations Pty. Ltd. in 1995 as an Operations Planner. Her duties were varied including coordination of the Environmental Management System, Occupational Health and Safety, Safety Management Action Plan and the Quality Management Systems into a working manual for Operators and Management. She is now a Forestry Officer with Forestry Tasmania.

Her Gottstein Fellowship was awarded to allow her to travel to Canada to conduct a case study of how Canadian forest and forest industry companies had implemented Environmental Management Systems and to identify aspects of particular relevance to Australian companies considering introduction of such a system.







---

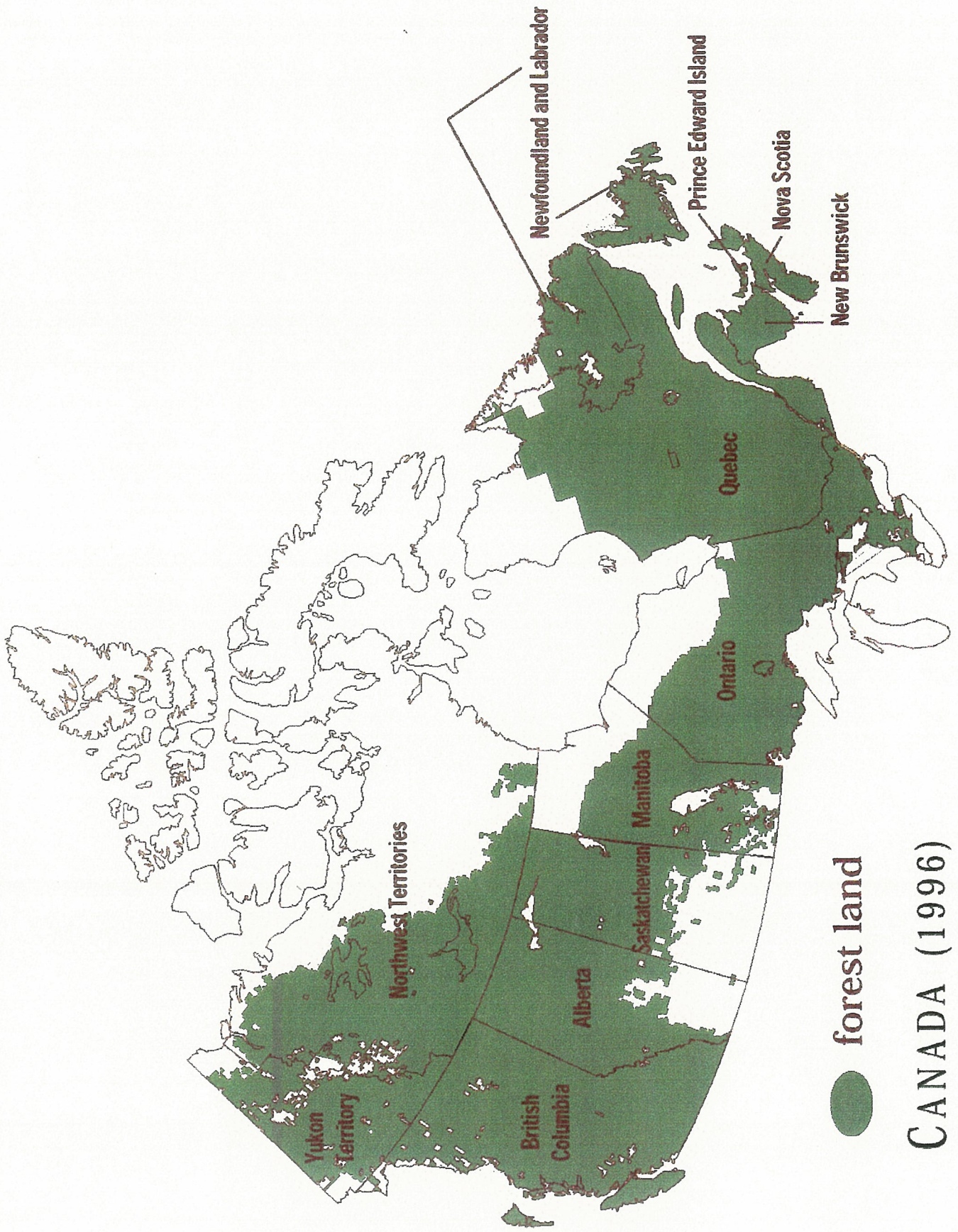
1997 Gottstein Fellowship

**Enculturation of Sustainable Forest  
Management Systems:**

**Learning From The Canadian Experience**


*Paula Sheehan*

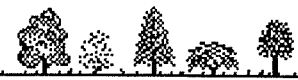
---



● forest land  
CANADA (1996)



	Acknowledgments	ii
	Preamble	iii
	Introduction	1
	<i>Setting the Scene</i>	2
	<i>Why Canada?</i>	4
	British Columbia	
	<i>BC Industry impressions</i>	5
	<i>Weldwood of Canada, Limited</i>	7
	<i>Weyerhaeuser Canada, Limited</i>	9
	<i>MacMillan Bloedel Limited</i>	12
	<i>Canfor Corporation</i>	17
	Québec	
	<i>Quebec Industry impressions</i>	20
	<i>Abitibi-Consolidated, Inc.</i>	22
	<i>Donohue, Inc.</i>	25
	New Brunswick	
	<i>New Brunswick Industry impressions</i>	28
	<i>J.D.Irving, Limited</i>	29
	How does this relate to Australia	34
	Key findings	35
	Appendix	
	<i>Glossary of Terms, Background Information</i>	1
	<i>Canada's Forests and Forest Industry</i>	2
	<i>B.C Forest Industry</i>	3
	<i>Quebec Forest Industry</i>	4
	<i>New Brunswick Forest Industry</i>	5
	<i>B.C. Tenures</i>	6
	<i>Species and Forest Regions Map</i>	7
	<i>Bibliography</i>	8



---

## Acknowledgments

This study tour was undertaken with the financial and moral support of the JW Gottstein Memorial Trust Fund, I would like to extend my sincere thanks to the trustees and advisers for providing me with the opportunity to travel to Canada and I would especially like to thank Bill Keating for not giving up on me.

I would also like to thank my sponsors Australian Paper Plantations Pty. Ltd, Stihl Pty Ltd, the Department of Natural Resources and Environment, Victoria and Forestry Tasmania.

I met many wonderful and helpful people during the tour, and I can not thank them enough for their time and efforts to make my trip a success.

Last but not least, thank you to my editors, Peter Sheehan and Jody Bruce, overall impressions and suggestions from by W. Lang, JL Yang and G.A Kile, and the rest of my family and friends for all their support and encouragement.

### ***Special Thanks to:***

#### **Weldwood Canada Limited, BC.**

- ❖ Rod Beaumont, *Chief Forester, Vancouver*      ❖ Gordon Todd, *Silvicultural Forester, 100 Mile House Division*
- ❖ Shawn Switzer, *Forester, 100 Mile House Division (and Debbie & Nicholas)*

#### **Weyerhaeuser Canada Limited, BC.**

- ❖ Pat Salm, *Sustainability Forester, Kamloops, B.C.*      ❖ Steve Tolnai, *Chief Forester*

#### **MacMillan-Bloedel Limited, BC.**

- ❖ Dennis Fitzgerald, *Manager, Environmental Communications, Vancouver*
- ❖ Mike Hooper, *Manager, Resource Data Coordinator, Management Plans. Nanaimo, VI.*
- ❖ Jim Loftus, *Forester, Menzies's Bay Division, VI.*
- ❖ Bill Beese, *Nanaimo, VI.*      ❖ Steve & Krista Stupich, *Nanaimo, VI.*

#### **Canfor Limited, BC.**

- ❖ Paul Wooding, *Regional Manager, Forestry. Vancouver*

#### **J.D.Irving, Limited, New Brunswick**

- ❖ Gaetan Pelletier, *District Forester, Black Brook (BB).*      ❖ Greg Adams, *Juniper Nursery, Sussex*      ❖ Peter Etheridge, *Reforestation Forester, Fundy Model Forest, Sussex*
- ❖ Carol LeBlanc - *biologist, BB.*      ❖ Brent Thompson, *Quality Standards Forester, Sussex*
- ❖ Jillian Weldon - *ecology forester, BB.*      ❖ Jim Lawless, *Super-intendant, Chipman*
- ❖ Martin Fillion - *Forester, BB.*

#### **Abitibi-Consolidated, Corporation, Quebec**

- ❖ Jean Parquet, *Chief Forester, Montreal*      ❖ Guy Tremblay, *ISO Coordinator, Sagueny*

#### **Donohue Incorporated, Quebec**

- ❖ Pierre Cote, *Sustainability Forester, Quebec City*
- ❖ Serge Gosselin, *Director of Forestry for Charlevoix region*





## Preamble

In undertaking this fellowship, I explore the attitudes of the Canadian forest industries towards management concepts such as Environmental Management Systems (EMS); environmental management, sustainable forest management (SFM), compliance management, and results-oriented management. The lessons learnt from Canada are valuable to Australian forest industries.

I have already been involved in translating various policies, plans and systems into useable standard operating procedures for Australian Paper Plantation (APL). They included BS7750:Environmental Management System, the Victorian Code of Forest Practice for Timber Production (1993), the Occupational Health and Safety policy of APL and Australian Paper's Quality Management System Pty Ltd. This experience led me to become interested in ways to incorporate new practices into an organisation's culture.

How do you ensure that Standard Operating Procedures are read, understood, and implemented?

How do you obtain employee acceptance to changes required in daily routines?

How do you get commitment to Sustainable Forest Management?

My fellowship allowed me to spend a total of 12 weeks travelling in British Columbia, Quebec, and New Brunswick. During this time I visited private companies which were involved in forest management, on both private and public lands, and which were actively pursuing a documented SFM system.

The main focus of my company visits was to identify and discuss their approach to SFM, EMS and the existing culture of their company. How do they intend to introduce a SFM system into the work place? How will they get employee acceptance of a new system? Which system were they planning to implement?

I was also able to attend a Conference on Certification, Criteria and Indicators; Global Approaches Sustainable Forest Management.



**Forestry Tasmania**  
GROWING OUR FUTURE



**Natural Resources  
and Environment**

AGRICULTURE  
RESOURCES  
CONSERVATION  
LAND MANAGEMENT



**STIHL®**





# Introduction

To this field forester, the mantra “Sustainable Forest Management” has become an interminable international chanting of conferences, papers, reports, web-sites, books, seminars, symposiums, summits, programmes, study units, fellowships etc. etc. etc. So much is being written and discussed about policy, planning, alternative systems and approaches that it merges into an incomprehensible blur.

The implementation and impact a Sustainable Forest Management (SFM) system will have on field foresters, employees and contractors and the changes an organisation would require to implement such systems, is the interesting part for me. This is the primary focus of the report. I cannot, however, jump right in to these interesting topics without some scene setting whilst hopefully avoiding the worst of the jargon.

I have included some scene setting, a glossary of terms with background information and impressions of the Canadian forest industry gathered in my travels (Appendix 1). There are brief overviews of Canada’s forests & forest industry (Appendix 2) and of the British Columbian (Appendix 3), Quebec (Appendix 4) and New Brunswick timber industry (Appendix 5). Also an explanation of the BC tenure system (Appendix 6) and a rundown on the commercial tree species in Canada including a map of the forest land types (Appendix 7).

One more note, the type of information collected between case study companies is varied due to the differences between the companies, the time spent with each company and the staff with whom I was able to interact.

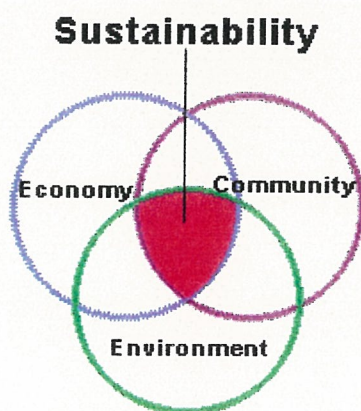


What is Sustainable Development? What is Sustainable Forest Management? A very good question, it depends on whom you ask and their personal values, beliefs, agenda, ambition and employer.

## Sustainable development is:

**“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”**

**United Nations World Commission on Environment & Development**



## The goal of sustainable development is:

**“to maintain and enhance the long-term health of our forest ecosystems for the benefit of all living things, both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations.”**

**Canadian Council of Forest Ministers**



---

## Setting the Scene

The pursuit of long-term sustainable forest management (SFM) has been a focus of both the international timber industry and environmental groups for several years. In recent times the focus has turned towards forest management certification and the demand for labelling products as originating from sustainably managed forests.

The United Nations Conference on Environment and Economic Development in Rio de Janeiro (1992) prompted the signing of an international treaty declaring that by the year 2000, signatories would sustainably manage their forests.

A further gathering of several of these countries in Santiago, Chile (1994) approved a set of criteria and indicators for SFM specific to non-European temperate and boreal forests around the world. Governments involved in the process include Australia, Chile, China, Japan, the Republic of Korea, Mexico, New Zealand, the Russian Federation, the United States of America and Canada. Together these countries control 90% of the world's temperate and boreal forests.

This multinational effort is known as either the Santiago Declaration or, more recently The Montreal Process: Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests. Methods of addressing Sustainable Forest Management (SFM) at a national policy level are also being developed with reports on progress towards SFM beeing prepared.

However little has been done at the field level to promote SFM systems even though obtaining and maintain certification will be the responsibility of corporations, foresters and landowners.

The current effort in Australia is directed to developing an internationally accepted criteria and indicators specifically for Australia's forest resource. There is a need to take into account the local, regional and national conditions including forest type, land ownership, population, economic development and technical capacity, and the social and political structure of the area.

Environmental and quality control initiatives involving forests and related manufacturing processes at local, national, and international levels are evolving rapidly. Most emphasise the importance of organisations taking a system-based approach to environmental management. Many systems, such as the Tasmanian Forest Practices Code, are regulatory although an increasing number of voluntary programmes are designed to demonstrate responsiveness to trends in defining performance indicators for environmental sustainability.

Some of the systems and organisations currently under review and consideration are:

- ISO 14000 Environmental Management Standards
- The Forest Stewardship Council (FSC) Principles and Criteria for Natural Forest Management, 1993 (Mexico)
- The Canadian Standards Association (CSA) Sustainable Forest Management (SFM) System Standards for Canada, 1996
- The Sustainable Forestry Initiative (SFI) of the American Forests and Paper Association (AFPA)
- Smart Wood Certification Programme of Rainforest Alliance 1990 (USA)
- Woodmark, the Soil Association's certificate of responsible Forestry, 1992 (UK)
- Forest Conservation Programme of Scientific Certification Systems (SCS) accredited by Forest Stewardship Council (FSC), (USA)
- SGS Forestry (Société Générale de Surveillance), 1992 accredited by Forest Stewardship Council (FSC),(UK)



➤ Scientific Certification Systems Forest Conservation Programme, 1984 (USA)

An Australian forest company that wishes to demonstrate SFM may do so because it feels an ethical requirement. It may also be necessary due to market demand for reassurance. In either case the company needs to maintain a good understanding of the above systems; the selection of suitable criteria and performance indicators and the public response. It should be aware of what is being done, by whom and how they are dealing with the local, regional and national conditions.

It may then assist the policy makers who are debating the pros and cons of eco-labelling, forest management certification systems and facilitating international consensus. It will also need to both educate and learn from the on-ground forest managers who will have to implement the chosen certification and/or SFM process.

The responsibility and accountability for implementing SFM will rest with the forest manager or owner of the forest. Their success will depend upon the ability and commitment of field staff in making sense of the procedures and the documentation for accreditation of certification bodies; developing achievable performance objectives and targets as part of their current Environmental Management Systems and installing monitoring systems.

Therefore new demands are being made on forestry professionals. New skills and broader training are required and a change in traditional forest management practises will have to occur.

Study of the Canadian processes might allow us to learn from their mistakes, successes and incorporate the best ideas into our systems due to the many similarities between Australia and Canada.







---

## Why Canada ?

Canadian's and Australian's share not only the right to compete in the Commonwealth Games, and a claim to Captain James Cook, but many aspects of their cultural heritage and life style, as well as similar market economies and parliamentary democracy.

The timber industry in Canada is on a much larger scale than Australia's and attracts international environmental scrutiny, public input and foreign and domestic market pressure. The population understands its importance in the economy but demonstration of good practice and stewardship are required to maintain public support and market confidence. The development of systems to resolve these conflicts and ensure accountability has as a result received considerable attention by their forest industry.

Australia also shares many of the same environmental concerns, public involvement, political influences and indigenous issues. However these pressures are not closing in as rapidly as in Canada.

Environmental Management Systems (EMS) applications to forestry are still new in Australia and there is an understandable scepticism related to the costs and likely benefits. There are advocates and enthusiasts and consultants with services to sell. This report examines the experience of a number of Canadian companies of different scale and orientation. It therefore provides a series of case studies that will have relevance to various Australian situations. In each case the report attempts to describe the attitude and experience of the company with EMS as a means of both improving performance and of demonstrating the company's environmental credentials.

The questions, which are likely to be relevant to any Australian forestry or forest products company, are as follows:

- What is the industries attitude and experience with: legislated Codes of practice? Independent audits? Certification as a sales tool?
- What was the companies' experience with formal EMS and, particularly what are the perceived costs and benefits?
- Did the company decide to proceed with installation of a formal EMS?
- Which system was chosen and why?
- What were the major problems encountered?
- What was the experience in enculturation of the procedures among practical field staff?

The final section of this report is an attempt to consolidate a picture of the general attitudes and experience in Canada and to identify aspects of particular relevance to Australian companies considering introduction of an EMS.

The companies included in the case study are

### **British Columbia**

Weldwood Canada, Limited  
Weyerhaeuser Canada, Limited  
MacMillan-Bloedel, Limited  
Canfor Corporation

### **Québec**

Abitibi-Consolidated Inc.  
Donohue, Inc.

### **New Brunswick**

J.D.Irving, Limited



# British Columbia Industry impressions

*General summary of statistics refer to Appendix 3*

In British Columbia forestry accounts for a large part of Provincial revenue and stand improvement works reduce revenue. The provincial governing bodies for the timber industry are the Ministry of Environment (MofE) and the Ministry of Forests (MofF). There is a perceived jurisdictional conflict between the two Ministries.

The MofE concentrates upon wildlife habitat, water quality and protection of the environment rather than management issues. The MofF supports sustainable forestry, extensive management rather than intensive management and most of its wealth stems from continuous production.

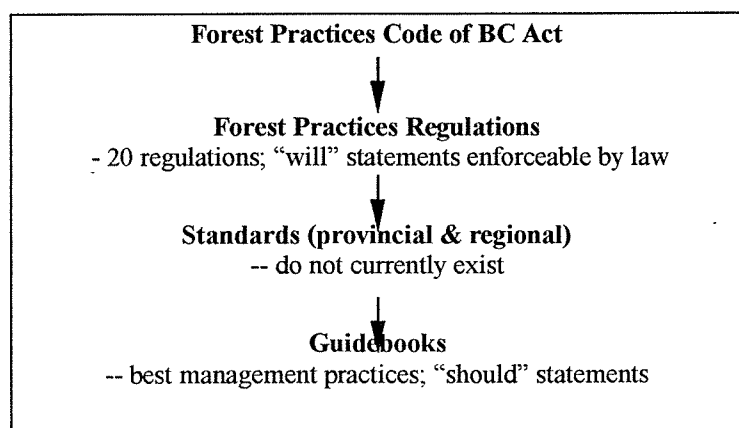
There have been a number of important changes over the last five years which include:

- May 1, 1994, the Province increased average stumpage rates on timber harvested from Crown lands in the coastal region of BC by 63% from \$17.20 per cubic metre to \$28.03 per cubic metre. (MB, 1998)<sup>2</sup>
- April 1, 1995, the Province required stumpage to be paid for timber harvested from timber licences, in lieu of royalties which were previously payable. Stumpage for timber licences was specified to be a percentage of full stumpage rates starting at 60% on April 1, 1995 and increasing to 100% on April 1, 2001 and thereafter. (MB, 1998)<sup>2</sup>
- No stumpage is payable in respect of timber harvested from Company owned land.
- Forest Renewal BC introduced
  - crown co-operation ⇔ funding from premium on top of stumpage (revenue);
  - money supposed to be re-invested back into the crown forest for stand development and improvement;
  - don't feel money being stretched properly, money being used to pay for jobs already being done.
- Forest Practices Code implemented on June 15, 1995.
  - Don't squish the fish, don't hurt the dirt, and don't goose the moose.

The MofF and MofE developed the Forest Practices Code with minimal input from consultants or industry. It has had a dramatic effect upon the culture of Forestry. The relationship between Industry and the Ministry; has become a power struggle. The Code provides a new regulatory framework for legislation, regulations, standards, guidebooks, new administration bodies, new forest practices and new penalties. It does not currently apply on private land. On crown land it sets official standards that everyone must follow, and is heavily regulated by MofF Forests. Industry has no choice but to comply.

The Intention was to

- encourage professional accountability, to be less process orientated and more results orientated however tending towards process;
- consolidate and clarify rules that in the past were confusing and contradictory;



---

## **Impressions from Industry** (pers comm)

- Ministry came down like Moses with the tablets;
- ministry staff seen as policemen;
- code far too detailed, little room for professional decision making;
- guidelines written by academic foresters not operational, little room for movement;
- very aggressive and high profile;
- too restrictive and prescriptive;
- problems include - things missed, level of practice, not flexible, needs more consultation;
- strict rules, hands are tied, fooling yourself that you are managing the land;
- credibility conflict - provincial codes detract from local managers accountability;
- demands 100% compliance;
- compliance management policy;
- focus on following rules rather than looking at how to achieve objectives;
- what should be done if they don't match? Ie. Streamside reserves versus windthrow, may not meet objective but does meet compliance;
- extensive management rather than intensive management;
- some companies feel they are doing a better job because of the code, not with standing the inefficiencies due to restrictions;
- meeting the FPC standards is not the problem, it is the bureaucratic process involved if something happens, and having people looking over your shoulder;
- structured approach towards compliance;
- compliance requirements have been good but it's a whip-cracking drive;
- current situation - impossible to be 100% compliant.
- net effect has been to disperse harvest and increase costs and environmental impact;
- Ministry gave very little training or assistance;
- industry developed own training - specific and relevant with annual follow-up on key issues;
- initially Government left industry to train itself; tactical error;
- increased costs, especially in planning, some companies have reported a four fold increase in planning expenditure;
- estimated additional cost of Code of \$16 per cubic metre to industry;
- we are seeing disinvestment, lost jobs, and the public sector revenue base declining as the timber industry swims in a sea of red ink (Emerson, 1998)
- little chance of change within Government. Impacts and relationships;
- amendments currently under way to remove administration requirements, however Ministry doesn't want to appear to be relaxing the Code nor questioning of the standards;
- review includes going back and looking at rules versus objectives, disparity between compliance and objectives and rules;
- need to publish two-way dialogues , questions and answers;
- where is it going to stop -- stronger and stronger, more rigid regulations;



**Weldwood of Canada Limited**

Vancouver &

100 Mile House, B.C.

➤ Weldwood operations include:

- 5 woodland districts in BC, 1 in Alberta.
- 2 pulpmills; ISO 9000 certified, both moving towards ISO14001. ISO9000 has provided customer satisfaction, systems improvements, secondary environmental management improvements.

➤ Licences on Crown land (*refer Appendix 6*)

- Timber supply from public land with tenure agreements;
- have both Treefarm licence with a DFA and quota "Ever-green" licence;
- responsible for planning, protection, harvesting, re-establishment to "free-to-grow"; then land back to Ministry of Forests (crown authority);
- limited investment into crop - once stands reaches "free-to-grow" it reverts back to Ministry, same company might not get that area next time, if all do stand improvement then all benefit;
- have had growth rate increases -- stocking controls, some fertiliser applications;
- large part of Provincial revenue from forestry, stand improvement seen as reduction in revenue, money supposed to come from Forest Renewal BC.

### **Stewardship, Environmental Management Systems and Certification**

Weldwood's Chief Forester, Rod Beaumont described Sustainable Forest Management as a recognition of maturing values articulated by the public, voiced through governments, consumers, professionals and the citizen landlords of our public forests. Measuring and improving SFM as an objective responds directly and pro-actively to the changing values embodied, rather than waiting until those values are translated into regulations, at which time measurement focus's on compliance. (Beaumont,1996).

Weldwood of Canada Limited strives to be industry leaders in all aspects of timber production, forest stewardship, forest practices and environmental management. In 1992, an internal forest stewardship review was initiated and Weldwood became one of the first companies in Canada to establish a completely independent, third-party audit system to monitor forest practices and forest stewardship. The auditing function is seen as a central element in the companies support of national and international certification programmes for sustainable forest management (Beaumont,1996).

In 1995, Weldwood decided to use an independent auditing firm to conduct stewardship audits on all operations. Price Waterhouse was selected based upon their experience in forest management auditing, rigorous application of auditing principles to forest stewardship assessment, and their international credibility.

Weldwood also choose to include an audit of CSA SFM specifications in each divisional stewardship audit, to give them a good assessment of where each division stood relative to the CSA's SFM System standards. Although at that time the CSA system was still in draft form, Weldwood wanted to be able to begin to put the systems in place to meet the specifications, leading to a registration audit when the SFMS was finalised and released. A set of local indicators was being developed for the CSA SFMS to be applied to 1M ha in west-central Alberta under a Forest Management Agreement as a trial run.

---

Also present at the Price-Waterhouse audits were representatives of Weldwood's Head Office, relevant area (zone) managers and key planners. The outcomes of the audits were incorporated into the 1997/98 operating plans to provide a SFMS plan for each division.

The operations at Weldwood are managed in divisions with zones, each zone has a dedicated team (a silvicultural forester, harvesting/works forester, contractors). Weldwood supports ownership of the zones and cohesion of the teams through job stability, encourages foresters to specialise in a particular zone and local management accountability.

Each division will make their own decisions in regard to preferred SFM system, key planners will be responsible of the training, public advisory consultation, and performance measures and the SFM champions in each area will be responsible for technical decisions and local acceptable interpretations of the standards.

### Why CSA SFM?

Actively pursuing SFM systems and a recognised EMS will become part of the game.

CSA is a highly regarded institution by both the private and public sector, and was developed with assistance from the Canadian timber industry. A staff member of Weldwood was on the Technical Committee on Sustainable Management. The basic sustainability principles are already in place at Weldwood with regards to regulations and tenure agreements, and the CSA SFMS will be a stepping stone to ISO 14000 registration.

Weldwood feels that it's SFMS will give some accountability back to the forest manager that was taken away by the Forest Practices Code. The use of local criteria and indicators, performance measures and public advisory committees will allow for more local management influences and community support, and may "loosen up" the code and allow professional foresters to administer and manage the land more freely.

Whilst questioning the actual merits of the CSA system; feeling that no significant improvements in forest practices will result due to their current forest stewardship programme nor that consumers will be willing to pay more for products from registered organisations, the drive for registration with CSA is customer satisfaction.

One of the perceived problems with the CSA system is the Defined Forest Area (DFA), not all division's of Weldwood work within an area based tenure, so in order to obtain CSA registration, Weldwood requires cooperative agreements with all other licence holders within the DFA. (Refer to Appendix 1 for Glossary)

Other potential problems of the CSA system is the public consultation process (PCP). Up until 1997 the public had been given opportunities to consult Weldwood in regards to forest management issues, rather than be consulted. There was concerns about people using the PCP as a grandstand for the green movement, without fully understanding or having biased views upon the economic reality of the forest industry, and also the collective "unknown" of the process, the fear of loosing control of the business. However, the Canadian people own the land and they have a right to take it away.

Weldwood's commitment to SFM has a target date for CSA SFM registration of their Hinton division by 1999, with the belief that it will provide a futuristic market advantage and SFM will be strategically important to customers. Even though most customers are currently not yet interested in forest management or forest product certification, Weldwood prefers to be leaders in the industry not followers, helping to guide consumer demands.



## Weyerhaeuser Canada, Limited.

### Kamloops, BC

- Weyerhaeuser Canada (WC) began operations in 1965, growing to become the second largest forest products company in Western Canada.
- A wholly owned subsidiary of Weyerhaeuser Company, based in Washington, USA. One of the largest forest companies in North America.
- Employ 4,700 in BC, Alberta, and Saskatchewan.
- WC operations include:
  - 6 sawmills in B.C., no ISO accreditation, 3 sawmills in Alberta & 1 in Saskatchewan combined annual capacity of all sawmills exceeds 1 billion board feet;
  - 3 orientated strand board (SOB) processing facilities in Alberta, combined production of 800M square feet annually;
  - 2 pulp mills with ISO 9000, heading towards 14000 combined production of 717,000 tonnes annually; believe benefits are ongoing;
  - 1 pulp/paper mill, producing 325,000 tonnes bleached kraft pulp and 210,000 tons of uncoated free-sheet paper;
  - 7 regional and four satellite sales centres and 3 technical & customer service centres;
  - 1 recycling division in B.C. collecting 21,600 tons of waste paper annually;
  - Timberlands hold long-term leases on 9.6 M hectares of publicly owned productive forest in BC, Alberta and Saskatchewan. About two-thirds of this land is productive forest-land.
- Weyerhaeuser Canada accounts for ;
  - 17% of all Weyerhaeuser pulp and paper production;
  - 34% of all softwood output;
  - 58% of orientated strand board (SOB) production.

#### **Stewardship, Environmental Management Systems and Certification**

The parent company fully supports an EMS with the view that it will help consolidate the many environmental management processes already in place at Weyerhaeuser.

As stated in the 1997 Annual Environmental Performance Review:

“Over the next five years, each business will build on existing processes to achieve an integrated, company-wide EMS. As a result, employees will be better prepared to manage environmental performance from an overall business perspective and to identify areas for continuous improvement. Implementing the EMS will improve efficiency, reduce costs and risks, increase employee involvement and improve Weyerhaeuser’s relationships with all stakeholders, including employees, customers, suppliers, neighbours, regulatory agencies, shareholders, interest groups and the public. The EMS will allow the company to plan for changing environmental regulations and stakeholder expectations. Finally, the EMS will help ensure Weyerhaeuser’s continued environmental improvement and economic success”. (Weyerhaeuser, 1998)

---

Accountability is an important aspect of Weyerhaeuser's environmental performance, and drives continuous improvement and the EMS. Corporate audits are carried out to identify areas needing improvement, complying with regulations, performing environmental remediation, and participating in the development of environmental regulations and laws. In Canada, mandatory self-audits take place at sites where the corporate audit does not occur that year.

Weyerhaeuser Canada (WC) aim's to be the industry leader in *stewardship* and *Environmental Management Systems* on public forest land but are happy to be followers in *certification*, it will happen but they are in no rush. Currently all of WC's solid wood is sold in the USA, where there is no demand for certification. Although 60% of pulp mill products are sold in Europe, the chips are from residual wood only, there is no round-wood chipping at the pulpmills.

WC forest managers from British Columbia, Alberta and Saskatchewan worked together during 1997 to develop common strategies, criteria and targets for the Weyerhaeuser Canada Forest Stewardship Principles. These principles are to measurably demonstrate the company's responsible stewardship of public land in Canada.

"We are already doing a better job of managing public land due to the FPC" (Salm, P pers comm) and WC's stewardship policies, although there are lots of inefficiencies due to restrictions."

The Saskatchewan division's, government agencies and the public have been working to renew WC's 20-year forest management plan. The plan has been expanded to include for the first time a formal assessment of impacts on soils, vegetation, wildlife habitat, climate, streams, watersheds, native people and society. Once approved, this ecosystem-based forest management plan will guide company operations in the province as part of its forest management license agreement. (Weyerhaeuser, 1998)

Weyerhaeuser Company in the USA, also supports The Sustainable Forestry Initiative™ (SFI) developed nationally through the American Forest and Paper Association (AF&PA), whose members – including Weyerhaeuser – produce 90 percent of the paper and 60 percent of the lumber produced in America today. Compliance with the SFI guidelines is mandatory for AF&PA companies to retain AF&PA membership. Weyerhaeuser expects its contractors to meet SFI principles and objectives and encourages landowners supplying it wood to do the same. (Weyerhaeuser, 1997).

Similarly, Weyerhaeuser Canada supports the CSA Standard and was involved with it's development. This standard along with the WC Forest Stewardship Principles ensure sustainable forest practices and accountability on approximately 9.6 M ha of publicly owned land managed by WC under long-term license. (Weyerhaeuser, 1998)

Price-Waterhouse carried out a gap analysis on each of the WC Timberland operating area using the CSA standards. WC then compared notes on the results with Canfor Corporation, Weldwood of Canada, McMillan Bloedel and Western Forest Products, some of the issues are bigger than one company, the 'industry' will need to consult with the Ministry of Forests and Ministry of Environment.

The analysis found that WC needs to deal with:

- interpretation of CSA system and standards, the CSA has setup a working group, involving some of original Technical group. It is a slow process especially in regards to the Z809 document, and there are concerns about implementation due to interpretation hold-ups.
- government involvement; Ministry have control and must buy in or the DFA's won't work. However the Ministry is not getting excited about industry developed CSA initiative;
- internal restructures; to determine responsibilities;
- forecasting – how to monitor indicators against forecasts, a long process;

- 
- the public participation element in helping set management objectives, C&I advisory teams; concern over loss of process control by Weyerhaeuser. The headoffice is based in Kamloops, BC which has a population of 70,000. Forestry is not the No.1 income source, and therefore not forestry dependant.
  - DFA requirements; the majority of fibre is from volume-based tenure areas (*refer appendix 4*);
  - Document control systems reviews; Standard Operating Procedures are already in place and are under review to standardise processes and procedures throughout Timberland operations;

Whilst reviewing the CSA system, WC is fast tracking an EMS in the timberland divisions, concentrating on document controls and SOP modifications. Some division's are building upon the ISO9000 Quality system from the mills.

It is seen as extra work by already busy people, and WC plans to "sell" the system to employees with internal awareness programmes.

The programmes will:

- extol the merits of the system, ie. increased performance and consistency of operations; ensuring that the requirements of WC's core policy and company environmental standards are met;
- illustrate management commitment;
- ensure that employees receive education and training to enable them to carry out their environmental responsibilities with due care;
- outline employee responsibilities;
- further understandings that environmental performance is a critical part of their jobs;
- highlight that an EMS is Working in support of the company's standards for protecting the natural environment;
- clarify the additional responsibilities of leaders;
- provide technical and financial resources to achieve continuous compliance with environmental laws and regulations;
- use ISO9000 experiences to demonstrate the on-going benefits of management systems.





- MacMillan Bloedel Limited (MB) is one of Canada's largest forest products companies with integrated forest product operations in Canada, USA and Mexico.
- Net earnings for 1997 ⇒ -\$368M (loss). (1996 \$51M, 1995 \$280 M) (MB, 1998)<sup>2</sup>
- Sales (1997) ⇒ \$4.5 billion.
- Theoretical Annual Allowable Cut (1997) ⇒ 6.2M m<sup>3</sup>.
- Environmental Capital Projects (1997) ⇒ \$122M (MB, 1998)<sup>2</sup>
- MB operations include:
  - Building materials ⇒ 68% of sales—solid wood (lumber, logs & chips) and composite wood (engineered lumber, panel-boards—plywood, oriented strandboard, particleboard, medium density fibreboard) (MB, 1996)<sup>3</sup>
  - Paper ⇒ 14% of sales – newsprint, lightweight coated, groundwood printing papers & market pulp SpaceKraft (MB, 1996)<sup>3</sup>
  - Packaging ⇒ 18% of sales – container-board & corrugated containers (MB, 1996)<sup>3</sup>
  - Employ (1997) ⇒ 13,070 people (1996 - 13,480)
  - The total area of commercial forest lands in BC under MB's control at December 31, 1997 was : (MB, 1998)<sup>2</sup>

Area operated on a sustained yield basis --	Hectares	
Tree farm licences (TFLs)		
Crown lands (1)	697,000	
Timber licences (2)	112,000	
Owned lands (3)	<u>78,000</u>	
	887,000	
Managed forest lands (owned lands) (3)	<u>143,000</u>	1,030,000
Other tenures --		
Timber licences	34,000	
Owned lands	<u>3,000</u>	<u>37,000</u>
		<u>1,067,000</u>

**Notes:**

(1) These are contained within MB's two TFLs on the West Coast of BC (TFL No. 39 & 44). These TFLs were renewed for 25 year terms in 1995 and are replaceable after five years for a further 25 year term, subject to satisfactory performance by MB of its cutting and reforestation obligation as determined by the Ministry of Forests.

(2) The Company owns exclusive rights to harvest timber on the land held under timber licences. Until 1995 a royalty was payable upon harvesting the timber. Since then a stumpage charge has been payable on the timber. After the timber is harvested on these lands, the Company has the responsibility to reforest them. They then revert to the Crown but will be retained within TFLs as "Crown lands". Approximately 28,000 hectares of these lands have been logged but have not reverted.

(3) Certain Company owned lands have been put into tree farms ("managed forest units") to obtain an incentive property tax rate. Those managed forest lands outside TFLs are not subject to the FPC.

---

## **Stewardship, Environmental Management Systems and Certification**

In November 1997, a comprehensive review of MB's forest policy was carried out by a team of internal and external experts called The Forest Project Analysis. The analysis recommended that the company implement management policies and practices designed to:

- increase conservation of old growth forest;
- replace clearcutting with a more ecologically driven approach through adoption of a system of stewardship zones, and the introduction of variable retention harvesting and silvicultural systems; and
- achieve both of the above in ways that will enable the company to be certified under any of the private systems currently emerging for forest certification. (MB 1998)<sup>1</sup>

Prior to the Forest Project analysis, MB were reviewing EM / SFM systems, to gauge the integration of the company's business and environmental objectives, as an extension of the company's stewardship culture. The aim for the ongoing development of internal systems is to exceed regulatory compliance and due diligence to provide for continuous improvement and, where appropriate, prepare MB processes and products for participation in new and evolving programmes for environmental certification. (MB, 1996<sup>1</sup>).

An EMS has the potential to markedly improve forest management standards; increase efficiency and performance standards, decrease liability, hopefully decrease prescription management, and provide long-term security of tenure. MB is currently beginning the process of developing a MS that will assist in meeting regulatory requirements of the BC Forest Practices Code. Many of the pieces are already in place for a EMS.

BC is already the highest cost producer in Canada and is very nearly hanging onto the edge of not being internationally competitive. The mountains, long haulage, hard to get to wood, high salaries, woodlands under pressure to reduce costs, an \$80M increase in logging costs due the FPC requirements, and on top of that costs have tripled (annual stumpage, royalties, and FPC costs) from \$75M to \$215M since 1993.

Environmental policy is a luxury; just as a safety policy is a luxury.

An EMS is a very expensive good deed.

### **Certification**

The US based markets are not yet saying they "have to have it" but certification will be important to marketing especially with the increasingly significant demand for certification from the European marketplace. The focus and debate are very much on environmental sustainability and not social or economic issues. With the environment getting all the attention, certification is like a banner to wave to prove that you have made it, as an extension of SFM / EM and Forest Stewardship.

"Certification will become an increasingly important factor in Europe. If Europe is important to you, you had better start looking at certification" (Fitzgerald, D pers comm)

A gap analysis of FSC and CSA certification requirements was carried out on the Menzies's Bay Woodlands division on Vancouver Island in 1997. The division scored higher with FSC which had no regional standards, than with CSA. The problems highlighted by CSA included policy definitions, monitoring deficiencies and inadequate public consultation processes.

The public consultation aspect of CSA is a hurdle that MB had not yet crossed. The process is supposed to establish the objectives for SFM in that DFA and establish C&I to measure the meeting of that objective. It is a very expensive and time consuming, consensus seeking process that MB is hanging back from convening due to concern that the people on Vancouver Island are sick and tired of going to Forest meetings.

---

## Further concern

- what the process can and can't do, within the existing regulatory framework, the CSA requirements and indicator's that are out of MB's control ie fish populations effected by over-fishing.
- public process may have other priorities than what's best for the company;
- commitment to honour results of the process;
- maintaining some control and group focus:
  - What are the objectives? The outcomes?
  - How are we going to measure and see if we have achieved that objective?
  - leave out procedures and mechanics;
  - very technical job writing procedures - public process shouldn't be too prescriptive, should leave operations to achieve objectives without trying to tell them how to do things.

MB supported the development of the CSA SFM system standards and in 1996, implemented new Standard Operating Procedures (SOP) governing all its woodland divisions in B.C to assist in achieving the goal of conducting forest management activities with due diligence, and in full compliance with the FPC. The SOP will evolve to form part of the documentation required for internal use, audit inspection, and external communication of any management system.

Woodland Division's are preparing for participation in a management system and certification process and have cooperated in the development of SOP's, however the push is coming from MB's Corporate Forestry Division not Operations, although there is divisional input.

Woodlands "have busted their guts" to meet FPC, and were rewarded with zero non-compliance reports in the recent (1997) annual audit reports, and they now feel that too much is being asked of them in such a small time frame.

The implementation of the SOP's has been rough for forest workers. Although "Management" was holding working discussions with operators, the operators weren't clear on what was wanted from them, or that the "Management" understood what their jobs entailed. The SOP process was described by an employee as a bureaucratic system that has assumed no objective or direction; it does not ensure that an operator is a good operator, it just leaves a very costly, results orientated paper trail.

The impression I received from the woodlands was that Senior management want to go ahead with an EMS, but don't want to pay for it. Woodlands don't want to pay; they see the savings being made in reducing administration when an EMS will increase administration costs.

Woodland's are sceptical of the purported benefits of yet another management system; the increased costs, paper work and administration inputs; more resources required; where will it all end? Will it all end?

Corporate Forestry Division will have to convince Woodlands divisions that certification is within their best interests by identifying benefits to them and to others stakeholders.

At the time of my visit, a decision had not been made as to which process to pursue, the push needing to come from market demand. "We are standing on the diving board, how deep is the water? how cold is the water? who is pushing you to jump off? Government? Public? Market?"

It was also seen as not yet advantageous to "hitch your horse to one wagon, or you will end up defending that wagon" and may lose objectivity. Then again they could always have them all although they are all still more process, still more cost.

---

The changing demand for systems and product competition in the marketplace is also a concern for stability. "One hopes that over time, the system that is most effective at promoting sound management both socially, economically and environmentally will prevail". (Fitzgerald, D pers comm)

If MB vote no to certification they will still run with an ISO type process based upon objectives not just compliance; make the best judgements of what the laws require and what the public wants

### **Enculturation - making change part of MB's culture.**

*"Attitude is everything"*

*"Attitude is contagious; is it worth catching?"*

"Corporate Forestry Division will have to convince Woodlands divisions that certification is within their best interests by identifying benefits to them and to others stakeholders."

It's an easy sentence to say but how is it accomplished?

Discussions with managers at MB instigating changes in the workplace, highlighted the following points:

- teams have to believe in the system or it will be a half arsed job;
- see the gain - the only way to change attitudes;
- must see the benefits or will not jump off the diving board;
- illustrate common goal;
- do with as little pain and lots of gain;
- management:
  - must be positive and understanding of workers issues;
  - must have ownership and shoulder responsibility but must step back to look at problems from a different angle;
  - circumvent high risk situations with forward planning;
  - know who is going to be there;
  - know what is going to happen;

present the system:

- to the audience at their level and based upon their experience;
  - develop team trust; MB is using Outward Bound activities to develop team relationships;
  - deal with people issues first, get fears, frustration's, hesitations out first through a mediator but not in a meeting forum;
  - "Just because you can automate it; doesn't mean you should" remove discomfort and reassure job security;
  - involve forest workers early on in system development;
  - deal honestly about the system with frank open discussions;
- use tools that you and the audience are comfortable with to get the message across;
  - explain what and why it has to be done and how to do it;
  - allow non-confrontational discussions as a way of dealing with issues;

- 
- circumvent defeatist attitudes (owed something, plebism) and extend positive attitudes;
  - give clear explanations of process involved;
  - discuss ideas and take on board suggestions;
  - ensure process is understood;
  - obtain feedback;
  - build acceptance of negative aspects of process and system;
  - make workers feel in control of system development and not at risk of having blame for mistakes will be put onto them;
  - training the trainer, positive mind set;
  - empower by giving responsibility, perceive them in the role of teachers;
  - environmental champions need to pass ownership of the system over to the divisions as quickly as possible;
  - follow up involvement;
- alternative tools are always available;
  - a non-responsive, nervous or panicked presenter will lead to further problems
    - successful programmes will increase group trust;
  - take your own advice, leading by example.

### **Training**

Today's society has increased demand for in-house training with the industrial revolution given way to the technical revolution. It is a painful transition, we need to ease that pain by having a good plan (Hooper pers comm).

MB have set up a 3 year training (degree) programme with a university to increase the ability of their workers at all levels. The intention is to increase productivity by understanding and utilising the technological advances. The increased technological training and area of expertise is making people specialise and give support to others building team cohesion.

However forest workers are sick of training, they would rather be working. There is no overtime at training and they don't want to go to school. MB needs to make time for training and supply incentives for forest workers, happy employees are productive employees.

A few of the extra services offered to employees are:

- family assistance programmes
- support and referral systems;
- assessment and referral; career advice; training plans.
- anonymous counselling; third-party counselling.

- Canfor Corporation is a leading Canadian integrated forest products company based in Vancouver, BC.
- 55% of company public share market; 45% held by original families (Prentice / Bentley)
- Canfor (Canadian Forest Products) Limited is the main operating company; from which the name Canfor is derived. Started in 1938 and has grown to become one of the worlds largest softwood lumber producers.
- employs approximately 5,700 people (4400 directly & 1300 through an affiliated company).
- Theoretical Annual Allowable Cut ⇒ 9M m<sup>3</sup> in Timber Supply Area (TSA)
- Canfor operations include:
  - 3 pulpmills, bleached, semi-bleached & unbleached kraft pulp; newsprint, 1<sup>st</sup> ISO9000 registered in BC Pulp & Paper mills seeking ISO 14001 certification.
  - 45 sawmills – 9 in B.C & 1 Alberta, lumber re-manufacturing plants in Washington and Idaho. Lumber, hardboard panelling, baled fibre, fibre mat & moulded fibre items Canadian
  - 12 woodlands operations (tenures) in B.C. & Alberta
- Canfor's products are sold in global markets.

### **Stewardship, Environmental Management Systems and Certification**

In 1992, Canfor introduced the Forest Stewardship policy to emphasise the Corporations commitment to environmental stewardship and ensure their operations were being managed to achieve superior environmental performance.

A Forest Practices Compliance Management Policy (FPCMP), was designed in 1996 to provide woodlands operations with a structural approach including management systems, towards compliance with the FPC and other forest and environmental laws, regulations and standards. The FPC and FPCMP policies are available on Canfor's internal computer network to provide full access to updates and amendments so that the information is current and correct. (Canfor, 1996)

Internal forestry audits are conducted on each of the 12 woodlands operations every three years, as part of the Forest Practices Performance Review programme (FPPR). External, independent audits have also been included to ensure objectivity. After each audit, the division prepares and implements an action plan to address any shortcomings. Summaries of the audits and the action plan are shared with employees, contractors and made available to the public. (Canfor, 1996)

Standard Operating Procedures (SOP) have been developed for all Woodlands operations. The SOP's are company wide, designed by foresters and engineers with feedback from forest workers. They can be divisionally specific and should be "on-the-job" at all times, and are part of performance evaluation for all employees. The company has a culture of "input development" from divisions; "They know they are going to have to live with it, so better to be a part of formulation". As with the FPCMP-- also developed with divisional input, it is not just head office laying down the law.

Buyers groups and customer's are interested in corporate policies, performance reviews and SOP's however they now require further assurances than just presentations on company policies and activities.

Canfor responded early to SFM demands and questions by customers. The founding families emigrated from Austria in the late 1930's and the corporation recognises the European roots.

---

Canfor has maintained strong business relationships with Europe, especially close ties to Euro-pulp markets (50% pulp sold to Europe) and heeds customer queries from the environmentally sensitive European market. The majority of the questions come from European customers, with very few from the USA. The questions are often prompted by non-government organisations such as Greenpeace and the World Wildlife Fund, and repercussions from campaigns like the Great Bear Rainforest blockade in northwest BC.

Although to date there is no inherent demand for certification, Canfor has begun technical marketing programmes aimed at pulp customers in the UK, to educate the market and create the demand for certification. Lots of time and energy is expended on presentations about forest stewardship, certification, FPC, CSA, ISO and how they relate to on-ground operations. Europeans have little understanding of broad scale forestry in Canada, many of the requests are simply for information.

Canfor has been pro-active in SFM certification initiatives, involved with the development of CSA SFM standards, with a staff member of on the Technical Committee on Sustainable Management and participated in the team representing Canada on the working group that developed the ISO 14000 series EMS standards.

Canfor has a history of putting their environmental foot forward, and do not want to lose credibility by hanging back on the issues relating to forest management. Instead they are happy to be the leader in stewardship and certification to maintain a market advantage, whilst recognising that there will be no market advantage when all companies certified. An answer is to meet more than one system standards to retain that competitive edge, it will be a challenge.

The Canfor marketing division are pushing for CSA certification, believing it will ensure an effective plan for achieving SFM, and lead to ISO 14000 series certification.

In June 1996, Canfor conducted an independent pre-audit assessment using the CSA SFM standards and the FSC Principles and Criteria for Natural Forest Management, at one of their woodland divisions in BC. Since no official "on-the-ground" FSC indicator's were available for BC's sub-boreal or temperate forests, the auditor's developed their own indicator's based upon their previous experience with FSC (Canfor, 1997). The purpose for the audit was to identify any gaps between current practices and the requirements of the specified standards and to gain experience in the application of the standards (Canfor, 1996).

The audits were carried out by a Swedish company SGC Forestry, an FSC accredited registration organisation, and identified several shortcomings with CSA and fewer with FSC.

The detailed assessment findings are being addressed by the Land & Resource Management Plan (LRMP), and include for CSA: (SGS, 1996)

- The Canfor Mission Statement, Forest Stewardship Policy, Environmental policy, and FPC Compliance Management Policies are sufficient to meet most of the SFM Standards' requirements for commitment.
- prepare an SFM plan for the DFA incorporating all the elements of the plan and providing a linkage for existing plans, policies, and documentation (including higher level plans and operational plans) with the SFM system.
- DFA and clearly defined shared responsibility;
  - Ministry of Natural Resources have key responsibility and would assist the process if they agreed to be co-applicant, however Canfor could still be registered; passive participation by the Ministry **could** be sufficient due to current operations in public participation and monitoring and freedom of information in B.C.
  - change in boundaries of the DFA, TSA and LRMP zone.

- 
- indicators and monitoring;
    - currently doing a matrix with 3 divisions to address CSA elements and indicators.
    - ensure the forest management objectives for selected indicators are assessed according to a management plan schedule, and that the actual results are compared to forecasts.
  - public consultation;
    - the LRMP goes along way to addressing CSA requirements especially in public participation and identifying values and goals (objectives) in a public forum;
    - concern that it will duplicate the LRMP process;
    - concern that CSA requires a higher level of public participation and public might be “burnt-out” and not want to get involved in getting the company registered;
    - very time consuming, and public voluntary doing it in own time;
    - going to try and respect work already done and fill in the gaps;
    - public participation group wouldn’t be starting with a clean page, and may have constraints on decisions;
    - problem with spread out communities, how to get them involved;
  - requires plan for continuous improvement to address shortcomings where information is not available and concerted efforts to deal with stumbling blocks.
  - need further training, standard operating procedures, incident control, responsibilities, internal/external communication, document management.
  - develop a control system to determine the need for training of Company and Contractor’s personnel and ensure that it has been implemented.
  - identify individuals and their respective responsibilities and accountabilities for the implementation of an SFM S.
  - ensure that feedback loops including review schedules are established to track SFMS performance and that information generated from the review process is used to revise objectives and improve the system.

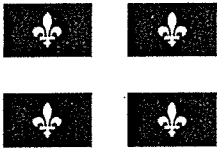
During 1997, full audits will be conducted on five of Canfor’s woodland division’s to the CSA standards and eventually Canfor will seek registration of all their woodlands operations.

The DFA selected for the first registration is a Forest License, volume-based tenure in the Prince George Timber Supply Area. The DFA encompasses five company operating divisions across three Forest Districts and covered by three Land & Resource Management Plans. (Higgenbotham, 1998).

A certification committee was formed with representatives from all parts of the company, with a clear commitment from upper management that SFM had their full support.

The company already has a culture of being pro-active, ie. FPPR, SOP’s and there is a feeling that they are “up to their ears” in FPC compliance, so why burden them selves further? Because Canfor wants to be “front & centre”, to be the leaders and one of the earliest receivers of CSA and or ISO registration.





## Industry impressions

*General summary of statistics refer to Appendix 4*

### Forestry Laws And Regulations

Quebec does not have a Forest Practices Code, the industry, for the past 16 years has been regulated by 42 laws and regulations which are constantly undergoing revisions and extensions.

There are three levels of government

1. Municipal
2. Regional
3. Central.

There has been a Greens push to not regenerate with any one single species however black spruce grows naturally as an evenaged monoculture due to its fire history. Industry has expressed concerns over the importing of data from country to country; area to area; not recognising provenance, site histories, and cultural uses.

The operating areas around Montreal to Quebec City are transition forest and have a long history of Forest industry but not managed forests. Much of the forest is degraded, heavily cut over and poorly regenerated.

Clearcutting, too bare soil, is seen by foresters as a means of imitating the natural forest processes following wildfire and insect attack patterns especially in even-aged monoculture Black spruce; ie. the size of cut to match fire patterns; however this may change the dynamics of the forest.

Boreal (Spruce) forests not a climatic forest due to wildfire; research by University of Chicoutimi shows 8000 year fire history in black spruce on a 100-120 year cycle.

In 1987, a policy of 'careful cutting' became mandatory in Quebec. Careful cutting requires <30% of area to be undisturbed, and the area disturbed not to bare soil, protecting advanced regrowth retention and limiting block size. Damage to retained stems has been minimised, however regeneration in trails (outrows) is slow. A survey is carried out at age 4 and age 7 for stocking levels (40,000 sph) until the stand reaches "free-to-grow", the projected stocking will be, age 15, 2500 sph and final crop 800-900 sph.

Other silvicultural restrictions have also been implemented:

- full inventory of forest resource carried out by industry, Ministry checks 10% of samples;
- Alpine forest restrictions to block size; to coincide with disturbance of population due to visual impact;
  - 20% below 50 hectares;
  - 70% below 100 ha;
  - 100% below 150ha.
- Hardwood forest restrictions to block size;
  - 70% below 25 ha;
  - 90% below 50 ha;
  - 100% below 100ha.
- Mixedwood forest restrictions to block size;
  - 70% below 50 ha;
  - 90% below 100 ha;
  - 100% below 150ha.
- must be a corridor left uncut between each block & each permanent creek;
- watercourse management - culverts must be fish friendly and some canoe- friendly;

- 
- procedures agreed to with Ministry; how to do; what to do; approvals; control; results; verification by Ministry;
  - hardwood prescriptions mostly selection cutting.
  - softwoods - 160-350 year rotations;
  - after 2000, pesticides will only be allowed on 2% of forests 600ha/yr limit; target species strawberries, concerns over how to manage weed control without chemicals;
  - 25 yr evergreen contracts - volume based licence not TFL's;
    - only 4 industries in 16 yrs have been shut out or lost rights;
    - licensees maintain full management control over area.
  - Forest Management Plan - 25 year plan:
    - biggest company in the area does forest management plan with integrated options simulating growth over 120 yrs;
    - 25yr detailed plan - silviculture; forest insurance;
    - 5 yr plan - specific activity location; silviculture;
    - 1 yr plan - very specific; cutting (activity) permit;
    - can not do anything without a permit based on the plan;
    - agreements between beneficiaries , companies with common working areas;
    - 20 companies may work within one area;
    - major issues of obligation:
      - ❖ water;
      - ❖ wildlife (territory units- must maintain 30% of forest, trees greater 7m, 30 yrs or older to ensure cover within watershed, has filters - all species, specific species);
      - ❖ other issues ; outfitters/trappers / Indians / tourists / resorts.
    - meet with representatives of these groups at a pre-consultation level;
    - meet every year with regional government as representatives for landuse and development planning;
    - present FMP to province, Ministry has right of veto;
    - pre-consultation - explains the legal framework to mitigate concerns in advance;
    - public consultation - have to show consideration for every reply; at first big response but dwindling now due to pre-consultation process.
  - private forests also have governing policy similar to public land; have to go by same regulations including municipal;
  - looking to average annual cut over Quebec, intensive forest management on private land with natural regeneration and pre-commercial thinning;
  - forest protection - two organisations involved Society of Protection against Insects and Fire Control. Ministry has right to veto but doesn't use it. Industry increases efficiency and decreases costs;
  - Ministry of Natural Resources; monitoring not standardised due to people traits, friendships etc;
  - Roading - big companies builds roads & charge other companies for use but roads belong to Ministry.
-



**ABITIBI  
CONSOLIDATED**

**Montreal, Chicoutimi  
Québec**

- Abitibi-Consolidated, Inc. (AC) was formed by the amalgamation of Abitibi-Price, Inc. and Stone-Consolidated Corporation, on the 29<sup>th</sup> May, 1997.
- AC. is the world's largest manufacturer and marketer of newsprint, value-added papers, and uncoated groundwood papers. It also distributes office products.
- Total assets (1997) ⇨ \$CAN 6.3B
- Net sales ⇨ \$Can 3.7B
- operations include:
  - 7 sawmills; 430M board feet of lumber annually;
  - 18 paper mills; annual paper production 4.4M metric tons (2.9M tonnes of newsprint, 1.5M tonnes uncoated groundwood papers) and 121,000 tonnes of market kraft pulp. 4 paper mills in Ontario; 2 paper mills in Newfoundland, interests in 8 paper mills in Quebec, 2 USA, 1 UK;
  - employs 13,000 throughout North America and the United Kingdom.
- 90% of products sold to USA.

#### **Stewardship, Environmental Management Systems and Certification**

European customers have been asking questions about clearcutting, the size of cut, environmental impacts and wildlife protection. In response AC invited them to visit Quebec to view forest operations and get an appreciation of the size of the resource, management techniques, and the laws and regulations pertaining to the timber industry.

A repeated comment was "it's not what you are doing that bothers us but how do we explain it?" Environmental Management Systems may be a way to explain it.

In the past few years, AC has cleaned up their forestry operations all over world and begun to concentrate on non-timber values ie visual, water conservation; fauna; flora; cultural heritage; native title etc.

Since 1982 a system of continuous improvement (CI) has been in place and shared across the amalgamated companies. As part of the CI system, Annual Environmental Audits are carried out. The results are fed back into the forest management divisions with requests to prepare and carry out improvement plans and alter standard operating procedures accordingly.

Standard operating procedures (SOP) are already in development as part of the CI system. They are seen by management as a means of making tasks clearer and easier, of defining responsibilities, and as a demonstration tool for everyone; including customers and public consultation groups. SOP's have been part of the company culture in several divisions for up to 20 years. However these procedures have not before been centralised and methods of document control are under discussion across AC's Canadian division's. Some resistance to change has been encountered from employees and the initial SOP programme took longer than anticipated to get up and running.

A 'Small step programme' has been trialed, to develop a culture within the work place of SOP usage. "One step at a time; a small step can have a big impact; changes must be simple things that people in the field can apply "those that take a giant leap will land badly". AC believes that any system will fail with out staff motivation and willingness to learn and improve.

---

"when you break a door it's very hard to close it"

In order to take the steps AC provides:

1. Strong objectives;
2. Strong commitment from Management;
3. Continuous improvement;
4. Best Management Practices;
5. Laws & regulations;
6. Supply of appropriate tools; money; equipment; technical support.

The Sagueny division has had SPO's for 3 years. They are currently contained in 5 small folders, with everything related to each specific tasks and each employee has their own specific copies which include:

- policies;
  - health & safety (general & specific);
  - environmental issues (general & specific);
  - quality standards and techniques (general & specific).
- necessary forms (eg. significant incidents reports);
- signoff - received training and binder.

The March-June thaw season, when all harvesting stops, is a good time to review SOP's, discuss new or improved procedures with the foreman and camp supervisors, and take suggestions to the Divisional forester. The Divisional forester has the right of veto which is rarely used due to potential decreased morale and teamwork. AC has a policy that employees can disagree with their boss and discuss matters openly as a means of building trust between Management and Employees (Union and non-union).

SOP's are supposed to be designed and maintained by those using them. They are developed to:

- describe what you do, do what you describe;
- base description upon Quality control, laws & regulations and best management practice;
- make sure the description matches the position requirements;
- review - is there an easier, cheaper and/ or more efficient way?
- can the SOP be simplified?
- use lots of flow-charts;
- give objectives;
- give responsibility;
- review with employees.

The Health and Safety representative also carries out monthly inspection using the SOP's. The division has found that the injury rate has decreased since the introduction of SOP's. A committee has been set-up to enquire into accidents and suggest SOP changes. Issues have been highlighted like colour-blindness (needed to pattern flagging tape), illiteracy; need to increase bilingual (French/English) skills, increased opportunities for employees to maximise and recognise potential and an increased pride in the job, the company and developing employee trust.

A SFMS / EMS would be incorporated into this current system.

Abitibi-Consolidated has decided to run with ISO 14000 EMS, rather than CSA. A gap analysis was carried out with the CSA and ISO standards, the results and the QMI registrar concluded a better performance and suitability with ISO for AC forest management divisions. One reason for the decision was to avoid responsibility for the activity of others with-in their operating area. The CSA system has not been completely ruled out and maybe implemented in the future.

---

Another reason for the decision was the viability of the ISO system, in that development is only possible if it is profitable; if a company goes bankrupt, then there is no development; industry must always be viable.

**Points on ISO 14000:**

- Customers seem to feel ISO has more credibility, people know ISO and are comfortable with it;
- nearly all mills ISO 9000 certified;
- choose as a learning tool;
- good response time, usually get answers within a week;
- improvement in an organised way;
- documenting what you do; make sure it is done;
- way of saying "we are there";
- have the knowledge, now just need the paper;
- but only a system;
- doesn't feel ISO can meet "chain-of-custody";

Each division can have their own system and can even go CSA should they and their Forest Certification Coordinator decide it would be best for that division. The Coordinator will train personnel with-in each division and conduct further in-house training sessions on the selected system. Training will be aimed at motivating employees to want further training and perform duties with minimal supervision; promoting refresher courses on regulations and legislation; revise SOP's with changes to legislation and EMS requirements and further forestry / Health & Safety. trade specific training.

**observations on CSA SFM**

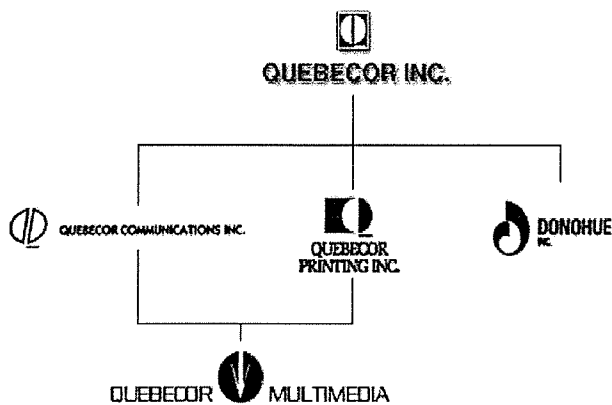
- DFA's a problem; multiple operators in an area; all would need to be part of a compatible system in Quebec;
- AC in Newfoundland has a DFA and might go CSA;
- system based rather than performance based;
- concern that CSA technical committee
  - may have rushed process and not allowed enough discussion on fundamental issues;
  - developed procedures via consensus; so far most of the experience is technical not natural resources;
  - is too far away from what was happening in the bush;
- developed an ideal system "not able to walk, not able to run";
- not getting answers from CSA asked 5 months earlier especially in regards to definitions.

**observation on FSC**

- against monoculture and /or even aged stands; black spruce fire regenerated ∴ even aged, often monoculture;
- do not agree with FSC principals;
- feel FSC losing ground worldwide;
- FSC doesn't respect cooperation with citizens, regional legislation's & regulations;
- main AC market USA
- AFPA (similar to CPPA) blasted FSC



- Donohue Inc. is a wholly owned subsidiary of Quebecor Inc., an empire solidly established on four continents, with a profit of \$140M and 33,000 employees. (Quebecor, 1997)
- Donohue is a major integrated forest products company engaged in the managing and harvesting of timber resources and the production & sale of newsprint, market pulp and wood products.
- With an annual production capacity of 1.5M metric tons, Donohue is the second largest producer of newsprint in North America and number 5 in the world. They are also the largest Canadian lumber producer east of the Rockies and the third largest in Canada.
- Donohue Inc. has been operating for 60 years and has been labelled one of the most profitable companies in the pulp and paper industry. (Quebecor, 1997)
- Mr Donohue started the company in the 1920's with a power-plant; then moved onto pulpmills. In the 1950's he started buying woodlots; 40ha standard (1.6km long\*700m wide) to demonstrate forest management. Introduced mechanised harvesting in 70's to their operations.
- Net income for 1996/97 ⇒ \$CAN 155M. (Quebecor, 1997)
- Revenues in 1997 ⇒ \$1,745M, an increase of 6.5 % over 1996. (Quebecor, 1997)
- Direct employment ⇒ 6,000
- operations in Quebec, Ontario and British Columbia include: (Donohue, 1997) (Quebecor, 1997)
  - 4 newsprint mills ⇒ 1.5M tonne of newsprint per year;
  - 16 sawmills ⇒ 14 in Quebec, 1.4B board feet of lumber per year; 2 in BC;
  - Roundwood production 5.3M m<sup>3</sup> of coniferous species in Quebec;
  - Own 1,1000 Km<sup>2</sup> timberlands in Quebec & Ontario,
  - 2 pulpmills (commercial & recycled pulp) ⇒ 950 ton/day of pulp 425,000 tonnes / yr;
  - hydroelectric plant;
  - recycling plant;
- In 1996, Donohue's owned and licensed timberlands provided over 95% of the timber requirements of its sawmill operations, and approximately 80% of the virgin fibre requirements of its newsprint and pulp operations. (Donohue, 1997)



---

➤ market: (Donohue, 1997)

		<u>USA</u>	<u>Canada</u>	<u>Europe, Asia, other</u>
net sales	⇒	62%	21%	17%
wood products	⇒	68%	29%	03%
newsprint	⇒	67%	11%	22%
market pulp	⇒	37%	36%	27%

### **Stewardship, Environmental Management Systems and Certification**

Donohue Inc. timberland division's do not see themselves as forest managers; The Ministry of Natural Resources is the Management; they are operators with obligations to natural resource stewardship in keeping with the principles of sustainable development and continuous improvement.

Over the past two decades the Canadian public has become increasingly interested in forest management and environmental impact issues. In 1987 succeeded in stopping Donohue from using rivers for transporting lumber, due to water pollution, losses of timber due to sinkage and conflicting uses ie. canoeing.

In 1994 customers from the United Kingdom and Germany began asking questions related to forest management and sustainability. Donohue Inc. invited the interested parties to tour their operations in Quebec, and see for themselves the natural processes of the boreal forests ie. Budworm attack and wildfire patterns.

Questions have also focused on strategic planning and SFM certification systems although there has been no push towards any one system. Donohue is interested in SFMS / EMS and realise that SFM systems are a way of maintain market share in the future.

Donohue contracted Price Waterhouse to carry out a gap analysis with the CSA specifications on the timberland divisions. They are also looking at ISO & FSC systems. At the beginning the temptation to "capture the whole beast" had to be restrained and to only take one step at a time.

The top priority was to develop an action plan to improve forest practices with the aim of obtaining certification by CSA some time in the future.

The first steps will be to develop and implement a management system based upon the CSA SFM system, with special consideration going to public consultation; classification and documentation; and cost of operations. The cost of bringing in the management system will hopefully be outweighed by increased efficiencies at all levels of production.

Donohue is determined to minimise the involvement of consultants in the development of the system and to use their own people as much as possible. They plan to establish a management Direction Committee with a district coordinator to exchange information and review action plans every six months. Each division will then adapt the company system to their reality as they may have different priorities.

The system will be promoted to their employees and local communities as a way of doing things right the first time, to increase efficiency and to realise benefits from international recognition of good forest stewardship.

Training sessions are under-way for all employees and contractors to explain the big issues now facing the company; to look at actions that will benefit the company like SFM systems; to introduce the new specifications and the processes involved in compliance. The management believe that success will come when all levels of personnel are able to see the benefit of a SFMS to themselves and not just to view it as a means to satisfy the "greenies".

---

No negative reactions have yet been encountered when discussing CSA's general prescriptions with stakeholders, employees, contractors, and the public. The company's commitment toward SFM and their stewardship policy is well understood and part of the job conditions. SFM systems is the way of doing things now; and if employees don't like it they can get a job somewhere else.

Once everybody understands the processes involved, and has their own objectives including contractors, performance will be judged against objectives set by their division.

So far Donohue has not had many problems getting contractor support for SFM. Changes brought about by new legislation's & regulations requirements have already become a habit, and incentive programmes for contractors including bonus' have been implemented. In the past penalties from government for non-compliance were passed onto the contractors, the system will hopefully reduce the risks of non-compliance with Ministry laws and regulations.

There are concerns with the DFA, as Donohue is not the only operator in their timber supply area. Who will be responsible for the DFA? Who will ensure that all common area users adhere to the system?

Standard Operating Procedures are being rewritten as a team effort, they need to be clearly written and provide a constant reminder of the aim of SFM. The procedures will be distributed to all relevant personnel and supervisors will have checklists to ensure SOP are being used, maintained and understood.

The public consultation process will be to CSA requirements and will aim to build up confidence and a climate of trust as well as stress the direct and indirect importance of the industry to the local economy.

Donohue want the public to see them as good corporate citizen's through concrete action; by planning operations around hunting season; by having buffers larger than legislation requirements; and by allowing the public to look at all plans and have ample opportunities to improve and be part of decision making process. Donohue will make available annual plans with presentations to concerned parties and regional municipalities, as well as the getting concerned parties and regional municipalities involved in development of the 25 year plans as required by the Forest Act.





# New Brunswick

## Industry impressions

*General summary of statistics refer to Appendix 5*

1982 saw many changes in the NB timber industry. One was the introduction of the Crown Lands and Forest Act. The act put in place a system to manage NB's forests and harvesting timber from Crown land.

Forest companies were required by law to file management plans that guarantee sustainability of forests over an 80 year growth cycle. Forest companies have to show they will not take more timber than will be replaced over that period. If they can't, they will not get a licence. Also, management plans must be submitted every five years to show how well the forests are being managed within the 80 year framework.

The first Forest Practice Code in Canada was introduced in that same year. The code provides guideline documents for deliberate actions and regulations as set down by the Department of Natural Resources. Industry finds them too restrictive and prescriptive.

The Ministry administers the regulations manuals for Crown Land, using a zero tolerance and demerit system. Ministry employees are seen as police and there is little recognition for what is done right, and more often than not they are administration problems rather than environmental. There is no incentive to work for the government, lower salary, no promotions, although there is job security. There was also a general feeling that people who work for the government couldn't get a job with a private company.

Another change in 1982 was the move away from concessions (99yr lease) into stewardship. There are now 10 public land licences each of 25 yr duration with 5 yr review; which gives ultimate responsibility of forest management to the leaseholders. Prior to 1982, DNR carried out most of the planting; the forestry companies were only responsible for harvest; now companies do it all; including game management; harvesting monitoring; fauna and flora management.



# J.D Irving Limited,

## Black Brook & Sussex, New Brunswick

### ➤ Irving Limited

- is family owned; based mostly in New Brunswick, Maine & Quebec; like to keep business close to home so family can “see” everything;
- Irving Paper Inc.; Irving Pulp & Paper, Limited; J.D. Irving Limited; Irving Oil, Limited
- 100 years in lumber industry
- Decentralised company

### ➤ J.D Irving is a wholly owned subsidiary of Irving Limited.

### ➤ 4.5M m<sup>3</sup> wood fibre per year is required to supply:

- 1 Kraft Pulp, 1 newsprint mill, 1 tissue paper mill, 1 tissue packaging plant, 1 corrugated cardboard plant;
- 11 sawmills producing 1.25M+ m<sup>3</sup> of lumber per year; in New Brunswick, Quebec, Nova Scotia and Maine;
- 25% of annual wood requirements are purchased from private woodlot owners;
- 8 Woodland districts;
- Tree-growing nursery and greenhouses (produce 15M trees per year for freehold planting);
- need to import materials as consumption bigger than production.

### ➤ Woodlands manage:

- 2 public land licences;
- 1 M ha freehold;
- 1 M ha public land with Annual Allowable Cut;
- districts manage themselves; twinned with wood processing facility;
- strategic planning; forest protection; scheduling; harvesting; silviculture;

### ➤ Black Brook woodland in the St-Leonard District, was purchased in 1942, an ex-railroad grant is the most intensively managed area:

- started planting in 1957; bought the land (natural forest; heavily cut over);
- originally tried natural regeneration but realised need for planting and sustainable yield
- 55% of wood to sawmill.

## The Irving Way

“we’re on the move.... working together to get the job done”

J.D.Irving, Limited (JDI) has created a culture known as ‘The Irving Way’, which applies to all land management issues, personnel, business dealings and public affairs.

JDI has a flat organisational structure which results in rapid action on good ideas and innovations, and enables the staff to talk directly with the owner.

---

The 'Irving Way' includes careful selection of staff, employees and contractors to maintain a team orientated and competitive culture. The "right people are people who don't like to see others beat them to the finish line" with pride in "working for a company that practices excellent forestry", with at least a high school diploma and a commitment to sustainable forest management.

JDI holds onto staff with continuous performance reviews and support for career trends, employing locals, supporting interactions outside work eg. sporting teams sponsorship, supply of uniforms and casual clothing with company logo and employee assistance programmes. Training programmes are based on an emphasis of continuous education and 'Irving Way' alignment sessions with career planning for both professionals and technical staff; in-house training packages; second language course and dialogue expressions from both sides with a large aspect of trust. The employee assistance programmes include a help-line with 3rd party counsellors to maintain confidentiality and financial help for employees children ie scholarships to college.

The results are a very stable workforce with little movement of professionals but steady increase of staff, local employees and as well as contracting crews who work exclusively for Irving with the owner on the job at all times.

Since 1957, JDI has planted in excess of 450,000,000 new trees; employed five full time field biologists and an ecologist for wildlife programmes ie. Salmon habitat restoration & stocking; insect research, Pine Marten population density studies as well as foresters/ technicians as Foremen and introduced the Irving Quality (IQ200) programme.

All employees participate in the Irving Quality (IQ200) programme, introduced in the sawmills in 1991 and the woodlands in 1993. The IQ200 quality process is designed to continuously improve quality through teamwork and incentives. It encapsulates Corporate strategies, goals, action plans, individual reviews, provides a points and feedback system, is a fun recognition of good work practices and includes prizes.

The process is a competition between districts, containing four elements

1. production
2. quality
3. safety
4. cost

The elements are measured against critical success factors and Goalpost ideas, critical items that effect the bottom line based upon hard numbers; some factors are scored outside of the district ie, budget, safety (industry standard) and some inside (quality checking, cleanliness of work-areas).

Each division is responsible for :-

- the design and implementation of the programme within a set framework;
- setting and being measured against their own targets, which can be reset each month within reason whilst working within the annual budget;
- their own bonus system and prizes;
- planning for unforeseen events that could effect production ie. weather;
- identifying all information and targets needed to make themselves more successful; what gets measured gets done;
- monitor and measure improvements; on-ground job inspections are different with each district; has standardised measurements but suited to the different culture of each district;
- translating the results to staff, employees and contractors and explanations of what changes are required, how the changes will improve performance and effect the operation.

---

Champion awards are given every four weeks to the district who scores the highest over all four elements. Every four months Grand-master prizes are awarded (binoculars, watches, shirts) and JDI puts on a BBQ with door-prizes, for the winning district. A presentation ceremony is made by one of the owners and photographs of the day are published in the Irving "Tiger Team" newsletter. Staff may also get cash bonus prizes for Grand-master (\$400-500) enough to make people interested and show management commitment.

Contractors also share in the IQ200 awards, they can make 3-15% increase in payment (production; quality; environment) which are related to consistency of performance.

The programme has so far proved successful in promoting pride and teamwork with staff and employees, has led to friendly rivalry between divisions and provided a forum for continuous improvement. The driving idea being that if improvements can be made than the whole company will get better.

However the system works best at staff level, employees tend to work for prizes and do not really understand how their work can effect the outcomes. Contractors meet their obligations but are not empowered to go beyond the required standard. The district IQ200 facilitators are working towards making changes by helping people understand why the change is needed and by trying to interpret what the result are saying not just the score itself.

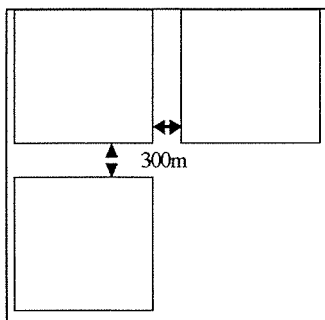
Other systems were considered including a demerit system if targets weren't meet or a non-compliance issue arose; problems get dealt with quickly with demerits. JDI decided that demerits focus to much on the negatives; instead a well set-up bonus system with the rewards worth getting would provide greater incentives for continuous improvements even though it wouldn't always get immediate changes as some people don't care.

The IQ200 programmes will be used to meet certification requirements; process innovations and demonstrate sustainable forest management.

## Stewardship, Environmental Management Systems and Certification

The Irving forest stewardship policy basically says "always treat an area as though you are going to live with it for 1,000 years" without turning it into a tree-farm. At no point in time will more than 50% of the region be in plantations.

Since the introduction of the Code of Forest Practice (CFP) in 1982, JDI has only a few small fines for non-compliance and have set up their own guidelines for forest management that exceed the CFP standards.



- Cutblock size - maximum 60 hectares (CFP, 100 ha), average 25ha; no adjacent block until regeneration 2m @ free-to-grow; distance width 300m; wind firm;
- Streamside buffers 60m (CFP, 30m); a stream is anything flowing water at any given time of the year with a channel 50cm wide that extends upstream. JDI feel 60m a more sustainable unit to be managed as a unit rather than a line;
- Harvesting follow natural disturbance pattern block by block to enhance biodiversity; leave portions of healthy wood; cutting worst quality all the time;

- 
- Clearcutting suited to balsam forests not so much spruce;
  - Shelterwood in White pine; White birch -three stage entry every 20 years (on 80 yr rotation); attacked by white pine weevil; will plant if not enough seed; has a 3-4 year seed cycle; first to go are inferior or deformed trees; to 40-50% crown closure 500-600 sph;
  - Thinning - Jack pine salvage thin from fire origin stand, pre-commercial in 1980, commercial thin in 1995; patch clearcut 2010 - using “ghost tracks” 3m tracks every 27m with a mini-harvester called a porter; quality payment system 60% production, 40% quality;
  - Rubbish removal - zero tolerance policy for last 5 years; appearance very important managed disposal sites for waste oil; grease cartridges; believe in everything being neat and clean; crews paid on quality system and can get up to 50% increase

Some guidelines have been presented in a glossary, picture-filled booklet called *Forestry Best Management Practices: Sustainable Forestry Principles for J.D.Irving, Limited's Forest Landbase*. The uses of the booklet are best described by Irving: (Irving, 1998)

*Our Best Management Practices represents the combined thoughts of many of our staff who are committed to the wise stewardship of the forest land they manage. The information presented in this booklet is meant to help users exercise their professional judgment in developing site-specific management strategies and prescriptions. Some recommended practices provide a range of options or outcomes considered acceptable under varying field conditions. A recommended practice may also be modified when an alternative could provide improved results for forest resource stewardship.*

*Best Management Practices describes procedures and practices that meet or exceed legislated requirements under the authority of provincial, state or federal government agencies.*

*This Best Management Practices booklet is only the start. It establishes a supporting framework upon which we will build detailed forest management standards and develop training programs. We are also developing special tools, such as videos, diagrams and check lists to help translate these principles into concrete action for each and every individual forest task. Best Management Practices is an evolving process. The search for better ways to manage never ceases. While functioning as healthy sustainable ecosystems the forest that J. D. Irving, Limited manages will continue to provide a sustainable timber supply, clean water, fish and wildlife habitat, recreational opportunities and employment.*

JDI is not a bureaucratic company, not everything gets documented or bogged down in paperwork. A minimum number of Standard Operating Procedures are maintained for consistency between districts. Close supervision, a verbal approach and IQ200 is “The Irving Way” to implement JDI and government policy. “Motivation toward achieving company objectives will be provided through the Irving Quality Improvement IQ 200 Program”.(Irving, 1998)

Certification is seen by JDI as a badge to display, but only if

- given by a credible body;
- is catered to the needs of specific customers;
- and is credible in the eyes of the public.

A gap analysis was carried out focusing upon FSC, CSA and ISO requirements. The results indicated CSA to be the easiest to obtain, followed by FSC and then ISO.

However market demand will drive the decision making process, not ease of implementation.

---

The homewear / hardware retail chain Home Depot receives 30% of JDI's sold wood products and are pushing for FSC. JDI also believes the holistic view of management by FSC will give more truthful snapshots of the state of forests than other systems due to the heavy basis on ecology, biodiversity, past activities and not just timber management.

#### Other benefits of FSC

- doesn't require too much documentation; required to show hard evidence;
- objective based with non-compliance of FSC 10 principals; not system based;
- right to the woodlands on ecological fashion;
- believe more meaningful and trustworthy to the public; perceived as having spiritual link to the earth;
- will certify forests managed responsibly & in the best way possible for all values;
- monitoring already in place.

#### Any reservations?

- Principals are transparent although science is not always given it's full weight;
- will live with rules until they change;
- will look into certification in 4 years with Black Brook as pilot project;
- technical criticism over 4 year process " want Irving to be certified, but with standards set".

The industry developed standard, CSA SFM system was described as "too bureaucratic, it doesn't judge the quality of the operations, only the quality of the system". The management system approach of CSA does not fit into the JDI policy of 'management by walking around, with just enough paper to do the business'.

JDI are not actively seeking CSA certification but they plan to be ready for CSA accreditation should it be required by market demands. They feel that they have sufficient Criteria and Indicators, training programmes, documentation and already practice SFM and involved in public consultations, have DFA's but would need sublicences to also be certified.

The ISO EMS would require consultants to write documents to fit into the system; consultants are not The Irving Way and the system is performance versus compliance. Accreditation would depend on the ability of the company to "play the game".



---

## How does this relate to Australia?

In global terms Australia's timber industry is quite small, mostly less than 1% of global forest product production, it is one of only 4-5 countries in the Pacific Rim with potential to increase sustained harvest levels and has been actively managing its forests for longer than most countries (Neilson, 1995).

Environmental management and forest stewardship are an integral part of our forests and forest products industry, and the overall responsibility of that industry as good corporate citizen's. However we have a credibility issue. Foresters and the forest industry are not recognised as professional forest managers by the public in the same manner as a doctor, accountant or engineers. Ask people in the street "what is a forester?" and the answers range from "I don't know", "aren't they park rangers?", "something to do with trees?", "they are the one's cutting down old growth forests!"

Compliance with and/or certificate of registration to a recognised, accepted and well advertised EMS / SFMS is a means of communicating the message to a wider audience that we, the Australian timber industry do care about the impacts of our industry upon the environment, we are professional forest managers and we know what we are doing.

As Lang (1998) pointed out "Certification is probably best seen as part of the effort that is needed to dispel ignorance about how the forests are managed. It doesn't have a lot to do with improving those standards of management which, in Australia, are already very high. Forest managers who strive for sustainability can expect recognition in the long term, because the proof of their endeavours will be irrefutably in evidence". "Certification is one way of making that evidence harder to ignore, deny, or misrepresent."

SFM and forest management certification can be achieved through a combination of performance and management system requirements found in the standards set-out by ISO, FSC, CSA or one of the other developing schemes.

The steps towards an EMS, SFMS and possible forest management certification are already either in place in Australia or currently being developed. An EMS would encompass the existing procedures, process and programmes and provide bridging materials to integrate existing management practices.

In Australia we are already involved with numerous government and industry integrated programmes to guarantee sustainable forest management. These include:

- The Comprehensive, Adequate and Representative Reserve System (CAR);
- Regional Forest Agreements (RFA);
- The Deferred Forest Areas programme;
- Expansion of Plantations;
- The development of internationally accepted scientific criteria that can be measured and audited to assess management performance in native forests and plantations;
- The development of internationally accredited environmental management systems for native forests and plantations;

There are private forestry companies and government agencies currently in the process of implementing an EMS using the ISO 14000 series, they include Australian Paper Plantations Pty. Ltd., North Forest Products Pty. Ltd.; Fletcher Challenge Paper, Boyer Mill (formally ANM FM), Queensland Department of Primary Industries, State Forests of New South Wales, and Forestry Tasmania.

Exploration of the Canadian attitudes towards and experiences with SFM systems, allows us to incorporate some of their findings into our systems, remove elements that cause to many headaches, avoid some pit-falls when introducing something new into our work place, and the competitive drive to do it better.



---

## Key Findings

No two EMS / SFMS are alike; no two companies/agencies are alike, no two implementation processes will be alike however there were some recurrent ideas from my case study, for the successful enculturation of any new system, process, standards or procedures into the workplace.

The first hurdle is to get the ball rolling, and once it has started maintain the momentum, always remember out of sight, out of mind. The system must be high profile.

- Match the chosen system/standards to the culture of the company, not the company to the system;
  - design the systems to suit the corporation and allow the divisions to tailor the system to their reality.
- Commitment and enthusiasm must come from the top down;
  - ivory tower management must understand the system, what it entails, and be seen to be actively involved.
  - all management needs to repeatedly demonstrate support for the system, the implementation teams and the divisions.
  - identify and provide technical, financial and human resources and all appropriate tools and equipment required.
  - deal with issues especially people issues, don't wait for them to go away.
- Forward planning;
  - realistic time-frames. Objectives can only be met when all personnel have the appropriate skills, knowledge and training, these capabilities need to be identified throughout the workcycle of an employee. (von Zharen, 1996)
  - identify potential problems, high risk situations, different division's needs and concerns.
  - prevent a bureaucratic system, aim to be results not process orientated.
  - develop employee trust and pride in their role in the company.
- Step-by step
  - clearly define objectives, direction and goals.
  - identify benefits and illustrate common goals.
- Develop ownership;
  - minimise use of 'outsiders' especially consultants, planners need to clearly understand the culture of the company.
  - select implementation team members from all levels of the company. Negative or apathetic attitudes are contagious, the implementation teams need to be carefully selected to ensure positive responses, and enthusiastic flow on of information from the teams to everyone in the division.
  - encourage 'input' development, listen to ideas to and utilise suggestions.
  - celebrate reaching goals, ie. BBQ's for the whole division.
- Involve every-one as soon as possible;

Despite the promotion of participatory approaches in resource management, some authorities have been slow to adopt such approaches. More often than not the approach adopted does not reflect a participative process which facilitates the active involvement of the community in both the process and the decisions which ultimately affect their future. The extra time and effort required to involve people in the decision making process not only serves to increase the acceptance of outcomes but also facilitates a process by which a new understanding may be created between communities and authorities. The involvement of stakeholders at all levels ensures greater accountability for the long term management of forest resources and recognises the value of integrating local and scientific knowledge bases (Coakes, 1996).





- ensure employee involvement; they have to want to do it and understand why they are doing it;
- working discussions with all levels of personnel need to be clear about objectives and ensure two-way understanding.
- de-jargonise the process. Jargon has its uses however it also creates barriers in communication by alienating your intended audience. It may be difficult to find alternative words for accepted jargon ie. Compliance, due diligence, accreditation, accountability, stewardship, enculturation.

[I have just spent far too much time looking for the word enculturation in dictionaries and thesaurus'. Inculcate is the closest term I can find but it doesn't quite encompass the integration of behavioural patterns into the working culture of a company or industry. I strongly suspect that 'enculturate, enculturation' are jargon words similar to 'sustainability', 'certifier' and 'eco-label', so if I took my own advice I would find another word!]

- avoid relying on one or two key planners, encourage delegation of responsibilities.
- promote the system, advertise both externally and internally. "Making life easier for you"

➤ Training;

- provide training and workshops, keeping in mind current workloads and experience,
- motivate employees to want training; implement activities that motivate, train and keep personnel abreast of environment aspects of their work. (von Zharen, 1996)

➤ Continuous Improvement;

- 'on-the-job' usage of the system; monitor uses -- what is getting used, what isn't, why not, how to improve it, is there a better way? listen to the people using the system.
- disseminate information and monitoring results; deal with problems and praise improvements.
- maintain momentum, discuss, review and keep up to date.

The top seven responses when case study companies were asked

*"why would you proceed with an EMS / SFMS?"*

1. it will provide a future market advantage and or maintain market-share
2. SFM will be strategically important to customers; for customer satisfaction.
3. to be leaders in the industry not followers, helping to guide consumer demand.

Although there is not currently a premium paid for certified products, the increasing number of systems/ standards available and public recognition of SFMS may contribute to an expectation of certification from companies trading in the open market, especially to Europe.

4. ensure continued environmental improvement and economic success; has potential to markedly improve forest management standards; increase efficiency and performance standards, improve internal & external communications, decrease liability, hopefully decrease prescription management, and provide long-term security of tenure.
5. a package of goods; help consolidate the many management processes already in place.
6. give some accountability back to the forest manager; allow professional foresters to administer and manage the land more freely.
7. a way of doing things right the first time, to increase efficiency and to realise benefits from international recognition of good forest stewardship.



***“Say what you do,  
do what you say,  
and then prove it!”***

(von Zharan, 1996)



## Glossary of Terms, Background Information and More

**Canadian Standards Association (CSA) - Standards for Sustainable Forest Management (SFM) (1994).** The CSA, is an independent, non-profit association funded by government and industry. It is recognised for its rigorous methods in developing standards. In 1994, in conjunction with the Canadian government, a group of forest industry organisations formed the Canadian Coalition for Sustainable Forest Management and turned to the CSA to develop a set of SFM standards for Canada.

A CSA programme calls for a voluntary system of registration based on Canadian criteria for SFM. The CSA registration programme involves the assessment of a company's ability to manage in an environmentally sensitive manner. As a result, Canada is the first country in the world to have national SFM system standards that are both compatible and consistent with the generic International Organisation for Standardization (ISO) 14000 EM Standards and yet are still focused in local realities and needs across Canada. (MacMillan Bloedel, 1996<sup>1</sup>)

CSA is one of seven organisations empowered by the Canadian Standards Council to develop standards in Canada (Mercier, J-C, 1996) Any management system must rest on a number of attributes, it must be credible, applicable, verifiable, affordable, elitist and must lead to the continued improvement of forest management wherever it will be applied. Further more the scope of its application must take into account the great variety of Canadian forests and be in step with the ISO 14000 standard.

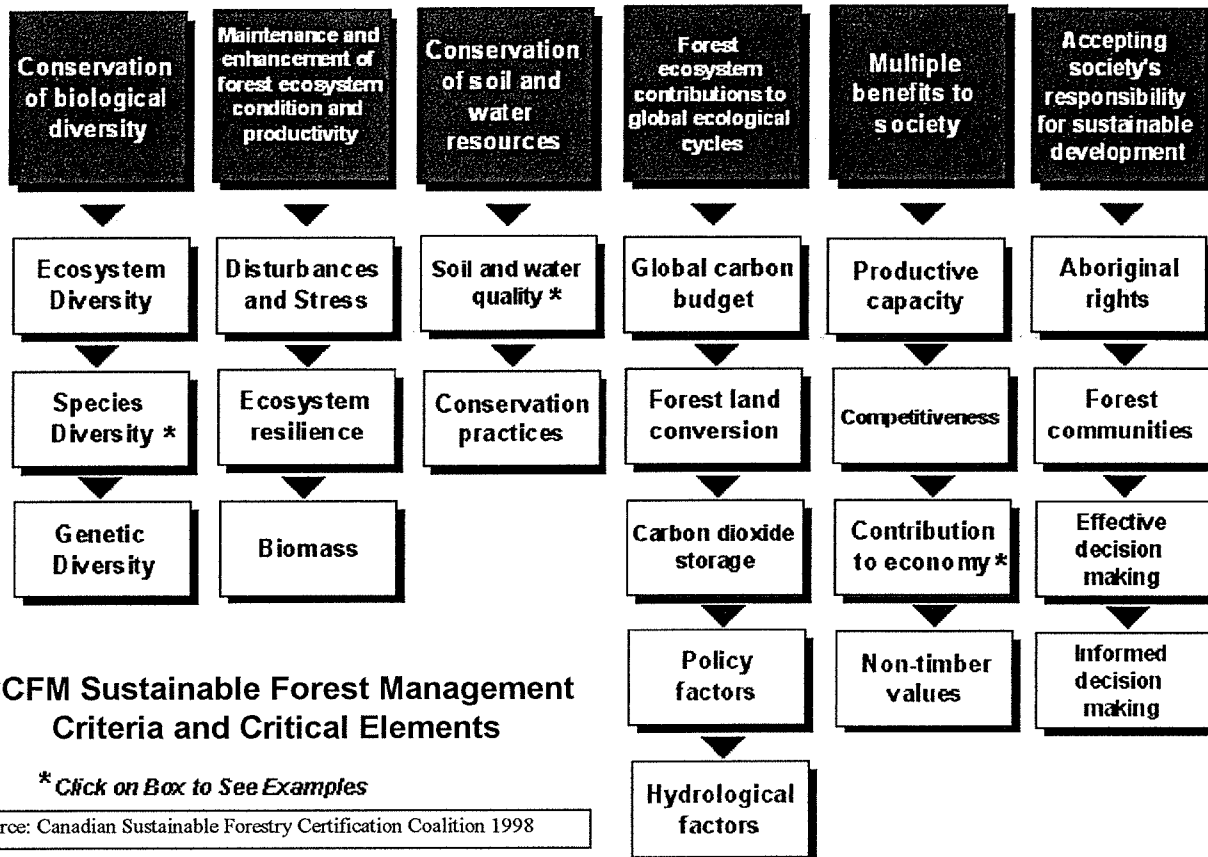
The CSA technical committee is composed of 32 voting members drawn from four categories or interest groups:

- government forest management regulator's;
- forest producers;
- forest science, academic, professionals;
- general interest (consumers, native peoples, environmental groups, social interest groups, trappers, anglers, hunters etc.)

As many as 18 additional non-voting observers attend meetings of the technical committee and contribute to the development of the standard. (Rotherham, 1996)

To meet the CSR (SFM) System Standards, an organization has to establish a system which meets rigorous requirements for:

- Commitment
  - Public Participation
  - Management System Elements
  - Preparation
  - Planning
  - Implementation
  - Measurement & Assessment
  - Review & Improvement
- To be certified under the CSA standard, the forestry enterprise must prove to an accredited registrar that it meets the federal and provincial regulations. In addition, it must prove that it achieves continuous improvement, as guided by the 6 criteria and 21 critical elements defined by the Canadian Council of Forestry Ministers.



According to the standards: (CSFCC,1998)

- the focus is on a "defined forest area." They do not apply to products as in an ecolabel program. Therefore the customers of successful registration applicants will not receive a stamp on the products they receive.
  - to be successful, the registration applicant must undergo and comply with an independent third-party audit of both the management system and the performance objectives in the field.
  - the successful registration applicant will receive an official certificate of registration which can be used to inform customers, communities, and other interested parties that the DFA has met the rigorous standards set by the CSA and that the system and practices in place are consistent with the goal of moving towards SFM.
  - they provide a voluntary tool to assist responsible forest organisations in moving towards the goal of SFM.
  - the on-the-ground performance objectives are set for both national SFM criteria and local values, through the successful implementation of a comprehensive SFM system.
- At least 15 major Canadian forest products companies are implementing the CSA standards on an initial area which covers some 20 million hectares.
  - Three companies are using the FSC approach, two of which are also concurrently implementing the CSA standards.
  - Thirteen companies are implementing ISO 14001 in the woods, and seven of these 13 are also implementing the CSA standards.
  - In Canada, over 12,000 private woodlot owners are proceeding with the implementation of the CSA standards on some 800,000 hectares of private land through their associations. In addition, the CSA has published a document to aid small woodlots, PLUS 1135, Cooperative Registration of Small Private Woodlots: A Hypothetical Application of CAN/CSA Z808/96



### Impressions from Industry

- respected organisation;
- performance based system rather than ISO system based;
- DFA problems due to TSA system:
  - 20 year planning cells on 80-100 yr rotation, not area to manage in perpetuity for SFM but must look beyond to ensure elements of SFM addressed
  - Will require at least passive participation by The Ministry of Forests in BC, to continue carrying out SFM functions; and in the event of an application for registration, the MoF would have to agree to participate.
  - need to ensure the co-operation and participation of all applicable agencies and interested parties, particularly Ministry of Forests, for the implementation of an SFM system on the Crown DFA.
- not really a certification process but a registration process;
- need to clearly define the respective roles and responsibilities of all participating or co-operating parties;
- more independence for companies than with FSC because third party registration;
- hope will raise credibility of forest industry;
- QMI are ISO 14001 credited registrars, CEAA (Canadian Environmental Audit Association) industry involved in setting up, KPMG;
- Government concerns with CSA (Canfor)
  - Ministry has ultimate responsibility to continue monitoring of CCFM Criteria and Indicators and the management of BC public lands
  - see CSDA as voluntary standard that sets normative standards rather than regulatory standards. Ministry doesn't want to have authority / responsibilities challenged as to how they manage the forests. Do not want their regulatory standards to be certified.

**Certificate of Registration:** the official document issued by a registration organisation to the registration applicant upon successful completion of a registration audit (CAN/CSA-Z808-96,1996).

**Certification of Wood:** a process leading to written certification by an independent advisory body that the rules of forests management in the country or region of the wood origin have been followed when the wood was harvested and processed. (Paschalis, Pitor., 1996)

**Compliance :** the conduct or results of activities that are in accord with previously stated requirements. (CAN/CSA-Z808-96,1996)

**Compliance Forestry:** which places constraints on the actions that forest managers can take to avoid unsustainability and is usually based upon some code, legislation or manual. describes the kind of professional practice in which foresters' and forest engineers actions are focused on compliance with regulations and codes imposed by outside agencies, rather than upon management design and implementation. The focus moves away from achieving results in the form of changed forest conditions or flows of values from the forests to one defining allowable actions and policing. The range of management scenarios to the professional is highly restricted and much of their time is spent documenting compliance or enforcing it. (Zundel et al,1996)

**Criterion:** a distinguishable characteristic of sustainable forest management; a value that must be considered in setting objectives and in assessing performance (CAN/CSA-Z808-96,1996).



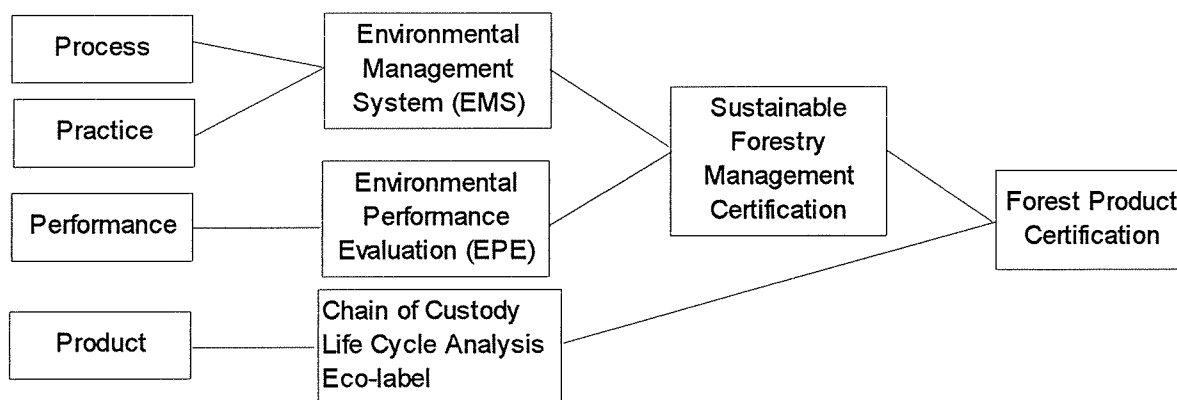
**Defined Forest Area (DFA):** a specified area of forest, land, and water delineated for the purposes of registration of a Sustainable Forest Management System (CAN/CSA-Z808-96,1996).

The forest location and boundaries to which the performance objectives and the CSA SFM System apply is known as the DFA. The DFA may be privately or publicly owned land, or a combination of different ownership and it may range in size from a few hectares to more than a million hectares. Combining small forest areas into larger units may be necessary to resolve scale-related issues. For example, certification could apply to woodlots managed under an approved SFM System where woodlot owners are part of a larger DFA established to address criteria and critical elements that cannot be addressed on a small scale, or to obtain the economies of scale required to make the program cost-effective. (CSFCC, 1998)

**Environmental Management Systems (EMS)** The organisational structure, responsibilities, practices, processes and resources for implementing Environmental Management. (Upton,C. 1995) An EMS is made up of all the steps managers take to deal with the environmental issues they encounter in their business. These include policies, procedures, and resources, and often involve: compiling inventory and descriptive data; communications or consultations with other stakeholders and the general public; establishing goals, indicators and objectives; assessing problems and risks; developing appropriate strategies; training employees; auditing and assessing performance and striving for continuous improvement. Several programmes for environmental certification of forest management systems and manufacturing processes are currently under development. Most involve some form of independent verification regarding progress towards environmentally sustainable operating criteria. (MacMillan Bloedel, 1996<sup>1</sup>)

**Forestry Certification** a generic term used to describe both Forest Management Certification and Forest Product Certification, dependant upon the point of view of the speaker or interest group.

The figure below was used by Ken Shirley, MP to depict the distinction between Forest Management Certification and Forest Product Certification, and how SFM is dependant upon an organisation's management system (Shirley, 1997).



**Forest Management Certification** is the auditing of forest management quality, within a specified area of forest under a single management regime and/or ownership, against a specified standard. It is undertaken by independent third-party certifiers, involves assessment of the documented management system and/or forest-level performance and its impacts, and results in the issue of a certificate for a defined period and/or a schedule of needed improvements. (Bass,S.M.J, 1996)

**Forest Product Certification** combines forest management certification with chain-of-custody auditing. The latter is a monitoring process involving independent verification of flows of forest products, with their associated records, from forest, to processing, to finished product at the point of sale. (Bass,S.M.J, 1996)



**Forest Stewardship Council (FSC) (1993) :** The Forest Stewardship Council (FSC) is a non-profit international organisation that was established in 1993 with the support of the World Wildlife Fund. The goal of the FSC is to provide consumers with information about forest products and their sources through certification. It has introduced an international labelling scheme which provides assurances that forest products carrying the FSC logo meet the FSC Principles and Criteria of Forest Management. Certification and auditing are to be conducted by organisation's which have been accredited by FSC. The FSC supports the development of national and local criteria and indicators that implement its international Principles and Criteria of Forest Management. (MacMillan Bloedel, 1996).

The FSC Principles and Criteria for Natural Forest Management state that "The goal of FSC is to promote environmentally responsible, socially beneficial and economically viable forest management of the world's forests, by establishing a worldwide standard of recognised and respected Principles of Forest Management" (Hebert, Dr.D 1996)

The FSC commenced in the UK as a response to, and action by, timber traders who wished to show, by the use of an ecolabel, that the wood products they were selling were 'environmentally friendly'. The World Wildlife Fund of Nature is the main NGO behind the scheme (La Fontaine, 1995). Greenpeace, Friends of the Earth and timber-traders and merchants, some Indigenous groups and conservation action groups are openly advocating FSC eco-labelling. . (La Fontaine, 1995)

In order to use the FSC forestry certification logo, the applicant for certification must agree to the FSC Principles and agree to certification by independent auditors approved and accredited by the FSC, on a regular basis. Timber traders agree to only buy forest products from those companies that are accredited. (La Fontaine, 1995)

#### **Impressions from Industry**

- feel will flounder;
- lacks industry support;
- lacks international recognition, not stable;
- wary about system changes after initial certification;
- concerned about end- goal backing and agenda – taking out control out of industries hands;
- structure of FSC voting powers -- 75% environmental / social, 25% economic, no three way split and Gov. prohibited from being a member; commercial. (Note :In 1996, this structure was changed to 33% social, 33% environmental and 33% commercial.)
- why isn't BC Gov. opposed to FSC? Current Gov. has strong green vote and need to maintain that vote whilst being friendly to timber industry;
- have no quarrel with FSC principles and criteria, the problem is with the open interpretation and who is doing the interpretation;
- The biggest problem of all is the Forest Stewardship Council operates by the rules it created for itself and reports to no higher authority.
- the FSC is biased against industry and government;
- interesting Websites
  - <http://www.fscfacts.com/forest.htm>
  - <http://www.nafi.com.au/issues/fsc.html>
  - <http://www.ulb.ac.be/assoc/iff/study>

**Free-to-grow :** (free growing) Young trees that are a high or higher than competing brush vegetation with one metre of free-growing space surrounding their leaders. (Forestry Canada,1993)

**Indicator:** a measurable variable used to report progress towards the achievement of a goal (CAN/CSA-Z808-96,1996).



**International Organisation for Standardization (ISO) :** The ISO was formed in 1947 in Geneva, Switzerland as a worldwide federation of national standards bodies. (MB, 1996<sup>1</sup>) for the purpose of developing international standards to improve international communication and collaboration and to promote the smooth and equitable growth of international trade (Shirley, 1997).

ISO standards are documented agreements of technical specifications that companies use as guidelines to ensure that materials and products fit their purpose. In 1987, the narrow technical focus of ISO shifted to a focus on quality standards with the introduction of ISO 9000. In the early 1990s, following the UN's Earth Summit on environmental issues in Rio, the ISO came under increased pressure to develop an environmental management standard, to deal with the impacts of the production process as well as the product.

There was already a growing array of national and private standards for environmental performance and eco-labelling but no international set of environmental management standards, so development of ISO 14000, was initiated. In addition to responding to momentum from the UN's Rio summit, development of ISO 14000 expanded on the work of the Strategic Advisory Group on Environment (SAGE), a technical group of European business representatives formed just prior to the Earth Summit to consider the issue of international standards for environmental management. SAGE recommended to ISO that an international standard would promote international consensus regarding a common approach to EM, much the same way that ISO 9000 promoted a common approach to quality management. (MacMillan Bloedel, 1996<sup>1</sup>)

**ISO EMS 14000 series (1993):** ISO 14000 is comprised of a series of environmental management standards including: management systems, auditing, labelling, performance evaluation, life-cycle assessment, and terms and definitions. The ISO has established a formal working group on forests to develop a framework for the preparation of international forestry standards. ISO 14000 requires companies to adopt Environmental Management Systems and to audit their progress towards the environmental goals they set for themselves. It also requires signatory firms to involve outside groups (customers, suppliers, community groups) in their environmental programmes and requires third party verifications of environmental practices. (MacMillan Bloedel, 1996<sup>1</sup>)

A « forestry organization » - general term encompassing forest enterprises, co-operatives, parastatal organizations, etc. - wishing to be certified according to the ISO-14001 system must demonstrate that it abides to laws and regulations, must proceed with a continuous improvement of environmental management, and must provide adequate training to the staff undertaking activities with a potentially negative impact on the environment. These elements are externally audited by an accredited certifier. (Kiekens, 1997)

**Management Process approach to certification** focuses on development of a formal forest management planning process that specifies how stakeholders participate in management, how sustainability objectives are set and results monitored (Zundel et al, 1996)

**Registrant:** the person(s) or organisation(s) that has registered its SFM system with an accredited registration organisation, is responsible for the characteristics and particulars related to its SFM system, and is able to ensure that it functions in continued conformity with registration criteria (CAN/CSA-Z808-96, 1996).

**Registration:** the procedure by which a registration organisation indicates relevant characteristics and particulars of a registrant's SFM system in an appropriate and publicly available list following a successful registration audit (CAN/CSA-Z808-96, 1996).

**Registration Organisation (RO):** an impartial third party that is eligible to register registrants with respect to nationally or internationally recognized standards or both. (CAN/CSA-Z808-96, 1996).





**Results-Oriented approach** focuses on how objectives are set and the explicit statement of carefully defined forest-level outcomes that are indicators of sustainability and monitoring processes to measure them. (Zundel et al, 1996)

**Stewardship** : the management of public land with regard for the rights of all stakeholders, and for the long-term health of forest ecosystems. The vision of Stewardship encompasses the full range of resource values: soil; water; timber for commercial use; habitat for wildlife, birds and fish; recreation; range; preservation of unique or special areas; and sensitivity to the visual impact of forestry operations.

**Sustainable Forest Management** : the complementary goal of maintaining and enhancing the health of forest ecosystems, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations. (MacMillan Bloedel, 1996<sup>1</sup>)

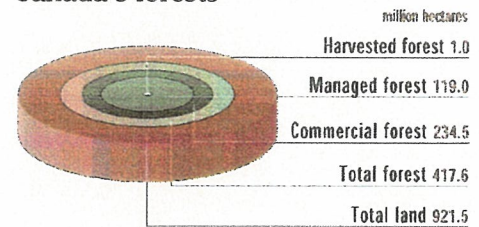
**Sustainable Forest Management System:** the structure, responsibilities, practices, procedures, processes, and the time frame set by a registration applicant for implementing, maintaining and improving sustainable forest management (CAN/CSA-Z808-96, 1996).



## Canada's Forests and Forest Industry

- Population ⇒ 30.1 Million (M)
- Total area ⇒ 997M hectares (ha)
- Land area ⇒ 921.5M ha
- Forest land ⇒ 417.6M ha
- National parks ⇒ 32.4M ha

Canada's forests



(Canadian Sustainable Forestry Certification 1998)

- Provincial parks ⇒ 22.9M ha (NRCAN, 1997)

- Canada is steward to

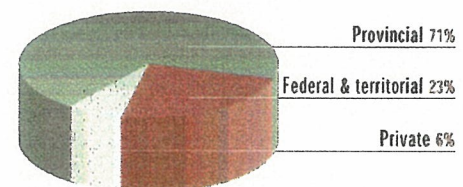
- 10% of the earth's forests;
- 05% of the world's fresh water;
- 16% of the world's total softwood resource;
- 03% of the world total hardwood resource.

- 76.5M ha (7.7%) formally protected land and forest in parks and reserves.

- Annual Allowable Cut (1995) ⇒ 232.9M m<sup>3</sup> (NRCAN, 1997)

- one quarter of 1% of Canadian forests are harvested for wood each year; (800,000 - 1 M ha)

Forest land ownership



- 94% of Canadian forests are public land (NRCAN, 1997)

- 71% Provincial government;
- 23% Federal and Territorial government;
- 06% private landowners (425,000).

- Forest Management is a provincial and territory responsibility except the Yukon Territory, the forests are managed by the federal Department of Indian Affairs and Northern Development.

- world's largest exporter of forest products; (CPPA, 1997)

- 34% world's wood pulp exports;
- 49% newsprint;
- exports 80% of it's product to approximately 100 countries;

- Forest products industry \$49 billion business directly and indirectly employing 1,000,000 people. (CPPA, 1997) or one job in 16 (NRCAN, 1997)

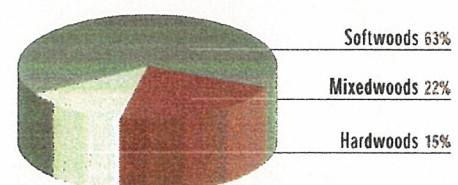
- eight forest regions; 15 terres-trial ecosystems, 194 ecoregions & 1000+ ecodistricts (NRCAN, 1997)

- 63% of forests coniferous. (NRCAN, 1997)

- 22% Hardwoods

- 15% Mixedwoods

Forest types in the commercial forest





# British Columbia's Forest Industry

## General summary of statistics

- Population ⇨ 3.9 Million (M)
- Total area ⇨ 94.5M hectares (ha)
- Land area ⇨ 93.0M ha
- Provincial parks ⇨ 8.26M ha
- Forest land ⇨ 60.6M ha (NRCAN, 1997)
  - 45.6M ha productive forest
  - 25% - suitable for harvesting
- Public land ⇨ 96%
- Annual Allowable Cut ⇨ 75.4 M m<sup>3</sup>
- Value of Exports ⇨ \$CAN 14.9 billion (NRCAN, 1997)
- Forest Type
  - 89% Softwoods;
  - 03% Hardwoods;
  - 08% Mixedwoods.
- Employment attributable to forest management & wood products manufacturing (1996)
  - ⇨ 184,000 (1 job in 10) (NRCAN, 1997)
  - 83,000 direct jobs;
  - 101,000 indirect jobs.
- Major export markets (1996) (NRCAN, 1997)
  1. USA ⇨ 56%;
  2. Asia ⇨ 24%;
  3. Europe ⇨ 09%.
- BC forest industry operations include: (NRCAN, 1997):
  - 594 sawmills;
  - 66 pulp & paper mills;
  - 2,543 logging establishments.

Provincial	43,400,000 ha	95%
Federal	500,000 ha	1
Private	1,700,000 ha	4
<b>Total</b>	<b>45,600,000 ha</b>	<b>100</b>

Weyerhaeuser (1995)



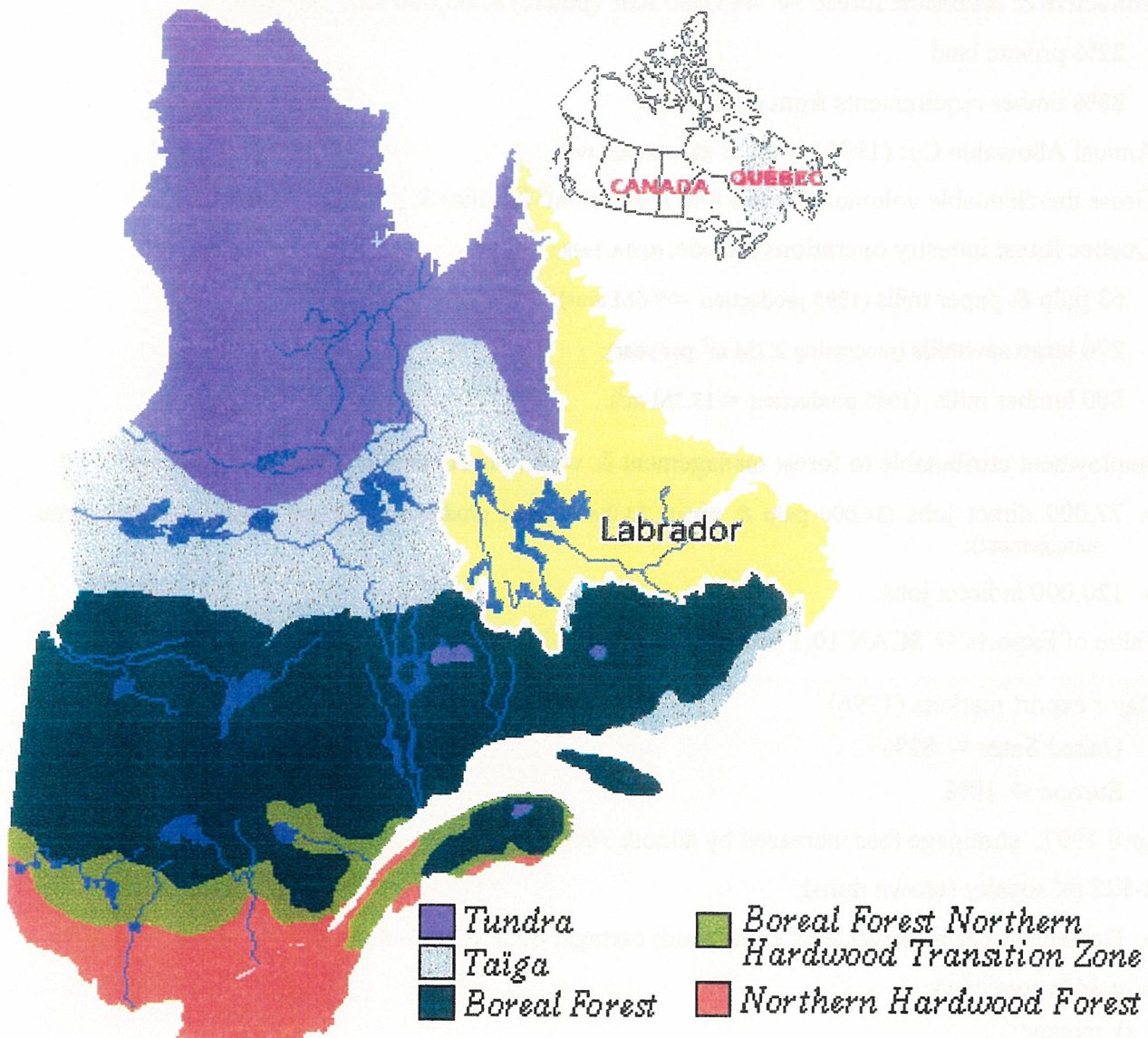
## Québec 's Forest Industry

- Population ⇨ 7.4M
- Land area ⇨ 135.7M ha
- Total area ⇨ 154.1M hectares (ha)
- Provincial parks ⇨ 7.1M ha
- Forest land ⇨ 83.9M ha ⇨ 764,000 Km<sup>2</sup> (45% of Quebec) (NRCAN, 1997)
  - public forests ⇨ 89% ⇨ 580,995Km<sup>2</sup>
  - private land ⇨ 11% ⇨ 107,000 Km<sup>2</sup>
- Forest Type
  - 65% Softwoods
  - 15% Hardwoods
  - 20% Mixedwoods
- productive & accessible forest ⇨ 448,000 Km<sup>2</sup> (public) & 60,000 Km<sup>2</sup> (private)
  - 22% private land
  - 88% timber requirements from public land
- Annual Allowable Cut (1995) ⇨ 57.8 m<sup>3</sup> (NRCAN, 1997)
- Gross merchantable volume of wood ⇨ 3.7 Billion m<sup>3</sup> (public) & 550M m<sup>3</sup> (private)
- Quebec forest industry operations include: (QFIA, 1998)
  - 63 pulp & paper mills (1995 production ⇨ 9.5M tons);
  - 270 large sawmills (processing 2.7M m<sup>3</sup> per year);
  - 800 lumber mills (1995 production ⇨ 13.5M m<sup>3</sup>).
- Employment attributable to forest management & wood products manufacturing: (QFIA, 1998)
  - 77,000 direct jobs (34,000 pulp & paper; 33,000 lumber production & wood products; 10,000 forest management);
  - 120,000 indirect jobs.
- Value of Exports ⇨ \$CAN 10.1 billion
- Major export markets (1996)
  - United States ⇨ 82%
  - Europe ⇨ 10%
- April 1997, stumpage fees increased by almost 30%.
- \$2-\$22 m<sup>3</sup> royalty (crown dues);
  - Dependant upon factors like; zone; road; cartage; ease of extraction.
  - paid in two ways:
    - a) money;
    - b) silvicultural activity rate/ha (pay first and then refunded silvicultural costs).





- Five major vegetation zones: (refer Appendix 7 Commercial Tree Species in Canada)
1. Boreal Forest ⇨ 560,000km<sup>2</sup> dominated by stands of Black Spruce, Jack Pine, Balsam Fir and Tamarack (75% of Quebec's forested land).
  2. Boreal Forest / Northern Hardwood Transition Zone ⇨ 86,000 km<sup>2</sup> dominated by stands of Balsam Fir, Yellow Birch & White Birch.
  3. Northern Hardwood Forest ⇨ 86,000 km<sup>2</sup> , home to two-thirds of Quebec's population, dominated by Sugar Maple, American Beech Yellow birch, Basswood, Red oak, Eastern Hemlock, white pine, and red pine.
  4. Tundra ⇨ 400,000 Km<sup>2</sup> a region without trees, characterised by bogs, marshlands and rocky outcrops, moss and lichens.
  5. Taiga ⇨ 340,000 Km<sup>2</sup> an area dotted with stunted black spruce, lichen and reindeer moss.





## New Brunswick Forest Industry

- Population ⇨ 762 400
- Land area ⇨ 7.2M ha
- Total area ⇨ 7.3M hectares (ha)
- Provincial parks ⇨ 24,900 ha
- Forest land ⇨ 6.1M ha (NRCAN, 1997)
  - 85% forest. forest cover increased over last 40 years:
    - public forests ⇨ 49 % (48% provincial, 1% federal);
    - private land ⇨ 51% (21 % big companies; 30 % Woodlot owners).
  - 15% agriculture.
- Forest Type:
  - 47% Softwoods;
  - 24% Hardwoods;
  - 29% Mixedwoods.
- Annual Allowable Cut (1994) ⇨ 11.2M m<sup>3</sup> (NRCAN, 1997)
- NB producers 4% of National Forest Products.
- 40% state revenue is from the Forest Industry.
- Employment attributable to forest management & wood products manufacturing (1996) ⇨ 26,000 (1 in 12)
  - 17,000 direct jobs
  - 9,000 indirect jobs
- Value of Exports ⇨ \$CAN 2.0 billion
- Major export markets (1996)
  1. USA ⇨ 69%
  2. Europe ⇨ 13%
  3. Asia ⇨ 06%
- New Brunswick forest industry operations include: (NRCAN, 1997)
  - 132 sawmills;
  - 22 pulp & paper mills;
  - 957 logging establishments.
- public has historically been closer to resource management and forest management; so not so much opposition to FM practices; better understanding of practices and legislation's.



## British Columbia Tenures

(1995 Weyerhaeuser Canada : A brief introduction to BC Timberlands)

### *Area based tenures*

Identifies and grants harvest rights to the tenure holder on a more or less exclusive basis from a legally described land area. The volume of yearly harvest is also specified in some cases, and it represents the capacity of the area to sustain that level of harvest in perpetuity.

#### *The main area based tenures are:*

- **Private land:** the owner has exclusive right to the trees. The owner does not have legislated management or reforestation obligations. In some cases, a Royalty is paid to the crown on wood, as harvested.
- **Timber licence:** The land supporting a forest is owned by the province, while someone has exclusive rights to the timber. It has a definite (40 year) timber depletion period. It is obligatory to reforest harvested areas and a royalty is paid for the harvested timber. The land reverts back to the crown after the removal of the mature forest or after the expiration of the 40-year term. Only a portion of a percent of forest land is concerned by this type of tenure.
- **Tree Farm Licence:** The licence holder has exclusive rights to the timber on the area to the level of its sustainable capacity. The licensee is responsible for the proper management and reforestation of the area. Stumpage is paid for all wood harvested. The licence is issued for as 25 year period with an evergreen 5 year replacement provision. Approximately 60% of the forests in the coastal region and approximately 5% of the forest in the interior region are covered by this form of tenure.
- **Woodlot Licence:** It is issued to individuals for a 15 year replacement term, over Crown forest area in a size up to 600 ha. All obligations and provisions of a Tree Farm licence apply. Approximately 1% of the forest land in B.C is covered by this tenure form.

### *Volume Based Tenures*

Grant harvest rights (volume per year) within the boundaries of public management units (Timber supply areas). The total yearly available harvest in these management units is generally shared between several companies and logging concerns.

#### *The main volume based tenure forms are:*

- **Forest Licence:** The harvest of calculated volume per year within a Management unit is specified. The terms of the licence is 20 years with an evergreen 5-year replacement provision. The management of the operating areas is specified as part of the Timber Supply Area management strategy. Licence holders pay stumpage for harvested wood and are responsible for the replacement of the forest (reforestation). This is the main tenure form in the southern interior.
- **Timber Sale Licence:** These are short term tenures (1-3 years) containing a specified volume of wood, sold at auction to the highest bidder. Successful bidder pays stumpage with a bonus bids and the cost of reforestation. All management, road construction, and reforestation is the responsibility of the land owner represented by the Forest Service. Approximately 12% of volume harvested in the province originates from this form of tenure.
- **Pulpwood Agreement:** It is a secondary, but nevertheless, a very important tenure form, granted to pulp mills in support of their raw material (fibre, chips) needs. This agreement specifies the maximum volume of wood that could be harvested within a specified land area in support of the continuous and uninterrupted operation of a pulp mill, in case the residual (sawmill produced) wood chip supply is not available. This type of tenure is granted with a 25-year term, with an Evergreen 10-year renewal provision.

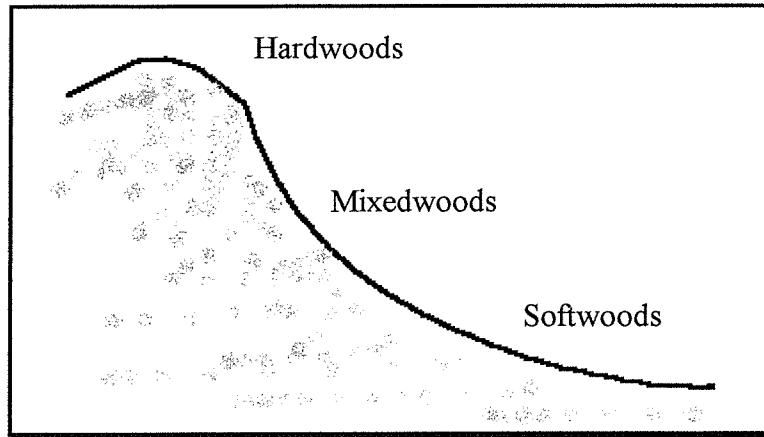


## Commercial Tree Species in Canada

(just to name a few)

Common Name	Botanical Name	British Columbia	Quebec	New Brunswick
Balsam fir, Sub-alpine Fir	<i>Abies balsamea</i> , (L.) Mill.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Alpine Fir	<i>Abies lasiocarpa</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Black Ash	<i>Fraxinus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bur Oak	<i>Quercus macrocarpa</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Red oak	<i>Quercus rubra</i> , L.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Douglas Fir	<i>Pseudotsuga menziesii</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Eastern white Cedar	<i>Thuja occidentalis</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Western Red Cedar	<i>Thuja plicata</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eastern Hemlock	<i>Tsuga canadensis</i> (L.) Carr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Western Hemlock	<i>Tsuga heterophylla</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack Pine	<i>Pinus banksiana</i> , Lamb.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lodgepole Pine	<i>Pinus contorta</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
White Pine	<i>Pinus strobus</i> L.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Red Pine	<i>Pinus resinosa</i> Soland	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Manitoba Maple	<i>Acer negundo</i> L.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sugar Maple	<i>Acer saccharum</i> Marsh	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
White (paper) Birch	<i>Betula papyrifera</i> Marsh	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Yellow Birch	<i>Betula alleghaniensis</i> Britt.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
White Elm	<i>Ulmus americana</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
White Spruce	<i>Picea glauca</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Black Spruce	<i>Picea mariana</i> P. Mill.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Red Spruce	<i>Picea rubens</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Engelmann Spruce	<i>Picea engelmannii</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sitka spruce	<i>Picea sitchensis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Willow	<i>Salix</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poplar	<i>Populus alba</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Aspen	<i>Populus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Trembling Aspen	<i>Populus tremuloides</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tamarack; American Larch	<i>Larix laricina</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
American Beech	<i>Fagus grandifolia</i> Ehrh.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Basswood	<i>Tilia americana</i> L.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>





➤ Hardwoods

- do regenerate after fire; aspen, poplar; white birch

**Boreal Forests**

➤ short growing season

➤ not a climatic forest due to fire; research shows 8000 yr fire history;

➤ fire related regeneration; 30-70 - 150 year fire cycle (black spruce 100-120 yr cycle);

➤ 40-50 spp. Represented in B.C.; Artic / sub-artic species;

➤ lichen (food for Caribou) needs 50-60 yrs to re-establish;

➤ Balsam fir:

- main species in BC; short lived 75 yrs from a disturbance regime; fire not a major factor due to wet soils; Spruce budworm and stand decline are pattern factors;
- not species of choice; poor fibre quality; develop rot; prone to insect infestations; doesn't grow very big;
- maybe a climax species as is more shade tolerant;
- grows in even-aged stands due to disturbance patterns.

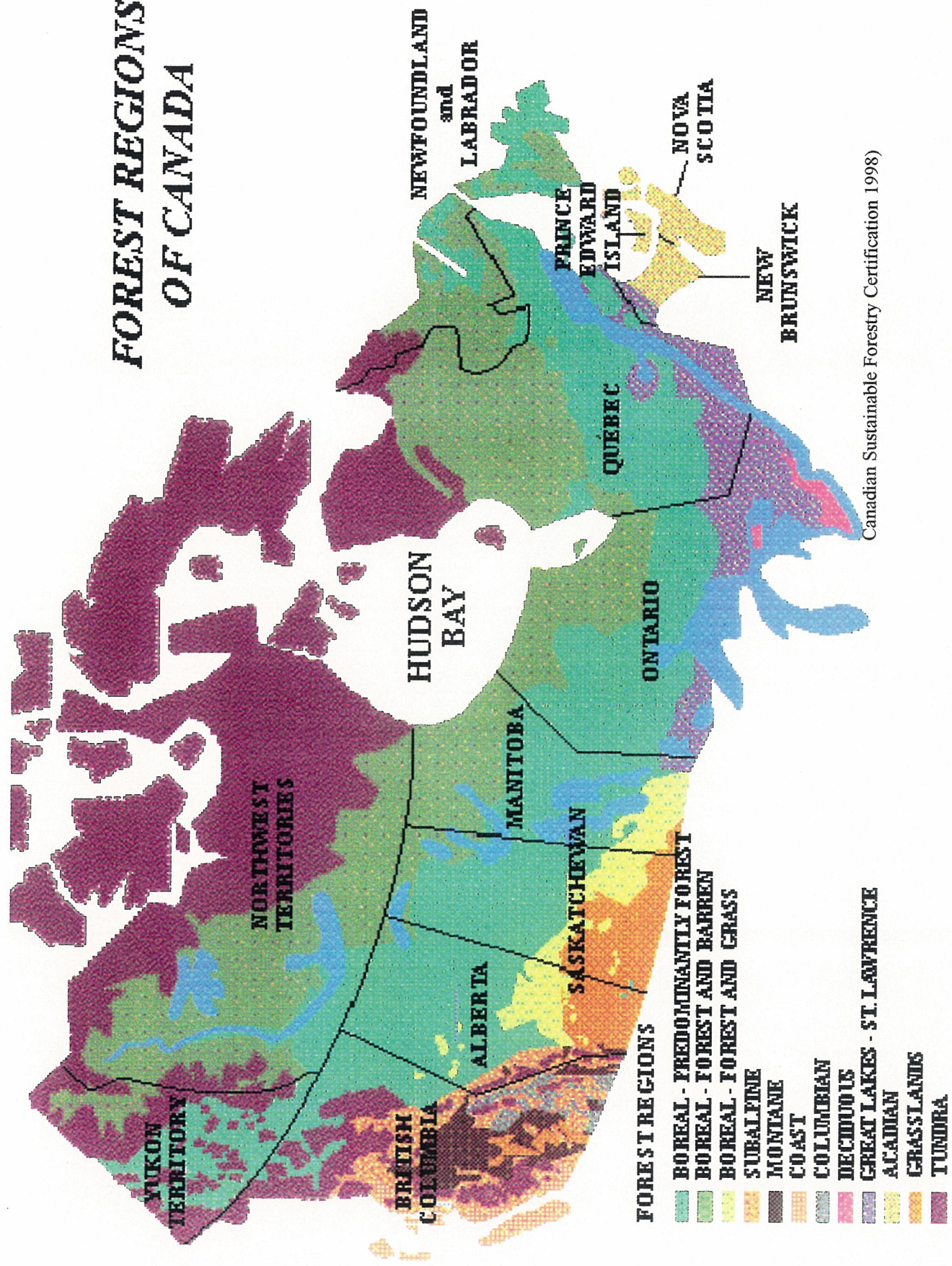
➤ White, Black & Red Spruce are preferred species in that order

- does occur naturally but not often in pure stands;
- Black spruce 150 yr;
- white spruce uneven aged stands;
- Red spruce more subject to uneven aged.

➤ Pine

- Jack pine 80-110 yr rotation, best yield @ 70yrs;
- Red pine - fire origin not much planting except on poor sites;
- White pine legacy trees (300yrs); overtopping new stand of mixed forest; grows in understory ; a successional species; good sawn timber, poor pulp;  $6m^3 = \$1500$  clearwood,  $6m^3 = \$350$  rough pine;

# FOREST REGIONS OF CANADA



- FOREST REGIONS**
- BOREAL - PREDOMINANTLY FOREST
  - BOREAL - FOREST AND BARREN
  - BOREAL - FOREST AND GRASS
  - SUBALPINE
  - MONTANE
  - COAST
  - COLUMBIAN
  - DECIDUOUS
  - GREAT LAKES - ST. LAWRENCE
  - ACADIAN
  - GRASSLANDS
  - TUNDRA

Canadian Sustainable Forestry Certification 1998)



## Bibliography

- Bass, S.M.J (1996) *The Principles of Certification of Forest Management Systems and the labelling of forest products*. Proceedings: International Conference on Certification and Labelling of Products from Sustainably Managed Forests. Brisbane, Australia. P.31
- Beaumont, R.W. (1996) *Independent forest stewardship auditing*. The Forestry Chronicle Vol.72, No.3 1996
- Canadian Pulp and Paper Association website (1997)  
<http://www.open.doors.cppa.ca/english/info/grow.htm>; [knowb.htm](http://www.open.doors.cppa.ca/english/info/grow.htm). (July 1998)
- Canadian Standards Association (1996) CAN/CSA-Z809-96 A Sustainable Forest Management System: Specifications Document. Canadian Standards Association, Ontario, Canada
- Canadian Standards Association (1996) CAN/CSA-Z808-96 A Sustainable Forest Management System : Guidance Document. Canadian Standards Association, Ontario, Canada
- Canadian Sustainable Forestry Certification Coalition (1998) website <http://www.sfms.com/canada.htm> ([decade.htm](http://www.sfms.com/decade.htm)) ([2s\\_5\\_31.htm](http://www.sfms.com/2s_5_31.htm)) ([recenx1.htm](http://www.sfms.com/recenx1.htm))
- Canfor Corporation (1996) *Canfor Corporation 1996 Environmental Report*. Canfor Corporation, Canada.
- Canfor Corporation (1997) *Certifying Our Forests*. Canfor Corporation, Canada.
- Coakes, S. (1996) *How to effectively involve all key stakeholders and interest groups in C&L* Conference Papers International Conference On Certification And Labelling Of Products From Sustainably Managed Forests, Brisbane, Australia.
- Department of Primary Industry & Energy (1998) Australia's Forests - The Path to Sustainability. Website <http://www.dpie.gov.au/agfor/forests/policy>
- Donohue Inc. (1996) 1996 Annual Report. Donohue Inc., Quebec.
- Donohue Inc. (1997) *Annual Information Form, May 2, 1997*. Donohue Inc., Quebec.
- Emerson, D.L (1998) *What will it take to end the chaos in British Columbia's forest Industry?"* Speech to the Vancouver Board of Trade. Canfor Corporation <http://www.canfor.com>
- Forestry Canada (1993) Glossary of Forestry Terms. Forestry Canada, Pacific and Yukon Region, Canada.
- Hebert, Dr.D. et al *Determining Values & their role in Forest Management Certification*, Paper presented at the Canadian Woodlands Forum and International Union of Forest Research Organizations Joint Conference, Quebec City, September 1996 pp.E21
- Higgenbotham, Dr. K. (1998) *CSA Case Study- Canfor Northern Operations*. Paper presented at the Global Approaches International Conference, Sept. 21-25, 1997. Prince George, BC, Canada.



- J.D Irving, Limited (1998) Forestry Best Management Practices: Sustainable Forestry Principles for J.D.Irving, Limited's Forest Landbase booklet. <http://www.jdirving-novanada.com>
- Kiekens, Jean-Pierre (1997) Certification : International Trends and Forestry and Trade Implications. Study presented by Environmental Strategies Europe to the Ministère de l'Environnement, des Ressources naturelles et de l'Agriculture de la Région Wallonne. <http://www.ulb.ac.be/assoc/iff/study/>
- La Fontaine, B. (1995) *Forest Certification and ISO 14001 for the Forest Manager.* Institute of Forester of Australia Newsletter, December, 1995.
- Lang, W. (1998) *Certification of Forest Management and the Use of Performance Indicators* Paper delivered at Australian Forest Growers Conference Lismore, NSW 9 July 1998 for NAFI
- MacMillan Bloedel Limited (1996)<sup>1</sup> *Annual Environmental Report Keys to Improving Performance.* MacMillan Bloedel Limited, Canada.
- MacMillan Bloedel Limited (1996)<sup>2</sup> *Annual Report.* MacMillan Bloedel Limited, Canada
- MacMillan Bloedel Limited (1997) Annual Report <http://www.mbltd.com>
- MacMillan Bloedel Limited (1998)<sup>1</sup> *The Forest Project, Statement of Intent.* website <http://www.mbltd.com/forestproject/intent.htm>. (July 1998)
- MacMillan Bloedel Limited (1998)<sup>2</sup> Annual Information Form April 1998 MacMillan Bloedel Limited, Canada <http://www.mbltd.com/facts>
- Mercier, J-C. *The Sustainable forest management system of the Canadian Standards Association.* Paper presented at the Canadian Woodlands Forum and International Union of Forest Research Organizations Joint Conference, Quebec City, September 1996
- Natural Resources Canada. (1997) The State of Canada's Forests, learning from history. 1996-1997. Canadian Forest Service. Natural Resources Canada <http://nrcan.gc.ca/cfs/proj/ppiab/sof/sof.html> (July 1998)
- Neilson, D.A. & Associates (1995) *The Future Management of Australian Native Forests An International Perspective.* D.A Neilson, & Associates, New Zealand. <http://www.nafi.com.au/issues/neilson/contents.html>
- Paschalis, Pitor. (1996) Certification in Forestry - all the rage?, CWF/IUFRO Conference 1996
- Quebec Forest Industry Association *Portrait of the Quebec Forest Industry* Quebec Forest Industry Association website <http://www.aifq.qc.ca/english/industry/port01.html>; [stats/forest.html](http://www.aifq.qc.ca/english/stats/forest.html);
- Quebecor Inc. (1997) Quebecor Inc. Annual Report 1997. Quebecor Printing Inc. Quebec, Canada. Web site: <http://www.quebecor.com>
- Rotherham, T (1996) *Forest Management certification - Objectives, international background and the Canadian program.* Forestry Chronicle Vol.72, No.3 1996
- SGS Canada Inc. (1996) *Detailed Assessment Findings -CSA SFM Z809* for Canfor Corporation Société Générale de Surveillance (SGS) Group. BC, Canada.



- Shirley, Ken (1997) *Environmental Management Systems Approach Using The ISO 14001 Standards*. Paper presented at the Global Approaches International Conference, Sept. 21-25, 1997. Prince George, BC, Canada.
- Upton, C. & Bass, S., (1995) The Forest Certification Handbook. Earthscan Publications Ltd, UK.
- Von Zahren, W.M. (1996) ISO 14000 - Understanding the Environmental Standards. Government Institutes, Inc. USA.
- Weyerhaeuser Canada (1995) A Brief introduction to BC Timberlands. Weyerhaeuser Canada, Canada.
- Weyerhaeuser Canada (1997) <http://www.wy.com/canada>
- Weyerhaeuser Company (1998) Weyerhaeuser 1997 Annual Environmental Performance Report <http://www.wy.com/enviro/mnt/aepr97>
- Zundel, P.E.; Robak, E.W.; Thompson, S.C.; Rickards, J.; Needham, T.D. 1996 *Green Certification : The Effect on Forestry Practice, Practices and Technology*. Paper presented at the Canadian Woodlands Forum and International Union of Forest Research Organizations Joint Conference, Quebec City, September 1996 p.E119-129