

DRAFT ONLY

POLLUTION FROM LAND USE

ACTIVITIES

REFERENCE GROUP

LEGISLATIVE STUDY

INTERIM
REPORT
NO. 6

FORESTED AREAS

OCTOBER 1976

CONTENTS*

PART I

FEDERAL CONTROLS

PART II

PROVINCIAL AND
LOCAL CONTROLS

*A table of contents precedes each Part, with a Notes section at the conclusion of each Part.

PART I - FEDERAL

TABLE OF CONTENTS

		<u>Page</u>
I.	OVERVIEW	1
II.	JURISDICTIONAL MEASURES	
A.	Fisheries Act	2
B.	Pest Control Products Act	3
III.	RESEARCH MEASURES	
A.	Forestry Development and Research Act	6
IV.	AGREEMENTS	
A.	Canada - U.S. Great Lakes Water Quality Agreement	7
V.	COMMENT	8
VI.	NOTES	11

I. OVERVIEW

Federal jurisdiction over forest management including logging operations and timber road-building practices as they may effect water quality from sedimentation is limited. This is in part due to the fact that most forested areas are normally on Crown lands where they are subject to provincial jurisdiction. Moreover, recent judicial decisions have interpreted certain provisions of federal legislation respecting fisheries protection from logging operations as being beyond the power of the federal government. Other provisions of the same legislation could be construed to provide the federal government with at least selective capacity to control such operations. However, there is little evidence of the use of such provisions at the federal level for control of sedimentation from logging in Ontario.

Federal control of pesticide use in forested areas has recently been strengthened to require prior permit control. Such provisions are too new to evaluate for effectiveness in practice. Difficulties with aspects of the federal approach are outlined including the permissive nature of some environmental information requirements where changes in ingredient rates are proposed prior to permitted use.

II. JURISDICTIONAL MEASURES

A. Fisheries Act¹

The principal provisions of this statute have been reviewed in previous reports. However, a number of provisions of the Act are of relevance to water pollution from forestry areas as they may effect fish.

Prohibition on Slash Deposits etc. The Act makes it an offence for any person engaged in logging, lumbering and land clearing or other operations to put or knowingly permit to be put, any slash, stumps or other debris into any water frequented by fish or that flows into such water, or on the ice over either such water, or² at a place from which it is likely to be carried into either such water.

The general power to protect fisheries under federal legislation arises out of the British North America Act which authorizes federal jurisdiction in relation to seacoast and inland fisheries.³ In this regard, however, the above provision of the Fisheries Act has been utilized by the federal government to control logging operations that have adversely effected fisheries principally on the East and West Coasts of Canada. There is little evidence of the Act's use in Ontario to control such operations. This may in part be attributed to the fact that the Fisheries Act in Ontario is administered by the provincial government which has tended to favour the use of its water quality legislation.

Does slash, stumps debris include sediment Where prosecutions under the above provision have been undertaken it is clear that the term "slash stumps or other debris" has not been interpreted to specifically include sediment arising from erosion caused by such logging, lumbering or other land clearing activities.^{4,5,6} Other provisions of the Act have been judicially defined to include "silt" or "sediment" as deleterious substances⁷ however, it would appear that available decisions indicate that where logging operations have impacted on fish frequented water s.33(3) has been used instead.

Constitutional Problems A recent decision in British Columbia,⁴ moreover, has cast doubt on the constitutional validity of s.33(3). Under the division of powers established pursuant to the BNA Act the provinces may exclusively make laws in relation to the management and sale of public lands belonging to the province, and of the timber and wood on such lands.⁸ Because s.33(3) of the Fisheries Act applies only to persons engaged in lumbering, logging and land clearing, the B.C. Provincial Court ruled that the section is really designed to control such activities; control which is more properly the subject of provincial law pursuant to BNA Act powers respecting property and civil rights⁹ and sale and management of provincial public lands including wood and timber found on them.⁸ Because the Fisheries Act section does not purport to control the putting of "all" slash, stumps and debris into fish frequented water but only such slash, stumps and debris as originates from "logging, lumbering and land clearing" the court found the provision ultra vires (beyond the power of) the federal parliament. The Court ruling appears to indicate

that if section 33(3) was a general restriction on the putting or placing of debris into such waters then it might be intra vires (within the power of) the federal parliament. As currently drafted, the Court held that it is only loggers and land clearers associated with logging and lumbering operations that are controlled and not others (such as miners engaged in stump blasting that might also effect fish frequented waters) that are restricted. As such the court ruled that the Fisheries Act provision interferes with powers normally the prerogative of the provinces and cannot stand. It is understood that the decision has been appealed.

Use of other Fisheries Act sections to control logging etc. Despite the above ruling it would appear that the question of whether s.33(3) could be used to control problems of sedimentation arising from lumbering operations will continue to be uncertain, the above reported decisions notwithstanding. It is submitted, however, that even if s.33(3) is found on appeal to be ultra vires the federal parliament, it would appear open to the federal government or the appropriate Ontario agency to utilize s.33(2) (the deleterious substance section) in relation to logging, lumbering and other land clearing operations as a means of controlling sedimentation from such operations.

B. Pest Control Products Act¹⁰

The principal provisions of this statute have been reviewed in previous reports.¹¹ However, a number of developments respecting regulation of pesticide use in forested areas are of relevance and are reviewed here.

Impetus for CDA permit control of forest spraying As noted in previous reports, the federal Department of Agriculture has begun to control pest control operations in forest areas by means of a permit or licence before authorizing use. The impetus for prior use control by permit in forest areas has arisen in part from recent adverse environmental and public health problems associated with forest spraying activities to control the New Brunswick Spruce Budworm.¹² In this regard, the Department has recently enunciated a number of new restrictions on the prior use of pesticides in two important forest area categories. These categories are "forest management" and "woodlands management". The technical distinction between the two categories may be summarized as follows: The woodlands management category is defined in draft agency memoranda as encompassing pesticide applications on forest areas of more than one acre but less than one thousand acres for the following purposes (1) pest control in Christmas tree plantations situated in unimproved or non-farm locations (2) control of unwanted woody plant growth in regenerating forested lands and (3) pest control in woodlands maintained on portions of farms or similar properties. The uses of pest control products in these circumstances are subject to a permit issued by the regulatory agency in whose regional jurisdiction the use is contemplated. It is the responsibility of either the woodlands owner or manager or the pest control applicator to apply for the appropriate permit.

The forest management category is defined in draft agency memoranda as encompassing pesticide applications on forest areas of greater than one thousand acres. The utilization of a pest control product in a forest management area requires that an application to carry out the spraying be submitted for an interdisciplinary review by provincial and federal authorities. The application to conduct a forest management restricted spraying may be made by the forested land owner or manager, or the pest control applicator.

Permits for Woodlands spraying According to federal Department of Agriculture memoranda, the regulatory philosophy behind the setting up of a permit system for woodlands management spraying is that "the permit system will serve to keep the regulatory agency informed on spray projects of this nature and thereby facilitate positive response by the agency" to inquiries from the public or other quarters. The Department is further of the opinion that a "permit system gives the agency the option to refuse the permit because of circumstances not now discernible, or to advise the applicant that a more discriminating review of the spraying proposal in accordance with procedures established for other forest area categories¹³ will be required". Agency memoranda indicate that the agency must be guided in such decisions by its perception of the environmental risks that may exist due to the location of the spraying activity.

The Department regards the pesticides used for controlling pests effecting Christmas tree plantations or woody plant growth as relatively low risk products (e.g. phenoxy herbicides) or else as effecting relatively small areas. Despite this, agency memoranda indicate that such spray projects "can give rise for concern by virtue of their location in proximity to sensitive environmental features or human habitation."

Departmental memoranda further note that there are "compelling reasons for exercising control over the use of pesticides used in woodlands maintained on portions of farms or similar properties." It is understood that in these circumstances pesticide applications are often carried out by aircraft. This is the case because trees require relatively high level applications that serve to enhance the off-target drift potential. (This is understood to be the reverse of the situation for agricultural crops which do not normally require spray by aircraft at high altitudes because they are relatively low lying.) Moreover, such farm woodland areas are frequently adjacent to farm communities where, according to agency memoranda, "due care is needed for adjacent crops, cultivated bees and other non-target features of concern." This type of pest control operation is seen to be difficult for regulatory control purposes because of its similarity to large scale forest spraying activity. As such, agency memoranda indicate that the regulatory agency responsible for granting the permit (which could be the provincial pesticide control agency in many instances) has the option of consigning any given spraying operation in the woodlands management category to the procedure respecting forest management outlined below or its provincial legislative equivalent.

New products and uses for registered products in the woodlands management category must meet the new requirements beginning January 1, 1977. Currently registered products in the woodlands management category must meet the new requirements by January 1, 1978.

Permits for forest management spraying According to federal Department of Agriculture draft memoranda, the basis for controlling forest management spraying activities by prior permit control is predicated on the notion that there is a need for "strict adherence to the directions for use of any pest control product in forest situations and for the consideration of regional conditions involving water courses, wildlife populations, human habitations and non-target organisms generally, in order that no undue detrimental effect will result from inattention to the rules of good operating practice". Thus, any pest control product used in the "forest management" category is assigned to a restricted class and will normally require a permit for use under either the Pest Control Products Act, if no provincial legislative mechanism exists, or else under appropriate provincial legislation.

Where any person intends to spray a pesticide in a forest management situation he must apply to the appropriate regulatory authority in the region, and he is required to provide information regarding (1) area geography, including a detailed map showing the area to be treated, together with the purpose and justification for the treatment; (2) the name of the pest control product to be used together with the rates and volumes of application; (3) a description of the application equipment; (4) a description of the aircraft guidance system; (5) the precautions to be taken for safety of the personnel involved in the spraying, the public at large, and to avoid environmental damage; (6) qualifications of spraying personnel and; (7) in sprayings where the proposed rate of active ingredient does not comply with the registered use pattern an evaluation to establish the acceptability of the proposed rate must be undertaken. Appropriate lead time must be given the evaluating agency prior to the intended spraying implementation date.

Additional Departmental draft inspection memoranda indicate that where an application is made to conduct a forest management pesticide spraying and the proposed rates of active ingredient do not comply with the registered use pattern of the product the following additional procedures must be undertaken: (1) the proponent of the spraying activity must be informed that the rates of active ingredients do not comply with the registered use pattern; (2) the proponent should provide a statement of agreement from the registrant(s) of the registered product, respecting the change in rate together with information on the conditions that justify rates of active ingredient different from those which are established in the registered use pattern. Such information "may" include pest population densities, environmental considerations, tree vigor, economic considerations or any other aspect that is judged by

the proponent to make a compelling argument for the use of unique rates of active ingredient. "Whenever possible" the proponent should provide an assessment of the environmental impact that may result using "available information and his experience in the region." Administrative review procedures also include circulation of permit applications to other appropriate agencies with responsibility for public health, fish and game, water quality and related matters.

III. RESEARCH MEASURES

A. Forestry Development and Research Act¹⁴

The purpose of the Act is directed principally to one of forestry and forest products research and development, rather than the management of forests. Actual management of the majority of forest lands reside with the province. Under Part I of the Act respecting development and research, the federal Minister of the Environment must, in relation to the forest resources of Canada over which the federal parliament has jurisdiction, provide for the conduct of research relating to the protection, management and utilization of the forest resources of Canada and the better utilization of forest products.¹⁵ The Minister may also undertake, promote or recommend measures for the encouragement of public cooperation in the protection and proper use of Canadian forest resources; with the approval of the federal cabinet, the Minister may also enter in agreements with provincial governments or with any person for the purposes of forest protection and forest utilization and management or research.¹⁶

Similar powers are also granted to the federal Minister of Environment in relation to silviculture. Where the Minister actually has management control of forest lands he has responsibility for the disposal of timber, grass, grazing rights, and other natural products of the soil within these forest lands.¹⁷

Under Part II of the Act the federal cabinet may establish forest experimental areas either on federal land, or on land agreed upon with the province or any person.¹⁸ Subject to the provisions of the Act, the Minister is authorized within any forest experimental area to undertake or construct such works as he deems necessary for forest protection and management, including the disposal of timber and other forest products, and for forest research.¹⁹

Subject to federal cabinet approval the Minister may enact regulations for the protection, care and management of forest experimental areas including regulations on cutting, removal and disposal of timber.²⁰

Regulations on Cutting Pursuant to this enabling power, forestry timber regulations for forest experimental areas have been promulgated.²¹ Under these regulations there is a general prohibition of the cutting of timber on forest experimental areas except under the authority of, and to the extent provided, in a permit or agreement²² described below.

Permits Under the regulations designated forestry officers are authorized to issue permits for the cutting and removal of timber from forest experimental areas.²³ Such officers are not required to issue permits but "may" do so. While the regulations do not explicitly authorize forestry officers to attach terms and conditions to such cutting and removal of timber a forestry officer may cancel a permit issued to a permittee where the permittee (1) has failed to observe the terms and conditions of the permit; or (2) has failed or refused to comply with the instructions of the forest officer supervising the cutting and removal of timber.²⁴ Thus, there is at least an implied power under these regulations for forestry officers responsible for forest experimental areas to attach terms and conditions to such permits. Such terms and conditions could include provisions for implementing measures and techniques to control water pollution arising from such timber cuttings and removals.

Agree- Forestry officers may, on behalf of the Minister, enter into agree-
ments ments with individuals or corporations for the cutting and/or
removal of timber from a forest experimental area where the estimated
dues on the timber does not exceed \$25,000. The Minister may enter
into such agreements where the estimated dues on the timber does
exceed \$25,000.²⁵

Every permittee and operator has a duty to cut and remove timber from a forest experimental area in a manner satisfactory to the forest officer supervising that particular cutting and removal.²⁶ Every permit and agreement must be in a form prescribed by the Minister and must contain such terms and conditions as the Minister deems necessary.²⁷

Road No roads, buildings or other structures may be constructed in forest
Building experimental areas except with the permission of a forest officer.²⁸

IV. AGREEMENTS

A. Canada - U.S. Great Lakes Water Quality Agreement²⁹

As noted in previous reports,³⁰ the objective of the Great Lakes Water Quality Agreement is to improve the quality of the water in the areas of the Great Lakes now suffering from pollution and to ensure that Great Lakes water quality will be protected in future. The provisions of the Agreement including research and publication of findings is being undertaken by the International Joint Commission for the respective federal, state and provincial governments.

The Agreement calls for the development of measures for the abatement and control of pollution from various land use activities including forestry. Such measures should include control of pest control products with a view to limiting inputs into the Great Lakes System, including regulations to ensure that pest control products judged to have long

term deleterious effects on the quality of water or its biotic components are used only as authorized by the responsible regulatory agency, and that pest control products are not applied directly to water except in accordance with the requirements of the responsible regulatory agency. Other recommended measures include advisory programs that serve to abate and control inputs of nutrients and sediments into receiving waters from various land use activities including forestry.³¹ Land drainage studies are also being conducted under the auspices of a special I.J.C. reference group. Such studies include a determination of whether the boundary waters of the Great Lakes system are being polluted by land use activities, including forestry activities. In addition consideration must be given to the adequacy of existing programs and control measures and the need for improvements in such measures in relation to the various land use activities including forestry.³²

V. Comment

The actual management and protection of most public or Crown lands is a responsibility of the provincial government in Ontario. Thus direct federal involvement in the management or control of forest lands for water pollution abatement purposes by either the Canadian Forestry Service or by the Environmental Protection Service is minimal.

The primary function of the Canadian Forestry Service is one of forestry and forest products research, rather than management of forests. In Ontario, the federal and provincial governments established the Great Lakes Forest Research Centre for the purpose of helping provincial and industrial forest managers solve forestry problems in their areas. This centre has been conducting much of the research on forestry area contributions of contaminants to the Great Lakes System under the Canada - U.S. Agreement.³³

Status of Federal Logging Control As was discussed above, the current status of Fisheries Act provisions for controlling water pollution to fisheries from logging operations is under some doubt.⁴ Thus the role of the Environmental Protection Service of Environment Canada in controlling logging operations as they may effect fisheries in Ontario is limited. It would appear open to EPS to utilize other general provisions of the Fisheries Act (e.g. the deleterious substance section 33(2)) to control logging operations that result in sedimentation to streams. In practice this option has not been utilized by EPS in Ontario.

Wood Floatage EPS concerns in Ontario respecting logging operations have been directed principally to the effects of wood or log floatage on water quality.³⁴ Wood floatage has long been a major method of handling logs in Canadian forestry practice. EPS studies indicate that adverse water quality effects from wood floatage can include chemical and biological oxygen demand from wood and bark leachates; changes in the aquatic community physical habitat including smothering of fish eggs and spawning areas from biodegradation of benthic bark deposits; and

erosion and siltation to streams and adverse effects on fish eggs and spawning areas arising from the mechanical action of logs modifying riverbanks and shorelines.³⁴ Such activities have been a problem on the Ottawa River, for example. Discussions with the forestry industry have taken place, but no other regulatory actions to date have taken place in Ontario at the federal level.

Implementation recommendations arising from EPS studies have included the development of the necessary policies to cover federal jurisdictional involvement with wood floatage, principally in relation to water quality, fisheries and navigation. Current jurisdictional arrangements are seen to hinder effective action at the federal level.³⁴

Logging
Control
on
Forest
Experi-
mental
Areas

Other federal involvement with logging in Ontario occurs on forest experimental areas authorized under the Forestry Development and Research Act. As described above, forestry timber regulations for such areas grant the forestry officer broad authority to attach terms and conditions to cutting and removal of timber. In theory such areas could be used by the federal government to demonstrate how appropriate forestry operations could be carried out to minimize water pollution and sedimentation from logging operations generally. In practice there are very few forest experimental areas in Ontario. Moreover, those areas that do exist are not normally the subject of very great timber cutting and removal activity. As such, special provisions attached to permits and agreements for timber cutting and removal on such areas have not normally been comprehensively directed to such matters as erosion and sedimentation control.

Pesti-
cides

As noted above, certain types of forest spraying activities that might not otherwise be covered under provincial law have recently come under federal permit control. In forest management spraying activities and certain types of woodland management spray activities, permits are now required by the federal Department of Agriculture prior to the carrying out of the spray operation.

It is interesting to note that Department of Agriculture (CDA) policy on permit control for forestry areas includes concern that, for example, in a woodlands spraying situation a permit system will serve to keep the regulatory agency informed on such spray projects and thereby facilitate positive agency response where necessary. Moreover, a permit system in such a situation further serves to give the agency options respecting refusal because of environmental and other uncertainties, as well as allow of a more discriminating review where required. Similarly, the use of permit control for large scale forest spraying situations (ostensibly categorized as forest management spraying) is predicated on the notion that non target impact may be increased because of the type of equipment utilized (normally aircraft at considerable altitudes). As such greater information requirements are made of the proponent in such forest management situations.

However, draft agency memoranda indicate that where the proponent has changed the proposed rates of active ingredient from that on the registered

product, he "may" submit information on environmental considerations arising from that change. It would seem that such a change is of concern for the agency in part because it requires further confirmation from the registrant that such a change is acceptable. Because a change in proposed rates of active ingredient would imply corresponding changes in environmental effects or at least raise some uncertainties it would appear the better part of discretion to require further information on such matters rather than leave such a determination up to the proponent. Similarly, the submission of a statement of the environmental impact of such a change ought to be required rather than left up to the proponent to provide "whenever possible". Moreover, the use of "available information and experience" of the proponent hardly seems like an appropriate level of research or review in such circumstances. Such changes would appear, at least on some occasions, to be circumscribed by several areas of uncertainty, and to leave to the proponent the decision about the scope of environmental information to be submitted, hardly seems adequate.

These concerns notwithstanding, the CDA decision to require prior permit control in forest management situations is an important one. It establishes a precedent for prior permit control of pesticide applications as well as a regulatory argument for such action. That argument may be summarized as the need to be informed of spray projects; facilitation of agency response where necessary; keeping open of agency options on such projects; allowance for more discriminating agency reviews; and concern for non-target impact depending on type of equipment used.

As noted in previous reports, however,³⁵ extrapolating such agency concerns to other land use activities, such as agricultural use of pesticides, generates a different agency concern. In an agricultural situation, regulatory officials doubt the efficacy or manageability of a permit program respecting the farm community's use of pesticides. The spraying of large forest areas by a relatively small number of operators is viewed as lending itself to prior use or application control by permit or licence; the spraying of similarly large geographic areas by many farmers is not. As noted elsewhere,³⁵ however, in Ontario the majority of pesticide use is by the farm community.

NOTES

1. R.S.C. 1970 c. F-14 as amended.
2. s.33(3)
3. B.N.A. Act 1867 s.91(12)
4. R. v. Fowler (1976) 5 CELN 155. (Provincial Court of British Columbia, Vancouver County). "Debris" defined by rules of statutory interpretation to be material similar to slash and stumps such as leaves, limbs and parts of forest vegetation.
5. Pacific Logging Co. Ltd. v. The Queen (1974) 5. W.W.R. 523 (B.C. County Court) "Debris" described as material from felled logs.
6. R. v. Federated Co-operative Ltd. (1971) unreported decision. (B.C. Provincial Court, Salmon Arm) "Debris" defined to include "scattered fragments or 'drift accumulation'".
7. R. v. Stearns - Rogers Engineering Co. Ltd. (1974) 3 W.W.R. 285 (B.C. Court of Appeal). Interpreting s.33(2).
8. B.N.A. Act s.92(5)
9. B.N.A. Act s.92(13)
10. R.S.C. 1970 c. P-10 as amended.
11. See Report No. 2 Part I - Agriculture - Federal.
12. Interview with E. R. Houghton, Chief, Pest Control Products Section, Canada Department of Agriculture, August 17, 1976, Ottawa.
13. For example, the Forest Management Category.
14. R.S.C. 1970 c. F-30 as amended.
15. s.3(1)(a)
16. s.3(1)(b)(c)
17. s.3(3)
18. s.4
19. s.5
20. s.6
21. SOR/62 - 347 as amended.
22. s.3
23. s.4
24. s.6
25. s.9
26. s.11
27. s.12
28. s.14
29. Entered into force April 15, 1972.
30. See, for example, Report No. 2 Agriculture, October 1976.
31. Article V. 1(d)(i) and (iv).
32. See text of the Reference to investigate pollution from land use activities, annexed to the Agreement.
33. See, for example, Great Lakes Forest Research Centre, Organization and Program, 1976 - 77; J. Nicholson, The Impact of Forest Management Practices on Forest Hydrologic Processes in Boreal Ecosystems.

34. Environmental Protection Service, Environment Canada. Water Transport of Wood: The Current Situation. October 1975.
35. See Report No. 2 Part I - Agriculture. October 1976.

PART II - PROVINCIAL AND
LOCAL CONTROLS

TABLE OF CONTENTS

	<u>Page</u>
I. OVERVIEW	1
II. GENERAL ENVIRONMENTAL CONTROLS	
A. Ontario Water Resources Act	2
B. Environmental Protection	2
C. Conservation Authorities Act	2
D. Environmental Assessment Act	2
III. OTHER STATUTORY MECHANISMS - PROVINCIAL AND LOCAL	
A. Crown Timber Act	3
B. Public Lands Act	6
C. Forestry Act	7
D. Woodlands Improvement Act	7
E. Trees Act	7
F. Forest Tree Pest Control Act	8
G. Provincial Parks Act	8
H. Municipal Activities Under Planning Legislation	9
IV. NON-STATUTORY ACTIVITIES	
A. Ministry of Natural Resources Design Guidelines for Forest Management	11
B. Methods of Incorporating Environmental Considerations into the Planning, Design, Construction, and Maintenance Phases of the Ontario Ministry of Natural Resources Roads Program. (Unofficial Draft).	12
V. COMMENT	13
VI. NOTES	19

I. OVERVIEW

Currently administered statutes respecting such forest management activities as timber cutting or harvesting; log transport; regeneration and timber road-building do not provide an adequate framework for water pollution controls from such activities. Problems of insufficient resources and manpower have been identified as reasons for inadequate control of timber cutting and regeneration, though these difficulties have not necessarily been identified in the context of water pollution concerns from such activities.

It is anticipated that new environmental assessment requirements will be of benefit in better controlling forest management activities including erosion and sedimentation problems. Because the environmental assessment law is new it is not possible to evaluate whether it is synonymous with or a fully appropriate substitute for a statute directed to control of sedimentation. Normally, an environmental assessment law is devoted to larger scale developments.

If generic rather than site specific evaluation of many smaller forest management projects is the extent of its use as directed to sediment control, then as a practical matter, an environmental assessment statute may, on many occasions be inadequate for sediment control from an evaluation and enforcement perspective.

TABLES

<u>Table #</u>		<u>Page</u>
1	Regeneration of Cut-Over Areas in a Northern Ontario Crown Management Unit	15

II. GENERAL ENVIRONMENTAL CONTROLS

A. Ontario Water Resources Act¹

B. Environmental Protection Act²

C. Conservation Authorities Act³

The principal provisions of these statutes have been reviewed in previous reports.

D. Environmental Assessment Act⁴

The principal provisions of this statute have been reviewed in previous reports. However, a number of developments respecting regulation of forest management areas have occurred which are of relevance here.

1. Section 30 Exemption Orders

Under section 30 the Minister of the Environment is authorized with the approval of the provincial cabinet or of selected Ministers to exempt by order, an undertaking or the proponent of an undertaking from the application of the Act or the regulations or any matter or matters provided for in the Act or regulations subject to such terms and conditions as the Minister may impose, where he is of the opinion that it is in the public interest, having regard to the purpose of the Act and weighing the same against the injury, damage or interference that might be caused to any person or property by the application of the Act to a proponent's undertaking.

Pursuant to this provision the Minister of Environment has exempted a number of Ministry of Natural Resources activities until July 1, 1978. These include the activity of implementing plans in connection with bodies of water, water-courses and public lands, for road maintenance and forest management.⁵ The basis for the Minister's decision is that (1) the undertakings have reached a sufficiently advanced stage that the interference which would be caused by the application of the Act would be undue and not in the public interest; (2) the Ministry of Natural Resources requires a period of time to implement environmental assessment procedures for the undertaking as well as other undertakings of the Ministry which are subject to the Act and; (3) the protection, conservation and wise management of the environment will be sufficiently provided for by the use of Ministry of Natural Resources approval and review proceedings, until the process of phasing in the Environmental Assessment process is complete.⁵

The exemption is made subject to several terms and conditions including (1) where the implementation of the undertaking has not been commenced prior to July 1, 1978 with respect to a plan, the implementation of the plan must be deemed to be a separate undertaking and

is not exempt under the order; (2) a copy of any plan with respect to a part of such an undertaking must, before the implementation of the plan commences or within 30 days of this exemption order being issued, be made available to the public at a local office of the Ministry of Natural Resources and a copy must also be sent to the Environmental Approvals Branch of the Ministry of Environment to be kept with the records of environmental assessments and made available to the public in the same ways as such records and (3) where the carrying out of the undertaking requires that some activity, for which an environmental assessment has been done and an approval to proceed received, be conducted, that activity must be carried out in accordance with the environmental assessment and approval to proceed.⁵

New roads under the responsibility of the Ministry of Natural Resources (usually on public lands) and part of or associated with another undertaking are not exempt from the provisions of the Environmental Assessment Act. New roads under MNR responsibility that are not part of or associated with another undertaking are exempt from the Act until July 31, 1977.⁶ The basis for the exemption and the terms and conditions attached to such exemption orders are essentially the same as those described above for forest management and road maintenance activities.

Certain other exemptions under the Act for MNR activities are made until July 1, 1979. These include the activity of the control of nuisance species of plants and animals, including fish, birds and insects, by...chemicals....⁷

III. OTHER STATUTORY MECHANISMS - PROVINCIAL AND LOCAL

A. Crown Timber Act⁸

The Act provides for the granting of licences by the Minister of Natural Resources to cut Crown timber on the licenced area when tenders are called, or in a salvage operation, or where the stumpage charges are less than \$2000 or by way or renewals. In certain other cases, the Minister needs the approval of the provincial cabinet. Also Crown management units may be established and agreements entered into for the supply of Crown timber. Under this arrangement, the party to the agreement does not have exclusive rights in a specific area until a licence is granted to him to fill his requirements for an operating season. Forest management plans and practices are prescribed; penalties for wasteful practices and violations for unauthorized cutting and removal of timber are outlined.

The Forest Management Branch is responsible for producing optimum and continuous, industrial, social and environmental benefits from public forests and to encourage and assist similar production on private lands in Ontario. The Timber Sales Branch through the practice of scaling determines the volume of wood cut on Crown land

and agreement forests. The use of forest management plans provides the broad framework within which forest operations are carried out. More detailed operating plans (for shorter time periods) identify the stands of trees to be cut, regenerated and tended, and the road and other improvements required.

Licences to Cut Crown Timber The Minister is authorized to offer Crown timber for sale by tender to either (1) the public generally or (2) to any particular class or group of persons who in his opinion are or may be interested in such timber as a source or raw materials for mills in existence at the time the offer is made.⁹ The Minister is authorized to grant or licence to cut such timber to the person making the highest tender for such period as the Minister considers proper. The licence may be granted subject to such terms and conditions as are prescribed in the regulations and subject to such other terms and conditions as the Minister considers proper and that are not inconsistent with the regulations.¹⁰ The Minister is not obliged to accept the highest tender.¹¹

Where a licence has been granted under subsection 2 and the cutting of the timber authorized by the licence was not completed before the licence expired, the Minister is authorized to renew the licence for one term not exceeding three years, subject to such terms and conditions as are prescribed by the regulations and subject to such other terms and conditions as the Minister considers proper and that are not inconsistent with the regulations. The Minister may grant licences to cut Crown timber at such rates and subject to such terms and conditions as he considers proper, if the stumpage charges payable for such timber do not exceed \$2000.¹²

The Minister, with provincial cabinet approval, is authorized to grant licences to cut Crown timber for such period and subject to such terms and conditions as are prescribed by the regulations and at such prices and subject to such other terms and conditions as the Minister considers proper and that are not inconsistent with the regulations.¹³ Where such a licence has been granted and the cutting of the timber authorized by the licence was not completed before the licence expired, the Minister may renew the licence for one term of one year, subject to the same terms and conditions as were contained in the licence.¹⁴ Where a licence to cut Crown timber is granted under section 2(1) or (2) or is renewed under section 2(2) or (6), the Minister is authorized to grant a licensee, from time to time during the term of the licence, rights to cut on the licensed area additional species not set out in the licence at such prices and upon such terms and conditions as the Minister considers proper.¹⁵

Crown Management Unit The Minister, with the approval of the provincial cabinet, is authorized to designate any public lands and other lands on which trees are vested in the Province as a Crown management unit and enter into agreement with any person for the supply of Crown timber

to such person from such unit for such terms of years and in such manner as they agree upon.¹⁶

- Other Licences Where Crown timber which has not been the subject of a licence has been killed or damaged, the Minister is authorized to grant licences to permit the salvage of such timber and the cutting of any other Crown timber that in his opinion should in the interest of economic forest utilization be cut with such killed or damaged timber at such prices and subject to such terms and conditions as the Minister considers proper.¹⁷ Where Crown timber which has been the subject of a licence has been killed or damaged, the same arrangements apply, but at the Minister's direction.¹⁸ Where the Minister's directive has not been complied with, he may cancel or vary the licence respecting such effected timber and direct other persons to cut and remove the timber at designated fixed prices and terms and conditions.¹⁹
- Timing of Cuts Licensees are not permitted to begin timber cutting operations in any year until they have obtained written approval from the Minister of Natural Resources for the area in which such cutting operations are to take place.²⁰
- Forest Management Licensees must furnish the Minister with a forest management plan when so requested.²¹ The plan must consist of a report, inventory, maps and an operating plan. The management plan must be prepared in conformity with authorized Ministry manuals on management plan requirements.²² The management plan must be prepared under the supervision of a professional forester and certified by him.²³
- Licensees are not required to submit such a plan unless requested by the Minister.²¹ Where a licensee is not required to submit a management plan he may be required by the Minister to submit an operating plan. This plan must show the proposed operations and a statement of the purpose for which the timber is to be used.²⁴
- The Minister is authorized to approve management or operating plans as submitted or to approve them with alterations he considers advisable.²⁵
- Licensees are required to conduct their operations in accordance with Ministerially approved management or operating plans.²⁶ Where plans are not submitted on time the Minister may have a plan prepared for the licensed area and charge the cost to the licensee.²⁷
- Prior to the commencement of cutting operations for the year, the licensee must submit to the Minister an annual plan outlining such cutting operations. Information must also be submitted outlining what licensed areas have been cut and those which have been retained uncut.²⁸ Annual cutting operations must conform to the approved annual plan.²⁹ Alterations to annual plans, as well as corresponding changes to management and operating plans, may be approved by the Minister.³⁰
- Regeneration The Minister may enter into regeneration agreements with a licensee for the promotion and maintenance of the productivity of the licensed area.³¹

The provincial cabinet may cancel or vary any licence.³² The Minister is also authorized to limit the size, age, quality, species etc. of timber cut consistent with best forest forestry practices,³³ and may determine the species and quantities of Crown timber that a licensee may cut.³⁴ For the purposes of forest management, watershed protection, landscape preservation and related matters, the Minister is authorized to direct the marking of trees to be left standing or to be cut in any area designated by him. The Minister is also authorized to direct the licensee to pay the cost of such marking.³⁵

Such action by the provincial cabinet or the Minister in matters other than fire protection is not meant to affect operations being carried out or to be carried out pursuant to an approved annual plan.³⁶

No person is authorized to commit wasteful practices in forest operations.³⁷ Information respecting the use, transformation or disposal of cut timber on a licensed area must be furnished to the Minister on request.³⁸

Where licensees violate provisions of sections 24 - 28 the Minister may suspend the operation of the licence in whole or in part for a maximum of six months³⁹ and the provincial cabinet may suspend the operation of the licence indefinitely or cancel it altogether.⁴⁰

Penalties are prescribed for persons engaged in unauthorized cutting operations. Such penalties may be an amount not less than the amount of the stumpage charges on the timber cut and not more than five times the amount of such charges.⁴¹

Regulations promulgated under the Act⁴² are directed principally to charges to be made for amounts of timber cut, and erection of buildings and other structures. Wasteful practices are defined under the regulations chiefly with respect to timber wastes and not matters relating to water contamination generated from cutting and removal operations.

B. Public Lands Act⁴³

The Act provides a number of resource matters relating to public lands including (1) the disposition of Crown land for purposes of sale, lease or licence⁴⁴ and (2) the administration of roads on Crown lands including the designation of public forest roads and agreements with occupiers of private forest roads concerning the use by the public of private forest roads.⁴⁵

Under the Act letters patent for land sold or leased may contain a condition that the land is to be used in a particular manner or a condition that the land is not to be used in a particular manner. Every such condition must be deemed as annexed to the land.⁴⁶ Where such conditions are violated the Minister of Natural Resources may apply

to a county or district court for an order returning possession of the subject land to the Crown.⁴⁷ Such conditions may be released from the land by the Minister in whole or in part.⁴⁸

The Act is administered by the Public Lands Section of the Ministry of Natural Resources.

C. Forestry Act⁴⁹

The Act provides for (1) the entering into agreements between the Minister of Natural Resources and landowners, including municipalities and conservation authorities to manage forest lands.⁵⁰ (2) creation of private forest reserves on private lands with the consent of the owner⁵¹ and (3) the establishment of tree nurseries and the distribution of nursery stock.⁵² Provincial grants may also be made to localities for "forestry purposes".⁵⁰

Agreements between the Minister and landowners are to be entered into for "forestry purposes". Forestry purposes are defined to include "protection against floods and erosion".⁵³

Owners of private forest reserves are not permitted to cut or remove trees without the consent of the Minister. Where the Minister so refuses to give his consent he must provide the owner with reasons.⁵⁴

Contraventions of the Act or regulations upon summary conviction may bring a minimum fine of \$10 and a maximum fine of \$500.⁵⁵

The provincial cabinet is authorized to enact regulations "prohibiting or regulating and governing the running at large of livestock or other domestic animals in private forest reserves" and generally for the preservation of trees on private forest reserves.⁵⁶

Regulations have only been enacted for the establishment of nurseries in certain areas of the province and ancillary matters.⁵⁷

D. Woodlands Improvement Act⁵⁸

The principal provisions of this statute have been reviewed in previous reports.⁵⁹ The Act provides for the Minister of Natural Resources to enter into agreements with owners of lands suitable for forestry purposes and located in a private forest management area for the planting of nursery stock or stand improvement.

E. Trees Act⁶⁰

The Act authorizes municipalities, with the approval of the provincial Minister of Natural Resources, to enact by-laws restricting and regulating the destruction of trees by cutting etc. and to appoint enforcement officers.⁶¹ Municipalities are authorized by by-law to

acquire land for forestry purposes⁶² and to enter into agreements for the management of such lands and related matters.⁶³

"Forestry purposes" are defined to include, as in the above noted statutes, the production of wood and wood products, provision of proper environmental conditions for wildlife, protection against floods and erosion, recreation and protection and production of water supplies.⁶⁴

F. Forest Tree Pest Control Act⁶⁵

The Act provides that the Minister of Natural Resources may direct officers appointed under the Act to take control measures respecting outbreaks of forest tree insects and diseases on forest lands.⁶⁶

The provincial cabinet may enact regulations designating forest tree pests for the purpose of the Act.⁶⁷ Such regulations may be limited territorially or as to time.⁶⁸ "Control measures" may include measures to prevent, retard, suppress, eradicate or destroy such pests.⁶⁹

G. Provincial Parks Act⁷⁰

The Act provides for the establishment of provincial parks and their management by the Minister of Natural Resources.⁷¹ All provincial parks are dedicated to the people of the province and others who may use them for their healthful enjoyment and education, and the provincial parks must be maintained for the benefit of future generations in accordance with the Act and regulations.⁷²

Parks may be classified as a natural environmental park, a nature reserve park, a primitive park, a recreational park, a wild river park or other designations deemed appropriate by the Minister.⁷³

The Minister may appoint advisory committees for one or more provincial parks, with the approval of the provincial cabinet. Advisory functions of such committees are not set out in the Act or regulations.⁷⁴

Parks may be zoned with controlled use designations such as historic, multiple use, natural, primitive, recreational or otherwise.⁷⁵

The Minister may enter into agreements with municipalities, with provincial cabinet approval, for the construction or maintenance of roads for the purpose of providing access to a provincial park. Such roads remain under municipal jurisdiction and control.⁷⁶ Construction or maintenance of access roads to provincial parks in⁷⁷ territory without municipal organization are also provided for.

Police Powers Certain provincial employees including the district forester, superintendent, forest or conservation officer have all the authority of the Ontario Provincial Police force in such provincial parks.⁷⁸

Under the regulations,⁷⁹ no person is permitted to cut timber, except under the express authority of the Minister.⁸⁰

H. Municipal Activities Under Planning Legislation

The newer municipal and regional planning programmes often describe in general terms how the regional or area municipality will designate and manage appropriate forest or woodlot areas. For example, in Durham Region,⁸¹ the policies to be pursued by the Regional Council include "retention in a natural state wherever possible, of all marshes, swamps, bogs and water recharge or headwater areas and environmentally sensitive areas". The Council "must not permit development which could result in damage to these natural areas."⁸² Within Urban Areas district and development plans must ensure wherever possible the "conservation of existing trees, significant vegetation and representative landscape features."⁸³ As is a common occurrence in such newer regional official plans, many wooded areas would be found in regional plan designations for hazard lands and environmentally sensitive areas. As such they would be subject to preservation policies established in those areas. Plans, such as the Durham Region plan, are not however explicit in tying together tree cutting operations and water quality preservation.

Occasionally Regional plans devote a section to forests principally to outline the potential for commercial utilization of the available timber, or to note why commercial utilization of the timber is not possible. In the Hamilton-Wentworth draft plan, for example, it is noted that "intensive agricultural use of the land has excluded commercial timber production, except in farm woodlots."⁸⁴ Though there is said to be "a great number of woodlots in rural areas"⁸⁴ there is no cross-referencing to draft plan sections on water quality to indicate any observations respecting water pollution from cutting operations on such woodlots.

The Sudbury Regional Plan⁸⁵ is more explicit in this regard. It states that "wise forestry practices insure not only the production of wood and wood products, but also provide protection against flooding and erosion". It goes on to note that in the past unwise use acted to destroy many of these natural benefits."⁸⁶ In contrast to a southern regional municipality such as Hamilton-Wentworth or Durham, where most forest areas are on small agreement forests, the Sudbury region forested areas are primarily on extensive Crown and mining company lands and are administered by MNR as crown management units where they are managed for timber production and other purposes. In this regard, administration by the Regional Municipality is minimal.

Council objectives under the Sudbury Draft Plan do include however, promotion of wise utilization of forestry resources; promotion of other forestry purposes such as protection from floods and erosion; landscape protection on land designated for forestry activities; and continuance of work to reclaim burned over, cut-over, polluted or barren areas of the Region through revegetation techniques.⁸⁷ Council policy includes cooperation with the provincial Natural Resources

Ministry in implementing reasonable forest management policies and plans; retention of major woodlots, whenever possible; enacting by-laws under the Trees Act or pursuing of other appropriate action in an attempt to rectify misuses of forest resources which result from poor land use practices; and recognize forest industrial development on forest resources as a legitimate use of land.⁸⁸

Other policy objectives of the Sudbury Council with respect to soil resources include restricting land uses which would cause or aggravate soil erosion; and would contribute to soil and water pollution. The Council may permit such activities in areas where soil problems exist, provided the proponent enters into a site plan agreement⁸⁹ which contains specific provisions for overcoming the problems.

Because most of these new plans are still in their draft or early implementation phases it is difficult to evaluate whether their objectives are or will be met.

Similar upgrading of official plans is taking place at the area municipality level. For example, the City of Mississauga draft official plan⁹⁰ creates a series of Environmental Protection Areas similar to those that have been outlined at the Regional Municipal level. In the Mississauga plan such areas are defined as "having the highest level of environmental significance and ecological sensitivity" and normally include "land and water resources which are critical to the maintenance of natural systems".⁹¹ Permitted uses in such areas may include conservation, forestry and wildlife management.⁹² Among the policies applicable to such areas are "programs to retain and maintain forest cover in a natural undisturbed condition, to manage land for forestry purposes, and to encourage reforestation."⁹³ Such programs will, "when appropriate be established in co-operation with the appropriate public agency and in accordance with provincial legislation such as the Forestry Act, the Trees Act and the Woodlands Improvement Act."⁹³ The Mississauga draft plan also notes that the City will identify environmental protection areas to be acquired and in such areas will "undertake reforestation programs where required, particularly along watercourses and on steep slopes." In addition in such areas, the city will "establish forest management practices to increase ecological diversity and to encourage regeneration of forest cover."⁹³

Other proposed activities noted in the Mississauga draft official plan include consideration of including woodlots and watercourses in developing open space areas and where such a woodlot is established instituting appropriate forest management practices to increase the "diversity and age composition of plant species."⁹³ The Draft plan further notes the City's intention to request the provincial government to establish a private forest management area within Mississauga pursuant to provisions contained in the provincial Woodlands Improvement Act.⁹⁴

Again because of the early stage at which the Mississauga plan and policies are at, it is not possible to evaluate the City's experience and performance in reaching its goals.

IV. NON-STATUTORY ACTIVITIES

A. Ministry of Natural Resources Design Guidelines for Forest Management

The guidelines for forest management are meant to incorporate environmental protection and other constraints into normal cutting and silvicultural techniques and operations currently in effect in the Province.⁹⁶ Problems addressed by the guidelines include roads, cutting and reforestation as they may effect watercourses, lakes, ponds, wetlands and related areas. The authors of the manual also note that it has been organized to facilitate planning at all administrative levels in the Ministry, "though it is recognized that it may be some time before this becomes effective in all districts and at all levels."⁹⁶ Thus the guidelines are seen to be aimed primarily at assisting the forest manager, who is responsible for managing the bulk of public land and private forests.

Roads With respect to forest roads, the manual notes that "compaction, erosion, and siltation, are the most common problems associated with roads, and these problems are often most severe on haul roads where low standards prevail, and where, upon abandonment, many problems accelerate without continued surveillance by MNR staff."⁹⁷ The manual recommends minimizing the number of stream crossings because of economic costs as well as environmental damage due to siltation and disruption of fish spawning areas.⁹⁸ The manual also notes that "roads improperly located near streams can trigger erosion and sedimentation in the watercourse."⁹⁹ The manual recommends avoiding the "locating of roads on the edges of watercourses, lakes and ponds in order to allow sufficient room between the road and the water body to allow percolation of road surface runoff into vegetation before it reaches the water."⁹⁹

Cutting The manual notes that "mechanical damage rather than cutting presents the greatest dangers to site deterioration". Mechanical damage from equipment and machinery leads to "soil erosion, siltation of streams and waterbodies, and soil compaction."¹⁰⁰ In coarse and well-drained soils areas with slopes adjacent to streams that are over 25% in steepness, "cutting may cause severe erosion problems due to disturbance of ground cover and exposure of soil to runoff."¹⁰¹ In such situations the manual recommends that clearcutting may take place to edges of vegetation adjacent to streambanks on the basis that the vegetation will not be disturbed by mechanical equipment.¹⁰¹ Where vegetation is sparse, a reserve is recommended to be left adjacent to the stream to protect ground surfaces. The manual generally notes that repeated use of skid trails "destroys vegetation, creates gullies, and increases erosion potential."¹⁰² These matters generally apply to Boreal forests.

In Great Lakes - St. Lawrence categories the manual generally notes that streams may be cut to the edges on the same basis discussed in the Boreal Forest Region, that is (1) no erosion or sedimentation of stream banks and slopes (2) maintenance of ground cover (3) no damage to slopes or banks by mechanical equipment (4) no skid trails along stream edges, or along streambeds and (5) no slash or fallen logs permitted in streambeds.¹⁰³

Regene- The manual notes that the principles relating to site protection in-
ration cutting practices also apply to regeneration. The manual therefore notes that (1) protection should be given to sensitive sites from the effects of mechanical equipment and scarification, that is, erosion, siltation, compaction, excessive leaching of soils (2) care in the use of prescribed fire and (3) controls over residual site damage from the use of chemicals, particularly as they effect watercourses.¹⁰⁴

It should be noted that these guidelines have no legal effect in and of themselves. They are only enforceable by the Ministry when elements of their recommendations are specifically incorporated into Crown timber cutting licences or where regeneration agreements are in effect and have incorporated manual recommendations into their provisions.

B. Methods of Incorporating Environmental Considerations into the Planning, Design, Construction, and Maintenance Phases of the Ontario Ministry of Natural Resources Roads Program (Unofficial Draft)¹⁰⁵

The purpose of the MNR Road Manual is to "incorporate environmental considerations into all phases of MNR road development".¹⁰⁶ The report notes that the two most important problems associated with roads and the biophysical environment are (1) the disruption of the hydrologic regime, the high sediment content often associated with roadway runoff, and the input of this low quality water into adjacent water bodies and (2) the disruption of the fish and wildlife movement patterns and associated problems.

The draft manual notes that the problem of stream siltation can be mitigated by a better roadway, drainage system and in part by a choice of road placement away from streams, marshes, bogs, lakes and areas which are highly susceptible to erosion.¹⁰⁷

Road development, according to the draft manual should therefore be directed toward the "planning and design phases as well as the construction and maintenance phases" with special attention given to road location, drainage design and to revegetation of all disturbed areas.¹⁰⁷

The rest of the manual is broken down into planning, design, construction and maintenance phases, with discussion on measures to control erosion and sedimentation included in each phase where appropriate.

The draft manual is represented as an "initial effort by MNR to incorporate environmental considerations into all phases of MNR road development."¹⁰⁶

V. COMMENT

The full cycle of activities associated with a forest management system is understood to include (1) tree harvesting or cutting (2) log transport (3) regeneration and (4) regrowth leading to cutting again. Timber roadbuilding and maintenance are also an integral part of the system. As noted above, in MNR reports and studies,⁹⁵ each of these areas of activity can contribute to water pollution problems, primarily through sedimentation to streams arising from erosion.

Timber Harvesting Practices

Approximately 400,000 acres of Ontario forest lands are cut every year.¹⁰⁸ There are approximately 98 million acres of available forest in the Province. (94 million acres are on Crown lands and 4 million acres are on private lands).¹⁰⁸

Cutting and Regeneration Currently, Crown timber licences do not normally contain any provisions or conditions respecting how the licensee will control erosion and sedimentation during cutting or subsequent operations.^{108,109} Most of the matters addressed in the Crown timber licence application forms relate to a summary description as to the number of square miles comprised in the licensed area, and the prices that must be paid for cutting rights.¹⁰⁹ Section 3 Crown timber licence application forms do note that "it is a condition of this licence that the licensee shall, at the request of the Minister, enter into an agreement with the Minister respecting the regeneration of the licenced area "in accordance with appropriate draft agreements."¹⁰⁹ The statement, however, merely reflects the fact that the initiative for requiring the licensee to engage in regeneration or reforestation of cut areas resides with the Minister and not with the appropriate legislation (The Crown Timber Act) itself. Regeneration is not an automatic requirement which must be met by the licensee as a condition precedent to obtaining a Crown timber licence.³¹ In the absence of such an agreement the onus is on the Crown, or in this case the Ministry of Natural Resources, to ensure that regeneration takes place on such cut areas. No figures were available respecting the percentage or absolute number of licences in which the Minister has invoked the regeneration agreement provision to require licensees to engage in regeneration.

It is instructive to compare the current section 25(4) respecting regeneration agreements which may be entered into with earlier provisions of the Crown Timber Act which were repealed in the early 1960's. Up to 1962, the Minister of Natural Resources was authorized to "require at any time such further or other measures to be

taken by the licensee" as the Minister considered "advisable to promote and maintain the productivity of the area cut over in accordance with the annual plan".¹¹⁰ This provision was repealed in 1962.¹¹¹ While this older section has advantages over the current provision it also has disadvantages. The chief advantage of the older provision is that it maintained a regulatory relationship between the Minister and the licensee. One disadvantage with the current regeneration provision is that being couched in terms of an agreement, the relationship that develops or is seen to develop between the Minister and the licensee is a contractual relationship, one which may simply be inappropriate in such a context. However, even the older provision, were it to be re-introduced as written might not be a substantial improvement over the current provision. It is submitted that this is the case because the essential characteristic of both provisions is that they are "permissive" not "mandatory". In the current provision, the Minister "may enter into a regeneration agreement". In the older (repealed provision) the Minister "may require that a licensee regenerate". The essential similarity in both provisions is that the legislation does not make it mandatory that the Minister do either of those two things. Permissive legislation or provisions, moreover, cannot be enforced by anyone else in the absence of action by the Minister. In practice MNR experience with regeneration of cut areas has been unsatisfactory.

A management forester for a 965,000 acre in Northern Ontario indicated that the Ministry is achieving less than half of its annual regeneration or reforestation objective on such lands. The MNR regeneration objective by the year 2020 for the tract is "6,900 acres of the annual cut of approximately 13,000 acres, or nearly 55 per cent of the cutover."¹¹² Table 1 illustrates what the results of the MNR regeneration program in this management area have been since its inception.

The management forester indicated that on the average "approximately 25 per cent of the cut is now being treated."¹¹² The barriers to increasing the low proportion of regeneration were seen to be "manpower, site and technological problems." At another point MNR "manpower inadequacy" was identified as "the heart of the problem."¹¹² Records for this Crown management area indicate that since 1971 "40 per cent of the areas that have been planted are less than 40 per cent stocked or have failed. Fifty per cent are unsatisfactorily stocked and 10 per cent have stayed within desirable stocking standards." A 1973 survey showed that "direct seeding was a failure in over 50 per cent of the area surveyed." Another survey in 1975 indicated that of "6,000 acres cruised, 20 per cent have failed, 50 per cent were unsatisfactorily stocked and 30 per cent had desirable stocking."¹¹² MNR silviculturalists indicate that regeneration is seen to be a most important key for water pollution control, although the impact on water quality is perceived to be most severe on local streams rather than for the Great Lakes Basin.¹⁰⁸

Table 1 ¹¹²

Regeneration of Cut-Over Areas
in a Northern Ontario Crown
Management Unit

Fiscal Year	Acres Cut	Acres Regenerated	Percentage** Regenerated
1970 - 1971	5,100	2,620	51%
1972 - 1973	9,040	2,290	25%
1973 - 1974	11,300	3,250	29%
1974 - 1975	12,620	3,500	28%
1975 - 1976	13,500	2,710	21%
1976 - 1977	12,500*	3,600*	29%

*Indicates an estimate.

**Indicates an approximation.

The management forester memorandum further outlined other reasons for the "apparent proportional shrinkage in regenerated acres as the cut enlarges". It indicated that "uncontrolled clear-cutting in boreal softwoods and partial cut highgrade practices in the boreal mixed woodstands occur not only in Dryden, but across northern Ontario. Both these methods of cutting are not part of any forest management system" known to unit foresters. "From experience and conversations with foresters in the boreal region" according to the management forester memorandum, "this situation is unfortunately far from unique."¹¹²

MNR draft policy papers on controlling the size of clearcuts in Northern Ontario forest regions also indicate that "clearcutting as a commercial logging system has been in use in the province since the earliest days of logging but its main objective is to remove

the marketable trees as economically as possible, not to promote regeneration and other forest values." The draft policy paper further indicates that "the general logging practice has been to remove all merchantable timber as it is made accessible by a developing road system. After a few years, the clearcut pattern is often only broken by road and shoreline reserves^{113,114} and unmerchantable timber by-passed during logging operations. The rapid increase in the size of modern forest industries, the trend to complete mechanization and the utilization of all species, has resulted in contiguous clearcut areas in northern Ontario extending, in extreme cases, up to 50,000 acres." The policy paper adds that "this is not an acceptable application of the clearcut silvi-cultural system."

The paper summarizes available evidence indicating that excessively large clearcut areas do not regenerate as well as more protected smaller cuts. Large clearcuts are also more subject to site alteration due to exposure. The paper also indicates that numerous MNR regeneration surveys show the lack of suitable regeneration following clearcutting and that patterns of regeneration appear to be influenced by the size of the clearcut.

The purpose of the policy paper is to "control and reduce the size of clearcut areas and the development of large contiguous clearcut areas in northern Ontario." Its elements include (1) constraining the size of clearcuts to those widths consistent with preservation of area soil quality (2) an implementation period for the size constraints, staged over ten years (3) limiting contiguous clearcuts (4) prohibiting a return cut in an area until there is adequate growth and stocking on the first cut (estimated ten years) and (5) constraint modifications where necessary.

The MNR indicates that from a productivity perspective certain species won't regenerate unless they are clearcut.¹⁰⁸ The key, however, is perceived to be one of controlling the size of the clearcut. MNR officials indicate that they would probably prefer a clearcut not to exceed ten acres. The principal current practice, however, is a clearcut often as large as 10,000 acres.¹⁰⁸ As noted above, from a productivity perspective, this is regarded as unsatisfactory. The policy paper was developed therefore, primarily, but not exclusively, out of concern for maintaining forest production. Other matters addressed included wildlife protection and aesthetics. Water pollution control was not one of the key facets underlying the preparation of the policy paper. MNR officials regard the use of skidders (for log transport), harvesters and other types of heavy machinery and equipment to be the principal contributors to erosion and sedimentation of watercourses, not the cutting of trees.¹⁰⁸

It is clear that the MNR can control the size of a clearcut under the Crown Timber Act (at least with respect to productivity though this is currently not taking place). However, doubt was expressed that

MNR could require, pursuant to the Crown Timber Act, that measures be taken by licensees to preserve water quality during cutting operations without the aid of a statute like the Environmental Assessment Act.^{108,115} It was also regarded as doubtful that any Crown timber licences had ever been revoked for reasons of water quality degradation.¹⁰⁸ In part because the Crown Timber Act is a relatively old and narrowly directed statute (i.e. directed primarily to commercial timber production) MNR officials were also of the opinion that other facets of forest management activities with water pollution implications (i.e. aspects of erosion and sedimentation) might be difficult to deal with exclusively or at all under the provisions of the Act. For example, it was regarded as unlikely that log transport (by skidding or other means) or controlling the use and type of heavy logging equipment and machinery could be made the subject of a Crown timber licence.^{108,115} (MNR does not have or exercise any controls over the environmental impact of heavy machinery or equipment though guidelines are under consideration.)¹⁰⁸

Roads The MNR owns, operates and maintains 5500 miles of road, mostly in northern Ontario. The forest industry operates approximately 9000 miles of roads on its licensed lands. The principal types of roads constructed by MNR and the logging industry are (1) all weather (2) main truck haul (3) branch and (4) skid.¹¹⁶ Some MNR officials believe that timber road building specifications and location could be dealt with under the provisions of a Crown timber licence, though in their experience many licences do not contain constraints on road construction methodology.¹¹⁵ MNR policy is normally to prohibit harvesting and logging roads within 400 feet of shore.¹¹⁷ Timber haul-roads have, however, been observed as close as fifty to one hundred feet of the water's edge in provincial parks.¹¹⁴ With some exceptions, little is currently done with respect to erosion and sedimentation control on MNR or Crown licensed lands.^{116,118} Many professional foresters regard the worst threat to water quality resulting from logging is that of accelerated erosion caused by "poor road-construction and logging techniques and the improper use of machines". These practices normally "promote the fast surface flow of water" and must "clearly be avoided".¹¹⁹ It is anticipated that the application of the Environmental Assessment Act to the full range of forest management activities will have some change on current practices.

Environmental Assessment and Sedi-ment Control In part because there is a belief that MNR cannot adequately deal with water pollution problems arising from the full range of forest management activities under its current legislation alone, the Environmental Assessment Act is looked upon as the basis for incorporating many control provisions to cover these concerns.¹¹⁵ The areas to which the Environmental Assessment Act will apply in a forest management context have been outlined above.⁴⁻⁷ According to a schedule of MNR undertakings that were prepared by the MNR Land Use Co-ordination Section in consultation with the Ministry of

Environment¹²⁰ new roads will be subject to class and individual environmental assessments; road maintenance will be subject to class environmental assessments and forest management activities will be subject to class and "planning manual" environmental assessments. A recent proposal involving 19,000 square miles of timber rights in Northern Ontario will be subject to an individual environmental assessment.¹²¹ Since both the Act, and its application to forest management activities are at their inception it is not possible to evaluate their effectiveness in dealing with matters of erosion and sediment control from forest management practices. However, a number of observations may be made. While there will undoubtedly be many individual environmental assessments which will address on a site specific basis such items as harvesting, road construction, log transport, regeneration and the like in relation to water quality matters, there will also be many such activities for which only class or generic environmental assessments will be required.^{4-7,122} Normally environmental assessment law is devoted to larger scale developments and as such may not be synonymous with or a fully appropriate substitute for a statute directed toward control of sediment from many smaller forest management activities. Even granting that the generic approach will have some value in defining general procedures to be followed on smaller projects, it is submitted that such a general approach will not be an adequate mechanism for determining the appropriate mix of water pollution prevention and abatement measures necessary on a specific site by site basis. Nor is the Environmental Assessment Act clear on how general conclusions from a generic environmental assessment will be enforced as a practical matter for smaller activities which are not specifically addressed by an environmental assessment and review. Potentially, the difficulty in translating general conclusions into useful and enforceable sediment control options on a smaller, local case by case basis, may present a serious constraint to the effectiveness of environmental assessment mechanisms in forest management sediment control situations. It is fairly easy to determine that a single proposal for timber rights to 19,000 square miles of forest land should be subject to a specific environmental assessment which could include site specific sediment control review. It is another matter however to know whether over four hundred crown timber licences covering 97,000 square miles¹²³ should be subject to individual or class environmental assessment review. In the latter situation the attractiveness of a class environmental assessment is obvious. Whether class assessments can answer sediment control problems in a site specific context as well as properly allocate resources to field staff review and monitoring for site specific sediment control purposes is a question which does not yet appear to have been answered or addressed by the Province.

Other Measures Other statutes mentioned above such as the Forestry Act, were set up for county and regional government forests. Normally MNR would manage these areas for conservation authorities or municipalities. The areas are usually quite small and were generally created to control wind erosion.¹⁰⁸

NOTES

1. R.S.O. 1970. c. 332 as amended.
2. S.O. 1971. c. 86 as amended.
3. R.S.O. 1970. c. 78 as amended.
4. S.O. 1975. c. 69.
5. Order-in-Council 2891/76 respecting Ministry of Natural Resources exemptions (No. 7).
6. Order-in-Council 2891/76 respecting Ministry of Natural Resources exemptions (No. 6).
7. Order-in-Council 2891/76 respecting Ministry of Natural Resources exemptions (No. 8).
8. R.S.O. 1970. c. 102 as amended.
9. s.2(1)
10. s.2(2)
11. s.2(3)
12. s.2(7)
13. s.3(1)
14. s.3(2)
15. s.3(3)(b)
16. s.4
17. s.5(1)
18. s.5(2)
19. s.5(3)
20. s.13
21. s.24(1)
22. s.24(1)(a). Government manuals on forest management plan requirements are authorized under section 31.
23. s.24(1)(b)
24. s.24(2)
25. s.24(3)
26. s.24(4)
27. s.24(5)
28. s.25(1)(a)(b)
29. s.25(3)
30. s.25(2)
31. s.25(4)
32. s.26(1)
33. s.26(2)(a)
34. s.26(2)(b)
35. s.26(2)(c)
36. s.26(3)
37. s.27
38. s.28
39. s.29
40. s.30
41. s.46
42. R.R.O. 1970 O. Reg. 159 as amended.
43. R.S.O. 1970 c. 380 as amended.
44. s.18
45. ss. 50 - 57

46. s.21(1)
47. s.21(2)
48. s.22
49. R.S.O. 1970 c. 181 as amended.
50. s.2
51. s.5
52. s.7
53. s.1(a)
54. s.5(3)
55. s.8
56. s.9(a)(b)
57. R.R.O. 1970, Reg 355 as amended.
58. R.S.O. 1970 c. 502.
59. Report No. 2 Part II - Agriculture - Provincial and Local, July 1976.
60. R.S.O. 1970 c. 468.
61. s.4
62. s.7
63. s.11
64. s.1(b)
65. R.S.O. 1970 c. 180.
66. ss. 2,3 and 4
67. s.5
68. s.6
69. s.1(a)
70. R.S.O. 1970 c. 371 as amended.
71. s.3(2)
72. s.2
73. s.5
74. s.6
75. s.7(2)
76. s.8(1)(2)
77. s.8(3)
78. s.12
79. R.R.O. 1970, Reg 696 as amended.
80. s.2(e)
81. Regional Municipality of Durham Official Plan. As adopted by Regional Council July 14, 1976.
82. s.1.2.2.
83. s.1.3.6.
84. Regional Municipality of Hamilton-Wentworth. Substudy of the Regional Official Plan. Section on Environment. November 1975. (Draft).
85. Regional Municipality of Sudbury Official Plan. July 1976 (Draft).
86. s.9.35. Forest Resources Section.
87. s.9.36
88. s.9.37
89. s.9.41. Soil Resources Section.
90. City of Mississauga. Draft Official Plan. December 1976.
91. s.5.7.2.1.
92. s.5.7.2.3.
93. s.5.7.2.4.

94. s.6.7.6.2.
95. Ontario Ministry of Natural Resources. Design Guidelines for Forest Management. Undated.
96. p.1.
97. p.29.
98. p.33.
99. p.35.
100. p.79.
101. p.81.
102. p.82.
103. p.94.
104. p.105.
105. Ontario Ministry of Natural Resources. Road Manual. Summer 1976.
106. p.1.
107. p.4.
108. Interview with F. C. Robinson, Silvicultural Section, Ontario Ministry of Natural Resources, October 18, 1976, Toronto.
109. See MNR Crown timber licence application forms TS 194 and 195 for sections 2,3 and 5 under the Crown Timber Act.
110. R.S.O. 1960 c. 83 s.25(4) as amended.
111. S.O. 1961 - 62 c. 27, s.2(2).
112. Legislative of Ontario. Estimates of the Ministry of Natural Resources before the Standing Committee on Supply. Third Session of the 30th Parliament. October 26, 1976, Toronto.
113. These are defined in the policy paper as forest stands along lakes, rivers or roads which are left uncut during logging operations; widths vary, but they are usually 400 - 600 feet.
114. Timber cuts have, however, been observed as close as 200 feet from streams or watercourses within provincial parks. See B. Littlejohn, "Algonquin Park: Call it What it is, or Make it What You Call it" Ontario Naturalist. February 1976.
115. Interview with W. Obelyncki, Solicitor, Ontario Ministry of Natural Resources, October 22, 1976, Toronto.
116. Interview with G. E. Holman, Roads Co-ordinator, Engineering Services Branch, Ontario Ministry of Natural Resources, October 21, 1976, Toronto.
117. Correspondence from G. Simons, Supervisor, Public Lands Section, Ontario Ministry of Natural Resources, September 13, 1976.
118. Interview with S. Cowan and T. Beechey, Parks Management Branch, Ontario Ministry of Natural Resources, September 15, 1976, Toronto. Messrs. Cowan and Beechey indicate that logging and logging roads are now only permitted in 6 of 120 provincial parks in the Province. Normally through the development of a Parks Master Plan would items such as sedimentation and erosion conceivably be dealt with. See, for example, Ontario Ministry of Natural Resources. Algonquin Provincial Park Master Plan. 1974.

119. See, for example, E. S. Fellows, "The Molding of Public Opinion on Forest Management: What Public? Whose Opinion?" The Faculty of Forestry and Landscape Architecture, University of Toronto. Weyerhaeuser Lecture Series. November 1975.
120. Accurate to October 1976.
121. The proposal was made by Reed Ltd. See, for example, Globe and Mail stories for October 25-29, 1976.
122. Interview with P. Anderson, Supervisor, (and staff), Land Use Co-ordination Section, Ontario Ministry of Natural Resources, November 10, 1976, Toronto.
123. Figures from Ontario Ministry of Natural Resources Annual Report for fiscal year ending March 31, 1975. (Actual figures are drawn from Section 3 Crown Timber licences of which there were 424 covering 96,923.8 square miles).