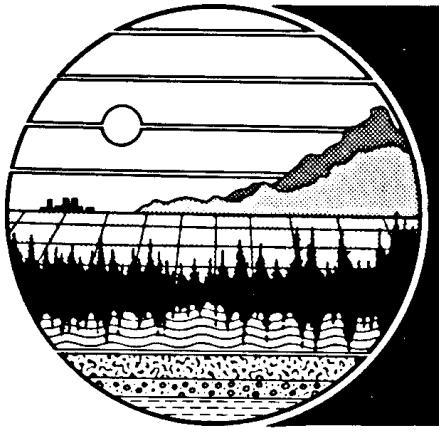

LANDS DIRECTORATE

DIRECTION GÉNÉRALE DES TERRES

ISSUES IN CANADIAN LAND USE

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ISSUES IN CANADIAN LAND USE

by

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A. Introduction

The use of land has raised a number of public expressions of concern, ranging from comment on destructive mining practices to demands for controls on who can purchase land and what they are to be permitted to do with it. These public expressions of concern are based upon real issues regarding the use and management of the land resource. The purpose of this paper is to identify the principal land use issues and to categorize these issues according to their nature and the means which must be used to deal with them.

B. Land Use Issues

For the purpose of this analysis, a land use issue will be defined as a problem or potential problem regarding the allocation, use, or management of the land resource itself. Land use issues may be coincident with expressed public concerns or may be the underlying causes of these concerns. Three examples will illustrate:

1. Public concern for high housing prices is a direct consequence of the paucity of developable land available within urban areas in relation to the increasing demand for that land.

2. Public concern for the loss of high quality agricultural land around Canada's largest cities is a function of the same basic factors as example 1; that is, the lack of adequate land within existing city boundaries to satisfy increasing demands, therefore, resulting in expansion of urban areas onto whatever adjacent land can be purchased.

3. Public concern for strip mining is an expression of concern for the basic land use issue of sound long-term management of land resources. Where alternatives exist, the least destructive means should be used or proper reclamation practices observed.

To clarify the relationship between causes, land use issues, resultant symptoms, and the means by which the issues can be handled or resolved, an analytical framework has been devised relating cause, issue, and symptom and providing examples. (Refer to Chart I).

Many of the current public concerns are directly related to problems concerning the choice of use, or manner of use of land. In some cases, the choice of use is of importance (e.g. siting of a factory on an area formerly used for recreation) while in other cases public concern is directed more at who is the owner or user of the land (e.g. Prince Edward Island land ownership legislation) or who is to make the decision regarding the use of such practices as zoning. The first, choice of use, is for the purposes of this exercise, considered to be a land use issue itself. The latter two, ownership and jurisdiction, are considered to be factors affecting the means with which one may deal with the basic land use issues, and are treated separately from the land use issues in Section F of this paper. The following section proposes a means of categorization of the basic land use issues and indicates those issues considered to currently have some priority from a national perspective.

C. Categorization of the Issues

Land use issues occur both within user

Chart 1: An Analytical Framework for Land-Use Issues

Causal Factors	Land-Use Problems/Issues to be Evaluated
	Framework
A within	(A) Issues within sectors
1-a exploitation/ protection 1-b demand for product	1) Management of the Land Resource a) to maintain ecosystem stability within each user sector b) to improve productivity or quality of use or product
B between	(B) Issues among and between sectors
1-a noxious uses 1-b proximity of uses	1) Static (in place): - Compatibility and/or incompatibility between uses because of (a) relative location or accessibility; (b) nature of use (pollution?)
2-a supply/demand 2-b accessible land too scarce	2) Dynamic (changing demand): - Allocation between uses competing for use of the same land: (a) actual changes in land use; and (b) potential changes brought about by competition
	Examples
A 1-a mismanagement 1-b management technique	(A) 1 Management: a) farmers should contour plough to prevent destruction b) foresters should use improved sustained yield method
B 1-a poor location 1-b poor location	(B) 1 Compatibility: a) wildfowl refuge at end of airport runway b) factory waste pollutes beach area
2-a changing demand, inter-dependency accessibility 2-b growing demand for some uses	2 Allocation: a) change of farmland to urban/industry b) pressure on farmers to sell (outpricing farmers)

Chart 1 (Continued)

Resultant Symptoms (Complaints)	Means to Deal with Issues	Considerations Affecting Means
		Ownership of the land
1-a ecosysystem destruction	sound management solutions	Jurisdiction to influence the use of land
1-b changing productivity per unit area		
1-a reduced utility of land for certain use	sound planning solutions	Power to carry out influence
1-b reduced utility of adjacent land	(In some cases sound management is all that is required to solve problems of compatibility. In others, relocation of one activity may be required	Political priority
2-a loss of product		Inadequacy of info.
2-b high pricing of land		Inadequacy of the market function
		Limits of jurisdiction
A 1-a high food prices, wood prices	A enforced management practices on land of certain quality	Owner usually is decision-maker in management of land
1-b lower yields, higher fertilizer costs		
B 1-a,b not enough rec. land, overcrowding	B zoning, creation of preserves, co-ordination of policies, etc.	Government can influence both mgt. & allocation/relative location decisions
2-a high food prices		
2-b high housing prices		Government may lack power to effectively enforce

Chart 2: Major Land Use Management Issues

SECTOR	ISSUE	PUBLIC CONCERN
1. Agricultural Land	- Preserving capability of our agricultural land (use of sound farming practices) - Land left idle or underused - Loss of high capability agricultural land from agricultural use - Abandonment of marginal land, expansion versus intensification	- Food supply & food prices - Loss of farm families, rural depopulation
2. Human Settlement	- Destruction of amenities by poor planning, poor management yielding "blight", "slurb", strip development, high costs of services, vacant land, etc.	- Quality of urban living - Housing costs
3. Forest Land	- Maintenance of sustained yield capability of forest land through sound forest management practices - Management to permit recreation use	- Wood prices - Jobs in forest industry
4. Transportation Land	- Effective use of existing transport corridors (land)	- Ease of access
5. Recreation Land	- Effective management so that users do not destroy the phenomenon which they seek to enjoy - Access to recreation facilities	- Quality of life considerations - Access - public versus private ownership
6. Wildlife Land	- Management of habitat to preserve necessary ecosystems and maintain desired populations	- Ecology - Wildlife protection
7. Energy & Minerals	- Extraction with minimal envt'l. disruption by use of proven management techniques - Rehabilitation of sites (pits, strip mines) to permit re-use of land after mining activity over - Reservoir management to maintain shoreline for recreation/other use	- Energy costs - Environmental concerns - Balance of payments/ costs - Quality of life
8. The Land Resource per se	- Destruction of topsoil by paving over it, burying it, etc. - Concern for management of delicate lands - fragile soils, landslip areas, etc. - Proper use of hazard lands	- Maintenance of resource - Land costs

sectors and between user sectors. Within individual sectors, the principal issues concern the manner in which land is managed by that user. Between sectors, the principal issues relate to the allocation of land to a particular use, or the relationship of the use of land to adjacent or other affected areas as a consequence of the manner in which the land is being utilized.

1. Issues within sectors

a) Management of the land resource

Once the use of a piece of land has been decided (agricultural use, forestry, housing, etc.), the principal concerns relating to its use are those of sound management. In general, there are two major concerns. The first concern is that ecosystem stability is maintained so that the resource itself or any of its inherent qualities are not destroyed. The second major category of concern is that of the improvement of the productivity or quality of use or the quality or amount of product from that resource. From sector to sector the expression of these concerns changes. For example, as regards agriculture, the major issue of management is that of the use of sound farming practices so that through such means as fertilization, contour ploughing, and range management practices, the productive capacity of the land resource is maintained. In the use of land for mineral extraction on the other hand, the major issue relates to the exploitation of economically viable ore bodies while causing a minimum of permanent damage to the ecosystem. This implies, for example, use of strip mining techniques only where no economic mining alternative exists, and when used, coupled with restoration techniques so that subsequent use of the land area for other activities is possible. Chart 2 is a list, by sector, of the principal land of concern to Canadians. Most of the land issues related directly to general public concerns and these have been indicated in the chart. In nearly all cases, the land use issues are ones which, with the utilization of sound management techniques by each sector, can feasibly be resolved. The principal limitations to the ability of government to resolve them are (1) lack of jurisdiction or (2) lack of legislation to effectively enforce principles of sound management.

2. Issues between users and sectors

There are two types of issues involved in the interaction between different users and potential users of land. The first, designated allocation issues, are dynamic in nature and relate to actual or potential transfers in the use of land from one use to another. For example, competition between subdivisions and farmers for the use of land within the urban fringe is an issue of allocation. The second category of issues between sectors are issues of compatibility or incompatibility. This category of issues involves the effects that one land use has on others. For example, the situation of a wildfowl refuge located at the end of an airport runway is a classic of mutual incompatibility of land uses, as each use has detrimental effects upon the other.

a) Issues of allocation

The issue of what the best land is to be used for is the single most important and current issue relating to land in Canada today. The

Chart 3: Issues of Land Allocation

	Agriculture	Human Settlement	Forestry
Human Settlement	- "Loss of agricultural land" - Limits on urban expansion - Urban "fringe" problems - High price of land - Loss of agricultural land to industry		
Forestry	- Possibilities of multiple use - Reclamation of marginal agricultural areas to productive woodland in Prairies, Maritimes, clay belt, etc. - Clearing new lands in Peace	No major issues, some local concerns over forest land loss to suburban development	
Transport	- Pipelines and transmission rights of way devour farmland - New roads can remove good farmland directly, or ease diversion by other uses	- Urban areas: direct competition for land between vehicles and people, planes and people, etc. - Port areas: congestion problems	Forest clearance for pipelines, roads, transmission lines
Recreation	- In areas of urban influence choice of whether land is used for agriculture or to serve demands for active recreation is imp. issue - Access in coastal zones	- Urban fringe: competition between urban uses and recreation for land - Settlement (service turns) in parks - Preservation of unique natural or historic sites	- Access to accessible areas for recreation purposes - Multiple use: forestry in parks? recreation access to forests
Wildlife	- Concern for loss of strategic habitat as agric. frontier advances	- Expansion of urban/industrial uses into habitat (e.g. marshlands) - Use of hazard lands	- Some conflict between forestry and wildlife habitat; habitat loss concern for some species
Minerals & Energy	- Removal of land from agriculture for mineral extraction. - Reservoirs flood good agricultural land	- Pits & quarries vs. urban use (sequential use problem) - Minor issue: mines devouring mining towns	- Loss of forest land for mining land temporarily for mining. - Loss of accessible forest to reservoir flooding

Chart 3 (Continued)

Transport	Recreation	Wildlife
- Access to shoreline roads, rails following rivers, shoreline roads to and thru parks?		
- Transport routes occupying shorelines, eliminate wetlands	- Instances of encroachment of rec. use on valuable wildlife habitat (shorelands)	
(no major issues)	- Mining in parks? - Flooding of shorelines - Loss of aesthetics by dams, mines, hydro lines	- Pipelines & habitat - Access to mine sites (ore bodies) within preserves

foundation of the allocation problem is that there is not enough land in the right location of the right quality to satisfy all demands. As a consequence, there is a tremendous competition between potential and current users of the best land located in the best and most accessible locations. For most uses, the best land in Canada is located along the southern fringes of the country and most notably in the Windsor-Québec St-Lawrence Lowlands area, and the Lower Mainland of British Columbia.

Traditionally, the market place has been the arbiter of who is the eventual user of land. Thus, the demands of such activities as mining, housing, or transportation have been the first to be satisfied as they are most capable of paying for the use of desired land. Next in line have been the slightly less advantaged potential uses such as agriculture, forestry, and recreation. Wildlife has usually been left with what no one else wants because it has almost no capability to pay for desired habitat, except where it is commercially exploited for food or recreation.

Because the best location for nearly every economic activity in Canada, with the notable exception of mineral extraction and energy production, has tended to be located in one or two key areas of the country, "problem" areas of considerable importance have been created. Principal among these have been the urban fringe and the coastal zone. Other nodes where several potential users competed for the same land resource exist in such areas as the eastern slopes of the Rockies, the inter-montane valleys of B.C., and Southwestern Ontario.

The attached chart (Chart 3) indicates the principal issues relating from intersectoral conflict for use of the land resource. It should be noted that the majority of these conflicts take place or are most serious either in the urban fringe or in coastal zone regions.

The urban fringe and greater area of urban influence is the principal node for location of allocation conflicts. It is in the urban fringes of Canada's largest and fastest growing cities that the greatest conflict between potential users takes place. Most frequently, the original resource potential of areas such as Southern Ontario or the Lower Mainland of British Columbia was often a major contributing factor in the location there of the original human settlement. Urban growth has meant spatial growth of the urban area and the single most frequently spoken of issue in land has been the expansion of urban areas onto some of Canada's best agricultural land. The population growth of major centres has also increased demand for land for transportation, for recreation in areas readily accessible to the centres and for ready access to the energy necessary to maintain and support large concentrations of population. These have tended to cause a concentration of the "fight" for land in areas such as the Québec-Windsor corridor and the Lower Mainland region of British Columbia. The complexity of such issues - many intersectoral conflicts superimposed upon each other - demands comprehensive and rational planning of the use of the land resource. The principal limiting factor in the achievement of this is one of jurisdiction and legislative capability, possibly reflecting the lack of adequate

public concern to date to support comprehensive action.

Coastal zones mark the second major concentration of competitors for the use of land. Many coastal zone areas are seen as desirable locations for a range of activities from recreation to transportation, to settlement, as well as strategic wildlife habitat. In areas such as Canso Strait the Great Lakes shoreline or parts of coastal British Columbia several of these high potentials coincide, producing a strong competition for the use of that land. The resolution of this complicated conflicting series of demands for the same land is the second major land allocation concern.

Every area of the country has some potential for a range of activities. Wherever potential for more than one activity exists there is opportunity for a conflict between demands for that land. Examples, in addition to those mentioned previously, include certain transport corridors (particularly in the Cordilleran region), and several mineral and energy sites located within the Shield where potential for forestry or wildlife is also present. The same can be said for areas of the Prairies where wildlife energy production and agricultural potential coincide.

b) Issues of intersectoral incompatibility

Users of land, while not directly competing for the primary use of a piece of land, may nonetheless have spillover effects on adjacent uses. These effects may limit or alter the utility of adjacent land areas for what is considered to be their principal use. Incompatibilities range from the situation, where one user is the principal "culprit" having noxious effects in the form of pollution, noise, or visual negative effects on adjacent uses, to the situation where the effects of each user have detrimental effects upon the other. Prime examples of the latter include wildfowl reserves adjacent to airports or playgrounds adjacent to arterial highways.

The principal causal factors in issues of incompatible use of land are those of relative location, and management practices. Some activities are inherently incompatible by their nature (e.g. wildlife reserves and airport runways). In the use of land in each case for its primary function, undesirable side effects occur, even if sound management techniques are undertaken. Other incompatibilities are the result of inadequate management of the undesirable (pollution) effects of one activity upon others, and can be solved (although sometimes not economically) by effective control measures. In each case, sound site planning and sound locational planning of activities so as to minimize the juxtaposition of incompatible activities appear to be the principal solutions to issues of incompatibility. Chart 4 indicates the range of incompatible land uses, as they take place between sectors. In nearly all cases, these issues are local in extent, although they may involve a multiplicity of jurisdictions at different levels for their resolution.

D. Issues Regarding the Physical Quality of the Land Itself: hazard lands, delicate lands, irreplaceable habitats, and priority production lands

While the issues discussed in the previous

Chart 4: Issues of Compatibility and Incompatibility Between Land Using Sectors

	Agriculture	Human Settlement	Forestry
Human Settlement	- Urban fringe mutually noxious practices (pollutants, pilfering, etc. - Servicing costs - Land costs raised for agriculture		
Forestry	- Pesticide/herbicide use, some damage to crops from predators housed in forest	- Pulp mills - Settlements create fire hazard	
Transport	- Rural road use problems -- load vs. thru traffic needs (cows vs. cars)	- Safety hazard from transmission lines, traffic routes - Pollution effect of transport	- Fire hazard when access facilitated - Use of logging roads for access
Recreation	- Hunter access - Access across farm land: trespass, etc. (urban fringe)	- Noise from recreators	- Forestry may pollute waterways - Recreators interfere with forest activities, fire
Wildlife	- Animals destroy crop - Runoff pollutes some habitat	- Dangerous wildlife in city fringes (Vancouver, Banff, Kenora) - Industrial effluent damages habitat (e.g. Sudbury)	- Often symbiotic: multiple use question an issue - Pesticides kill wildlife - Habitat destruction
Minerals & Energy	- Some pollution of adjacent land by mine, smelter wastes (Trail, B.C.) potash drift (NaCl, SO_2 drift), Sudbury?	- Refineries adjacent to cities - Noise pollution from mining, gravel pits in cities	- Pollution effects of mining and smelting

Chart 4 (Continued)

Transport	Recreation	Wildlife
- Visual pollution caused by routes		
- Obstruction of migratory routes - Animals and vehicles make bad neighbours (wildfowl and airplanes, moose on road, etc.) - Beavers flood roads	- Noise, pollution caused by recreators may damage wildlife, wildlife habitat	
(no major issue)	- Hydro lines, mines spoil aesthetics - Smelter pollutants can spoil adjacent recreational areas	- Pollution effects of mining and processing - Acid rain

section apply generally to the land of Canada, several categories of land, because of special inherent qualities, constitute lands of particular concern. The issues, when related to these lands, are magnified, and the necessity for solution of current or potential problems is all the more important. These special lands fall into two distinctive categories. The first category is that of hazard lands where the particular considerations relating to their use are concerns of danger or financial loss to the user. The second category is that of land which, because of unique characteristics or delicacy of environment require particular protection so that they themselves are not destroyed.

1. Hazard lands

The principal issue relating to the use of hazard lands is that of the assurance of use in a manner so as to minimize potential loss of life or damage to both the user, and the land resource. The types of hazard lands encountered most frequently in Canada are flood plains and land slippage or subsidence areas. The allocation of hazard lands to suitable activities (ones which are least affected by the potential hazard) is one component of the hazard lands question. The management of hazard lands so as to minimize loss resulting from potential hazard is the major management concern relating from the use of hazard lands.

2. Lands of particular or unique quality

The main issue relating to lands falling within this category is that of their preservation. Because of unique qualities (for example, scenic waterfalls, historic sites, or unique wildlife habitats), lands within this category require special attention to ensure their continued existence in an unchanged or undamaged form. The main inclusions within this category are the following:

A) Unique, natural features such as Percé Rock, or Takakaw Falls.

B) Irreplaceable wildlife habitat such as whooping crane nesting areas.

C) Priority production lands, for example the Niagara soft fruit production areas, which may be of national economic importance.

D) Delicate lands, which include a variety of coastal wet lands, alpine regions and similar areas which are particularly sensitive to any changes in use in terms of their general ecological systems.

Each of the "special" cases requires particular attention apart from the general issues described in the previous section, although solutions proposed for many of the issues are applicable to the special cases.

E. Identification of Priority Issues

At this point a listing of important land use issues is proposed. This is not a ranking, but rather an inclusive list of the ten most important issues regarding the land resource itself.

Priority Issues

1. The loss of high productivity agricultural land

2. The complex of issues of allocation and compatibility relating to the urban fringe

3. Coastal zone use and management

4. Sound management of renewable resource producing lands in order to obtain sustained productivity

5. Sound management of non-renewable resource lands so that sequential use may eventuate

6. Minimization of pollution effects of mineral and energy, transportation, industrial, and processing uses on adjacent lands and land users (particularly pulp mills, oil refineries, and smelters)

7. Protection of valuable lands for recreation, education, research, or cultural purposes

8. Protection of delicate lands from ecological destruction

9. Proper planning and regulation of use of hazard lands

10. Access to recreation lands.

F. Major Concerns Regarding the Solution of the Land Issues

In order to deal with the land issues as identified in this paper, government action relating to planning and management of individual areas of land will be required. A variety of means exist to permit the various levels of government to influence the use of land and to ameliorate or assist in the avoidance of the kinds of problems inherent in the list of issues presented in the first part of this paper. To do so, however, will be to encounter several larger scale problems or concerns which will likely limit the capability of any level of government to deal satisfactorily with the issues.

The principal concerns which will have to be dealt with in the larger sense are those dealing with the ownership of land, inadequacy of the market economy to adequately satisfy long-term national, social, and environmental concerns, and several questions regarding the jurisdiction and legislative capability of various levels of government to deal with each issue.

1. The ownership problem

He who owns a piece of land usually is the arbiter of its choice of use, and the manner in which that use is pursued. In other words, the allocation of that land to a particular activity and the management of that land once the choice is made are usually primarily considered to rest in the hands of the owner. One major question which must be considered is the degree to which, in Canadian society, interference with the individual's ownership rights will be permitted to occur. Currently, such government regulation as zoning, land taxation, building codes, and rights of expropriation are usually considered to be within the prerogative of one or other level of government. In one province, P.E.I., the provincial government has exercised the right to limit land ownership, in many cases, to residents. The degree to which further government intervention into land use or

ownership concerns will be tolerated will continue to itself be a public issue.

2. Politics and the market economy

In the eyes of most students of land and land use, the market economy is considered to be inadequate in terms of land allocation to assure that society's collective goals are always achieved. The function of the market economy is usually to assure that the activity capable of paying the greatest economic rent in the short run is that activity which gains the use of the land it desires. Activities unable to pay (e.g. wildlife or, in some cases, agriculture) are therefore relegated to less desirable land. A further problem which has received much public debate of late is that of speculation. In some cases, speculators are portrayed as major causal forces in the rising cost of land for legitimate uses, particularly in and around cities. In other cases, speculators are seen simply to be individuals partaking of the profits coming from an excess of demand over availability of land of desired quality in key locations. In either case, transfer of resources is taking place, to individuals who are lucky enough, or smart enough, to hold land during the time at which demand is high. There is a substantial and voluble lobby in favour of the recapture of such "speculative profits" for the good of society as a whole rather than to the profit of individuals or firms. Solutions of the allocation problem and speculative profits problem may have to involve a greater degree of government interference in the land market and the question remains -- to what level will Canadian society tolerate government involvement in the land market?

3. Jurisdiction and legislative capability

One of the major facts of life regarding the Canadian land resource is that the management of the land within each province, with certain specified exceptions, is a provincial responsibility. The exceptions consist of areas of federal lands within provincial boundaries, notably defense establishments, national parks, airports, ports and harbours and sites of federal buildings. Because federal policies have a substantial impact both upon their own lands and upon lands under provincial control, there exists a need for maximum co-ordination of policies and programs so that adverse effects do not occur, and so that projects and programs at each level of government can be supportive of the aims and goals of others.

So that this may be accomplished, any action by the various levels of government will have to be reconciled with the franchise of each level of government, its powers and legislative capabilities.

The means to deal with the land issues detailed in the preceding parts of this paper all tend to imply greater direct involvement of various levels of government in regulating the land market, and in prescribing the means permissible in the use of land resource. This implies that sound, holistic planning procedures be implemented at municipal, provincial and national scales and that guidelines for the use of land be established at each scale appropriate to the concerns of each level of government. This should not, however, be interpreted as carte blanche for duplication of endeavours, for further bureaucratication of an already complex

regulatory process, or for creation of additional bodies. Rather a streamlining or co-ordination between regulatory and planning bodies is required. The ability of all levels of government to come to an accord regarding the means by which these goals are to be achieved remains the crux of any long-term solution of the land use issues.

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