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TABLE RONDE NATIONALE SUR L'ENVIRONNEMENT ET L'ÉCONOMIE

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Maritime Woodlot Harvesting

An Issues Paper for the
National Round Table on the Environment and the Economy
Private Woodlot Harvesting Multi-stakeholder Meeting

to be held at
Inn on the Lake
Waverley, Nova Scotia
November 15, 1996

Ottawa, October 7, 1996

National Round Table on the Environment and the Economy

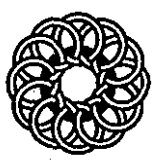

Table ronde nationale sur l'environnement et l'économie

Maritime Woodlot Harvesting

BACKGROUND

In this paper, a private woodlot is defined as a piece of land devoted to the growing of forest trees or suitable for growing trees, but is not owned by a large corporate industry for use in the commercial forestry. Such private woodlots may or may not be used as source of revenue for the owner. Throughout Canada there are over 422 000 woodlot owners with a total productive forest area of close to 20 million hectares.[1] This amount represents almost 9 per cent of the total inventoried productive forest area in Canada. The Maritime portion represents nearly six million hectares, or 30 per cent, of this total.

Who are the woodlot owners? A woodlot owner could be anyone working in any trade or profession, although the largest group of owners are farmers and retired workers.[2] These owners are generally Canadian residents living on or near their property. In addition to individual owners, woodlots may be owned by organizations such as corporations, municipalities, and churches. The size of these woodlots varies from several hectares to tens of thousands of hectares.

Woodlots are important because they provide economic, social, environmental and cultural benefits to their owners. J.H. Smyth of Natural Resources Canada, in the below-referenced work (footnote 2), best details the variety of ways in which woodlots are used:

> *Many landowners, particularly farmers, use their woodlot primarily for harvesting fuelwood for their own use; others manage their woodlot and harvest it periodically and sell the different timber products to local wood processing plants in order to supplement their income; others, unfortunately, clear the forest for profit, leaving it in such bad shape that it will take many generations to recover to the forest cover it was before the harvest. The majority of owners, however, use their woodlands for personal reasons like walking, fishing, maple sugar production, cross-country skiing, bird watching, horse back riding, and providing much needed habitat and protection for wildlife.*

Privately owned woodlots are generally considered to be the most diversified and productive forest lands in Canada. In the Maritimes, private woodlots are vital for their wood supply to the local forest industry that produce lumber, veneer, pulp, posts and poles, and plywood. The importance of this wood source for the industry cannot be overstated. In New Brunswick 30 per cent of the total volume of timber annually harvested comes from woodlots. For Nova Scotia, this figure increases to 46 per cent, and 90 per cent of industry's wood source on Prince Edward Island is harvested from private woodlots.

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1 Unless stated otherwise, figures quoted are from *Compendium of Canadian Forestry Statistics 1995*, National Forestry Database, Ottawa, 1996.

2 Information in this segment is from J.H. Smyth, "An Overview of the Woodlot Sector in Canada" in *Forestry on the Hill* (Ottawa: Canadian Forestry Association, 1994) 1.

Table 1: Private Woodlot Profile for Maritime Canada[3]

	New Brunswick	Nova Scotia	Prince Edward Island
Number of woodlot owners (5 ha and more)	28 000	30 000	12 000
Size of average woodlot (ha)	40	75	15
Privately owned woodlot (% of the total productive forest area)	33	52	88
Industrial roundwood produced on woodlots (% of total)	25	40	45
Industrial roundwood and fuelwood produced on woodlots (% of total roundwood plus fuelwood)	30	46	90

As shown in the above table, a substantial proportion of forest land is privately owned and regional pulp and paper and sawmill industry depends heavily on the supply from the private woodlots. In addition to supplying the local industry, a great deal of wood is shipped to producers in other provinces and exported to the United States. Just how much wood is shipped into other provinces is unknown as cumulative records of these shipments are not kept.

DEMAND FOR WOOD SUPPLY

The supply, or harvest rate, of wood on provincial Crown lands is regulated in Canada through the annual allowable cut (AAC). An AAC is given for each designated area and for a specified period of time; this is the amount a forest company is permitted to harvest annually. These numbers are revised periodically according to the state of the biological and economic condition of the forest. Such regulated AACs do not apply to industrial private land nor to the private woodlots not owned by industry. Companies may set their own AAC for their private tracts of land. An AAC may be produced for private woodlots within a region by the provincial government, but this figure is an estimate of the harvest potential on the woodlots within that region and is not a limit enforceable on private property. The following tables provide data of the AAC for the three Maritime provinces.

3 M. Folkema, "FERIC's Role in Small-Scale Operations" in *Forestry on the Hill* (Ottawa: Canadian Forestry Association; 1994) 45 at 47.

Table 2A: Annual Allowable Cut and Harvest Figures for New Brunswick[4]
(Cubic metres)

Year	Annual Allowable Cut			Net Merchantable Volume of Roundwood Harvested		
	Softwood	Hardwood	Total	Softwood	Hardwood	Total
1993	6 858 086	3 876 937	10 735 023	7 153 000	1 806 000	8 959 000
1994	6 858 086	3 876 937	10 735 023	7 276 000	1 993 000	9 269 000

Table 2B: Annual Allowable Cut and Harvest Figures for Nova Scotia
(Cubic metres)

Year	Annual Allowable Cut			Net Merchantable Volume of Roundwood Harvested		
	Softwood	Hardwood	Total	Softwood	Hardwood	Total
1993	3 750 000	1 500 000	5 250 000	3 863 000	722 000	4 585 000
1994	3 750 000	1 500 000	5 250 000	4 229 000	877 000	5 106 000

Table 2C: Annual Allowable Cut and Harvest Figures for Prince Edward Island
(Cubic metres)

Year	Annual Allowable Cut			Net Merchantable Volume of Roundwood Harvested		
	Softwood	Hardwood	Total	Softwood	Hardwood	Total
1993	300 000	190 000	490 000	335 000	199 000	534 000
1994	300 000	190 000	490 000	368 000	151 000	519 000

It is evident from all three tables that the softwood harvest in Maritime Canada is above that stipulated by each province's AAC for 1993 and 1994. If 80 per cent of the total harvest is softwood, historical harvest figures (given in Tables 4, 5, and 6) would indicate that New Brunswick, Nova Scotia and Prince Edward Island have all been cutting at or above their softwood AAC for some time.

4 *Compendium of Canadian Forestry Statistics 1995, National Forestry Database*, Ottawa, 1996, Tables 2.1 and 5.3, pp. 25, 26, 72 and 73.

Table 3: Private Woodlot AAC Compared to Total AAC for New Brunswick, Nova Scotia & Prince Edward Island[5]

AAC	Gross merchantable volume (m^3) Softwoods	Hardwoods	Total	% of total AAC
New Brunswick (1992-1997)	1 689 656	1 514 371	3 204 027	30%
Nova Scotia (1991-1995)	1 800 000	650 000	2 450 000	47%
Prince Edward Island (1992-2002)	270 000	177 100	447 100	91%

Table 3 shows the annual allowable cut from woodlots not owned by industry for each of the three subject provinces, with the time period for which each AAC was set given in brackets. As mentioned previously, the private woodlot AAC provides an indication of the potential harvest levels from all privately owned land and is not enforceable. Once again a clear picture is presented of the significance of the private woodlot sector within the forestry industry. The Table shows that of the total AAC set for each respective province, 30 per cent of that amount is expected to come from New Brunswick private woodlots, 47 per cent of the total amount from Nova Scotia's private forests, and a full 91 per cent from the woodlots on Prince Edward Island.

Tables 4, 5 and 6 detail the roundwood harvest figures for New Brunswick, Nova Scotia and Prince Edward Island from 1980 to 1994. Roundwood is defined as sections of tree stems, with or without bark, and in this table includes sawlogs, pulpwood, posts, pilings, fuelwood and firewood, and other products still "in the round." A review of the recent harvest figures shows a significant increase in harvesting activity throughout the Maritimes. This increased activity is due to number of factors including higher prices for raw logs, unregulated production and trade, and increasingly efficient technologies.

5 *1995 Compendium of Canadian Forestry Statistics, National Forestry Database*, Canadian Council of Forestry Ministers, Ottawa, 1996, pp. 25 and 26.

Table 4: New Brunswick: Net Merchantable Volume of Roundwood Harvested 1980-1994[6]
(Thousands of cubic metres)

Year	Sawlogs	Pulpwood	Fuelwood & Firewood	Other Roundwood	Total Roundwood
1980	2 345	5 714	252	76	8 387
1981	2 282	5 165	266	82	7 795
1982	2 061	3 956	241	62	6 320
1983	2 360	4 752	265	65	7 442
1984	2 534	5 486	269	89	8 378
1985	2 344	5 126	337	89	7 896
1986	2 542	5 745	340	93	8 720
1987	2 559	5 232	787[7]	—[8]	7 869
1988	2 560	6 626	13	—	9 199
1989	3 521	5 697	63	—	9 281
1990	4 080	4 720	15	8	8 823
1991	3 751	4 133	93	666	8 643
1992	4 545	4 550	101	8	9 204
1993	5 209	3 596	132	22	8 959
1994	5 826	3 389	52	2	9 269

The New Brunswick table clearly shows a dramatic increase in the amount of sawlogs produced. Between 1980 and 1994 there is about a 150 per cent rise in the amount of product harvested, with the most significant increases taking place from 1989 onwards. In contrast, the pulpwood figures indicate a decrease in the amount of this type of product by approximately 40 per cent.

An excellent description of resource demands and supply for New Brunswick is provided by Dr. Louis LaPierre of the Université de Moncton.[9] The report states that over the past 35 years, the total industrial wood harvest has almost doubled from 4.9 million m3/yr in 1960 to 8.8 million m3/yr in 1993. Of this total, nearly 80 per cent has been softwood with the balance being hardwood. The report predicts that the domestic industrial consumption of softwood is expected to remain constant in the near future, as the softwood supply is fully committed and cannot sustain any increased demand. However, given two large industrial expansions which are currently in the development stage, the demand for hardwood is expected to increase and almost double by the year 2000.

Table 5 shows the annual harvest figures for Nova Scotia for the period beginning 1980 and ending in 1994.

6 *1995 Compendium of Canadian Forestry Statistics, National Forestry Database*, Canadian Council of Forestry Ministers, Ottawa, 1996.

7 The 1987-1993 figures for fuelwood exclude private land.

8 The symbol ".." indicates that figures are not available.

9 Forest Resource Committee, Premier's Round Table on Environment, *New Brunswick Forests, An Outlook on Ecosystems Sustainability* (Draft #5), April 22, 1996.

Table 5: Nova Scotia: Net Merchantable Volume of Roundwood Harvested 1980-1994[10]
(Thousands of cubic metres)

Year	Sawlogs	Pulpwood	Fuelwood & Firewood	Other Roundwood	Total Roundwood
1980	960	3 455	263	8	4 686
1981	896	2 932	277	7	4 112
1982	784	2 048	263	10	3 105
1983	912	1 351	316	17	2 596
1984	992	2 552	347	3	3 894
1985	954	2 212	348	1	3 515
1986	1 062	2 515	422	5	4 004
1987	1 064	3 305	419	1	4 789
1988	1 094	3 520	423	2	5 039
1989	1 135	3 181	426	30	4 772
1990	1 193	2 922	523	—[11]	4 638
1991	986	2 914	446	2	4 348
1992	923	2 930	395	—	4 248
1993	1 270	2 941	365	8	4 584
1994	1 586	3 124	394	4	5 108

Sawlog harvest figures for Nova Scotia show a less pronounced rate of increase than those for New Brunswick, while the pulpwood figure appears to average about 3 million m3 over the 1980 to 1994 period without any marked overall decrease in the amount harvested annually. Generally, harvest rates for Nova Scotia appear constant for the period recorded in the National Forestry Database.

Table 6 provides the annual harvest amounts from 1980 leading up to and including the figures for 1995.

10 *1995 Compendium of Canadian Forestry Statistics, National Forestry Database*, Canadian Council of Forestry Ministers, Ottawa, 1996.

11 Amount too small to be expressed.

Table 6: Prince Edward Island: Net Merchantable Volume of Roundwood Harvested 1980-1995[12]
(Thousands of cubic metres)

Year	Sawlogs	Pulpwood	Fuelwood & Firewood	Other Roundwood	Total Roundwood
1980	86	72	195	28	381
1981	67	60	216	28	371
1982	72	29	228	28	357
1983	77	29	247	28	381
1984	56	53	263	28	400
1985	67	41	275	28	411
1986	67	41	288	28	424
1987	86	55	311	28	480
1988	91	46	311	28	476
1989	106	66	216	28	416
1990	110	65	252	28	455
1991	100	39	285	28	452
1992	153	35	294	28	510
1993	170	46	290	28	534
1994[13]	201	94	219	28	542
1995	230	188	190	5	613

This table shows the recent harvest history for Prince Edward Island. The following description for the period 1980 to 1990 is provided by the Prince Edward Island State of the Forest Report, 1980-1990[14] and illustrates how the harvest rate is affected by many factors of both a domestic and global nature:

> *The fuelwood consumption figures show a peaking of demand in 1987-88, then a falling off to 1981 levels in 1990. World prices for oil were peaking in the late 1980s and people were attempting to fight high energy fuel costs by using wood. At one point at least 60 per cent of the homes on PEI used wood as a component of their heating mix. By 1990 oil prices had begun to decline (prior to the Gulf War) and people were weighing fuel costs and savings against effort, and consequently were reducing their fuelwood consumption.*
>
> *The sharp drop in pulpwood production between 1981 and 1982 is indicative of the recession's effects in the early 1980s. The virtual doubling of sawlog harvest between 1984 and 1990 reflects the strengthening of the economy, particularly in the latter years of the decade. New home construction on a per capita basis on PEI was one of the highest in Canada in these years. Even so the sawlog harvest and associated lumber production was about half the demand for lumber in the province. The relatively constant 50 per cent level of self-sufficiency is indicative of the need to import much of the larger dimension material needed in house construction. Local mills can often fulfill the smaller dimension requests but not the larger floor joists and roof truss orders. Over the next 20 years, this will not change as the sustainable sawlog production is projected to stay or remain relatively constant with management.*

12 1995 *Compendium of Canadian Forestry Statistics, National Forestry Database*, Canadian Council of Forestry Ministers, Ottawa, 1996.

13 1994 and 1995 figures supplied by PEI Department of Agriculture, Fisheries and Forestry, September 1996.

14 PEI Department of Agriculture, Fisheries and Forestry, Forestry Division, Prince Edward Island State of the Forest Report 1980-1990 (Charlottetown: October 1993).

A point to note is that the sawlog/studwood harvest volumes as of late have been twice the volume of the pulpwood harvests. This is the reverse of the make-up of the forest. The sawlog/studwood harvest has been carried out so as to reduce the amount of pulpwood produced, since markets for pulpwood have been limited. The harvest has been concentrated in stands with a high sawlog/ studwood to pulpwood ratio. Also, some sawlogs are originating from fuelwood harvests (softwoods as a component of hardwood or mixed hardwood/softwood stands).

The 1995 *Report on Forest Resource Issues*[15] provides updated forest resource information since the 1990 Forest Inventory report. This updated report describes a 25 per cent increase in the amount of forest products harvested annually over the past 15 years. It identifies the fuelwood harvest as the most significant product by volume and projects that an annual softwood harvest (or AAC) of 300,000 m^3 will be a reality for some time to come.

Demand for hardwood has decreased since 1990 and the 190,000 m^3 AAC appears to be a sustainable level given the recent government analysis. However, land clearing for agricultural purposes is presently creating pressure on the resource.

The most recent figures for 1994 and 1995 show a dramatic increase in pulp and sawlog harvests. This increase is due to high stumpage values and strong markets for pulp and lumber.

BENEFITS OF THE MARITIME WOODLOTS

The forest industry is a very important segment of the Canadian economy. This is even more so in the maritime region. The sector employs 27 000 people directly, and 16 000 indirectly, in New Brunswick and Nova Scotia alone, and spends $638 million annually on wages and salaries of for the region. On Prince Edward Island during 1993, approximately 1 000 people derived all or part of their living from the forest industry.[16] Direct employment in this sector may be in the large mills or directly in the forest as a forester, contractor, or logger. There are also many small family owned and operated sawmills. Various other people obtain employment through non-traditional or non-consumptive uses through such activity as berry picking, harvesting wild edible mushrooms, hiking, etc. In addition, the maple syrup production, Christmas tree growing and wreath making, and outfitting for hunting and fishing, all add to the benefits, economic and otherwise, from private woodlots.

As much of the benefit from private woodlots cannot be valued – such as habitat for wildlife and birds, a place for recreational activity, and the overall satisfaction of knowing that such a resource exists – tables and figures cannot be drawn to show their true value. We therefore must accept that the existence of private woodlots is a very desirable thing for many people, including those people who do not own any forest land at all. However, to show that the traditional valuation of the private woodlot sector is important, the following economic profiles for the Nova Scotia and New Brunswick forest sector are given. This information is not available for Prince Edward Island as the sample size is too small to be released by Statistics Canada.

15 PEI Department of Agriculture, Fisheries and Forestry, Forestry Division, *A Report on Forest Resource Issues: An Update of the 1990 Forest Inventory* (Charlottetown: August 1995).

16 K. Mayhew, "The Small Woodlot on P.E.I. - What Role for the Future" in *Forestry on the Hill* (Ottawa: Canadian Forestry Association, 1994) 10 at 11.

Table 7: Economic Profile of Nova Scotia Forest Sector[17]

	1990	1991	1992	1993	1994
Value of Exports ($000 000)	603	513	511	498	483
Softwood lumber	35	18	26	15	18
Wood Pulp	299	224	227	187	209
Newsprint	232	242	233	262	214
Other	37	29	25	34	42
Balance of Trade ($000 000)	579	495	495	480	467
Value of shipments ($000 000)	973	825	878	855	..[18]
Logging	196	198	220	206	..
Wood industries	147	122	124	146	..
Paper and allied industries	630	505	534	503	..
Number of establishments	412	429	554	422	..
Logging	305	334	458	336	..
Wood industries	93	83	84	74	..
Paper and allied industries	14	12	12	12	..
Employment (000)	8	9	8	9	11
Logging and forestry services	3	3	4	4	4
Wood industries	2	2	2	2	3
Paper and allied industries	4	3	2	3	4
Wages and salaries	204	200	206	192	..
Logging	34	34	39	36	..
Wood industries	36	30	30	31	..
Paper and allied industries	134	136	137	125	..

17 *The State of Canada's Forests 1995-1996: Sustaining Forests at Home and Abroad*, Department of Natural Resources (Ottawa: Queen's Printer, 1996) p. 94.

18 The symbol ".." indicates that figures are not available.

Table 8: Economic Profile of the New Brunswick Forest Sector[19]

	1990	1991	1992	1993	1994
Value of Exports ($000 000)	1 439	1 334	1 345	1 329	1 656
Softwood lumber	134	107	142	252	332
Wood Pulp	655	514	471	396	464
Newsprint	314	359	277	280	346
Other	336	354	455	401	514
Balance of Trade ($000 000)	1 338	1 223	1 202	1 203	1 525
Value of shipments ($000 000)	2 521	2 215	2 235	2 347	..
Logging	558	492	475	461	..
Wood industries	449	425	461	576	..
Paper and allied industries	1 514	1 298	1 299	1 310	..
Number of establishments	952	878	820	852	..
Logging	787	722	669	698	..
Wood industries	142	133	129	131	..
Paper and allied industries	23	23	22	23	..
Employment (000)	16	13	12	13	12
Logging and forestry services	5	4	3	4	4
Wood industries	5	4	3	4	4
Paper and allied industries	6	5	6	6	5
Wages and salaries	479	462	442	437	..
Logging	90	77	75	67	..
Wood industries	100	94	99	110	..
Paper and allied industries	289	291	268	260	..

19 *The State of Canada's Forests 1995-1996: Sustaining Forests at Home and Abroad*, Department of Natural Resources (Ottawa: Queen's Printer, 1996) p. 94.

The Issues

In the fall of 1995, the NRTEE commissioned a background paper to give an overview of the private woodlots in Atlantic Canada[20]. In addition, the NRTEE held its plenary meeting in May 1996, at Miramichi, New Brunswick, during which time a panel discussion was organized to detail the concerns regarding private woodlot harvesting in the Maritimes; a summary document was prepared from this event. Both the background paper and the summary document identified a number of issues central to the harvesting of private woodlots. The following is a summary of these issues.

OVER-HARVESTING

There is a widespread and general agreement that a serious problem of over-harvesting exists on private woodlots in New Brunswick, and serious wood supply problems are anticipated within the decade. For example, statistics published by the New Brunswick government indicate that in fiscal year 1994-95, sales through provincial marketing boards substantially exceeded annual allowable cuts in five of the seven provincial marketing board districts by as much as 219 per cent. Even these figures substantially underestimate the actual cut taking place on private lands because wood shipments to other provinces go largely unreported.

While there is general agreement that a serious problem of over-harvesting exists in New Brunswick, and some agreement about the causes that have given rise to the problem, there is very little common ground when it comes to prescribing solutions.

Over-cutting on private forests is also a significant problem in Nova Scotia where the forest industry in Nova Scotia is even more dependent upon wood supplies from private land. Private holdings by most of the large companies do, however, provide some buffer against private supply shortages. In certain parts of Nova Scotia, over-harvesting is causing great concern and wholesale clear-cutting of immature wood stands is identified as a particular problem. Again, accurate estimates of the extent of over-cutting are difficult. However, available figures indicate that significant over-harvesting is taking place and that at least from 1994, annual allowable cuts are being exceeded. As is true for New Brunswick, there is little if any record of the exports from Nova Scotia, but substantial exports appear to be taking place to New Brunswick, Newfoundland, Quebec and Maine.

The PEI Department of Agriculture, Fisheries and Forestry addressed the issue of over-cutting in the 1995 *Report on Forest Resource Issues*[21]. With regard to this concern, the report states that aerial photography conducted in the summer of 1994 revealed that over 6 500 hectares of woodland were harvested since the 1990 forest inventory identified 253 400 hectares of stocked forest land (land that has identifiable cover of tree species). The clearcuts which were identified (cuts greater than 1 hectare in area) encompassed both softwood and hardwood cutovers, but did not include the selective or partial cuts from

20 S. Shrybman, Private Woodlots in Atlantic Canada: The Challenge of Sustainable Forest Management, An overview paper prepared for the National Round Table on the Environment and the Economy, November 1995.

21 PEI Department of Agriculture, Fisheries and Forestry, Forestry Division, A Report on Forest Resource Issues: An Update of the 1990 Forest Inventory (Charlottetown: August 1995).

which much of the hardwood fuelwood harvest originates. In the four-year period 1990-94, during which harvest levels reached record levels, less than 1 per cent of the forest estate was harvested annually.

Yet again, there is some doubt with regard to the numbers provided by the various sources. Harvesting on Prince Edward Island can and has increased so quickly and absent controls, that there is no reliable way of knowing the actual amounts being cut.

Wherever a woodlot is harvested, most woodlot owners do not actively participate in the cutting themselves; rather, contractors are often hired. The choice of contractor will frequently determine whether or not the woodlot is cut in a sustainable manner. There is a great deal of competition among these contractors and entry into the market is open to anyone who possesses the necessary equipment. Neither wood cutting licences nor certification is a requirement for private woodlot harvesting. Some believe that the most important action needed for a sustainable woodlot resource is the training and accreditation of logging contractors.

PRIVATE PROPERTY RIGHTS

At the heart of the problem of over-harvesting of private forest land is the absence of effective controls on forestry activity on private woodlots. While the regulation of forest companies, to achieve forestry and environmental objectives, is a matter of law across Canada, no Canadian jurisdiction has acted to constrain the proprietary rights of individuals to exploit the forests they own. Clearly, the absence of public control can have broad environmental, economic and societal implications when private lands represent a large proportion of the forest resource base.

The exercise of planning for sustainable forest management, and of establishing production limits, is also undermined when governments are powerless to ensure that such limits are respected. Also absent is the authority to require woodlot owners to prepare management plans, protect immature woodland, preserve diverse ecosystems or invest in silviculture activities.

Over-harvesting of woodlots is a generality and does not apply to every woodlot or woodlot owner in the Maritimes. Each individual woodlot is managed, or not, in accordance with the owner's circumstances, tradition and awareness of woodlot management. Whether a woodlot is harvested in a sustainable manner is dependent on any one of these factors.

UNREGULATED INTERPROVINCIAL AND INTERNATIONAL TRADE

A similar and related problem concerns the absence of regulatory initiatives to control, or even monitor, trans-boundary shipments of unprocessed forest products. But export demand for raw forest products has become an important factor fuelling over-cutting on private land. In fact, the export of pulp logs from Nova Scotia to other provinces and the United States appears to be the principal factor driving harvests over the annual allowable cut. One aspect of this export activity is worth noting because it involves exports of pulp logs from Nova Scotia to a large mill in Newfoundland which are taking place because of problems related to the supply of fibre from Crown land in that province. Thus, supply shortages in one province quickly generate pressures to harvest in another, at times overwhelming the balance of local production and supply that may have been achieved in that jurisdiction.

However, in light of recent initiatives to liberalize interprovincial and international trade, and given the emergence of wood supply problems in various jurisdictions, these pressures seem destined to become more acute. While the right to embargo the export of raw logs is explicitly preserved under NAFTA, only British Columbia has availed itself of this prerogative. Even then, it has had to withstand protests and trade complaints from the United States.

Clearly, without the authority to control such trans-boundary shipments, it is considerably more difficult for a province to establish sustainable resource strategies intended to achieve production and environmental goals. There appears to be a clear mismatch here between the responsibility to manage resources sustainably, which is primarily provincial, and the right to exploit those resources, which is unconstrained by provincial or national borders.

PAYING FOR SUSTAINABLE FOREST MANAGEMENT OF PRIVATE LAND

The recent withdrawal of federal funding support for silviculture activities on private land has created a real problem for provincial governments already coping with enormous fiscal pressures. In the absence of a stick (regulation), public subsidies for silviculture activities provided a carrot with which governments could entice private owners to adopt more sustainable forest management practices. While significant controversy exists about the ultimate value of many of these programs, until new funding mechanisms are established there is likely to be little silviculture undertaken on private land.

Woodlot owners' groups have articulately argued for a more rationale approach to the economics of private woodlot management if small producers are to be expected to adopt more sustainable forest management practices. In their view, current tax and natural resource policies work to the disadvantage of small owners who may wish to embrace wise stewardship practices rather than maximize their returns. They have argued that government's have traditionally subsidized the activities of large forest companies on Crown land in order to create jobs. To level the playing field, they assert, governments must be willing to subsidize forest management costs on private woodlots as well.

Better tax treatment of woodlot management investments is thought necessary to encourage sustainable forestry among private woodlot owners whose primary income is not derived from this resource. Full-time foresters and farmers are able to deduct the cost of silviculture investment from non-woodlot income. However, most woodlot owners who are not farmers or foresters derive only a small portion of their income from their woodlots. Their silviculture investment requires some 20 to 60 years to produce a profit and may only be deducted from their woodlot income.

ORGANIZATIONAL CHANGES

General organizational changes for forest management are required. The recently suspended federal-provincial forestry agreements provided a good opportunity to organize the administration of a forestry management program and to invest appropriately in forestry management; however, whether the funds were applied in a meaningful manner has not been determined. Suggestions for overall organizational change to create an efficient resource management system include the following:

- controls placed on unprocessed wood leaving a province;
- a limit on Nova Scotia forest land that could be purchased by non-Nova Scotians;
- increased and ongoing efforts to educate land owners, not just in forest management but in economics, business and recreation;
- devise a method of shared investment responsibility where the land owner makes a personal financial commitment as well as the federal and provincial governments;
- create a reliable accounting system to record private land activities; and
- develop practical forest management and environmental regulations and a forest protection strategy through the multi-stakeholder approach that encompasses good cutting practices and the implications of international certification of forest products.

THE MAINE REFERENDUM

In November of this year, the people of Maine will have the opportunity to consider the subject of forest management. The referendum proposes to halt clear-cutting in the state and contemplates the imposition of strict forest management practices.

Should a ban on clear-cutting be passed in Maine, the problem of over-cutting in Maritime Canada will likely be amplified. A reduced size of cut for Maine operators would remain the same. To fill this demand, Maine operators would look to Canadian resources.