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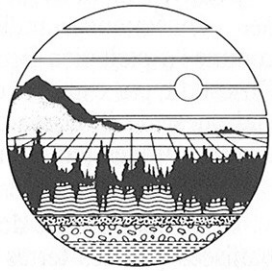
Canada

# URBANIZATION AND THE SUSTAINABILITY OF CANADA'S PRIME CAPABILITY AGRICULTURAL LAND



Sustainable Development Branch, Canadian Wildlife Service

Many Canadians hold a traditional view of their country as a storehouse of unlimited resources — bountiful agricultural and forest lands, minerals, countless fresh water bodies, and endless wilderness areas. This, however, is not an entirely accurate picture of the second largest country on the globe. Canada's resource base has both opportunities and limits. It is vital that we live within these limits to provide a continuous harvest of resources for the future.

Canada has adopted a policy of sustainable development which requires the application of conservation and resource management techniques to ensure that planned use of the environment today will not destroy prospects for generations to come. One resource where future prospects are being strained is that of prime capability agricultural land.

Prime capability agricultural land, Canada Land Inventory (CLI) classes 1-3, is a renewable resource which in many parts of Canada is being subjected to pressure from urbanization. Canada has a limited amount of agricultural land. The CLI indicates that only 11% of the country's 992 million hectares is capable of any form of agricultural production, and less than 5% is prime capability agricultural land capable of producing crops (classes 1-3). Less than 0.5% (4.2 million hectares) can be considered to have class 1 capability, the highest rating of agricultural land. Class 1 agricultural land is not uniformly distributed across the country — 51% is found in Ontario, 46% in the Prairie Provinces, and 2% in British Columbia.

Early European settlers were attracted to the areas with the most agricultural potential, and the first small towns sprang up to provide services to the surrounding farms. Now the situation is reversed: the towns and cities provide the livelihood of most of the population and the very land that attracted the settlers by its suitability for agriculture is being put to urban purposes. Once land has been modified for urban activities, it is essentially lost for alternative renewable uses. Changes to natural drainage and topography, soil compaction and the prohibitive cost of rehabilitation make any future renewable-resource use highly unlikely.

Between 1966 and 1986, when Environment Canada monitored urban conversion of rural land, the 70 largest Urban-Centered Regions (UCRs) had removed approximately 0.3 million ha of rural land, an area equivalent to a new city covering more than one-half of Prince Edward Island. Prime capability agricultural land comprised 58% of the converted lands.

In the most recent monitoring period, 1981-86, approximately 55 200 ha of rural land were urbanized, 59% of which was prime capability agricultural land (Table 1). The proportion of prime capability agricultural land converted was greater than the percentage of its occurrence in all provinces combined (59% vs 18%) and in all provinces individually, except P.E.I. This difference was greatest in Manitoba and Ontario. For example, although only 8% of Ontario is classed as having prime agricultural capability, 83% of the land urbanized in Ontario fell into this category. A similar ratio exists for Manitoba.

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**TABLE 1**
**PRIME CAPABILITY AGRICULTURAL LAND CONVERTED TO URBAN ACTIVITIES 1981-86**

| PROVINCE (No. of UCRs) | TOTAL LAND CONVERTED ha | % Change | PRIME CAPABILITY AGRICULTURAL LAND Classes 1-3 | % of Total |
|---|---|---|---|---|
| British Columbia (7) | 6 778 | 4.1 | 1 244 | 18.4 |
| Alberta (5) | 13 637 | 9.7 | 6 761 | 49.6 |
| Saskatchewan (4) | 2 209 | 7.9 | 1 368 | 61.9 |
| Manitoba (2) | 2 431 | 5.2 | 1 925 | 79.2 |
| Ontario (26) | 20 670 | 5.7 | 17 081 | 82.6 |
| Quebec (19) | 6 264 | 3.2 | 3 671 | 58.6 |
| Nova Scotia (2) | 1 162 | 2.6 | 321 | 27.6 |
| New Brunswick (3) | 1 417 | 4.0 | 373 | 26.3 |
| Newfoundland (1) | 608 | 4.9 | 1 | 0.2 |
| Prince Edward Isl. (1) | 34 | 0.5 | 13 | 38.2 |
| Canada (70) | 55 210 | 5.4 | 32 758 | 59.3 |

The pressure to urbanize prime capability agricultural land is greatest in southern Ontario. The Toronto UCR, for example, urbanized 10 361 ha between 1981 and 1986 — 97% of this was prime capability agricultural land, and 74% was class 1 land. It has been reported that approximately 37% (1.5 M ha) of Canada's class 1 land and 25% of all class 2 land can be seen from the CN Tower on a clear day. Although this may have been true in 1966, during the next 20 years, urban development in the Toronto UCR alone had converted 36 645 ha of class 1 land, nearly 2% of Ontario's class 1 land. Canada's 70 UCRs during the same 20-year period had converted 70 374 ha of the nation's highest quality agricultural land and 104 416 of class 2 and 3 land. This area is more than twice the 1986 urban area of Vancouver or Edmonton.

If this trend continues, the conversion of prime capability agricultural land will have a significant effect on future production. New areas of agricultural land have been developed in the Peace River District of western Canada and the clay belt of northern Ontario. There are, however, no vast reserves of agricultural land with the same growing capabilities to replace the production lost from urbanization.

The CLI agricultural capability system evaluates agricultural land primarily on the basis of soils and does not adequately consider the effects of climate on production. Using the CLI as a base and applying an Agroclimatic Resource Index (ACRI), the value of an area for agricultural production can be determined more accurately. ACRI considers the number of frost-free days, as well as moisture shortages and inadequate summer heat. ACRI values for individual sites range from 3.0 (most suitable) in parts of south-western Ontario to less than 1.0 in northern areas of the CLI-inventoried area.

Of the 32 758 ha of prime capability agricultural land converted to urban uses between 1981 and 1986, 63% was in areas with ACRI ratings of 2 or better. To replace these prime lands would require more than twice as much land (71 547 ha, if available) of similar soil quality in areas with an ACRI value of 1 (Table 2).

Development of these lower quality agricultural lands would involve substantially higher costs stemming from the more limited types of crop production, as well as increased costs of land development resulting from the process of clearing, draining and construction of the agricultural infrastructure. Energy and transportation costs per unit of food produced would be increased with the need for more fertilizer, tilling and movement of products to more distant markets. There is no indication that Canada's agricultural industry could profit from replacement with more "marginal" lands. Past experience has shown that the marginal agricultural lands are generally the first to be taken out of production during economic hard times. Indeed, some agricultural activities are currently not profitable on established prime agricultural lands even without these additional costs.

Opening up land for agricultural production could also affect other land-uses such as forestry and wildlife habitat. An estimated 90% of southwestern Ontario's wetlands, for example, have been drained and converted to other uses since 1800, the majority of which were for agricultural purposes.

Alternatives to replacement of urbanized prime capability agricultural land with more marginal lands also have significant risks. One alternative is the intensified use of remaining prime capability land. However, this approach increases the risk of land degradation by heavy use

**TABLE 2**
**ESTIMATED REPLACEMENT LAND REQUIRED FOR URBANIZED PRIME CAPABILITY AGRICULTURAL LAND**

| PROVINCE (No. of UCRs) | Converted Class 1-3 land ha | Percentage of prime agricultural land converted | Provincial ACRI value | Replacement land required ha |
|---|---|---|---|---|
| British Columbia (7) | 1 244 | 18.4 | 1.4 | 2 514 |
| Alberta (5) | 6 761 | 49.6 | 1.6 | 10 769 |
| Saskatchewan (4) | 1 368 | 61.9 | 1.4 | 1 922 |
| Manitoba (2) | 1 925 | 79.2 | 1.9 | 3 633 |
| Ontario (26) | 17 081 | 82.6 | 2.4 | 42 572 |
| Quebec (19) | 3 671 | 58.6 | 2.0 | 8 930 |
| New Brunswick (3) | 373 | 26.3 | 1.7 | 638 |
| Nova Scotia (2) | 321 | 27.6 | 1.7 | 545 |
| Prince Edward Island (1) | 13 | 38.2 | 1.8 | 23 |
| Newfoundland (1) | 1 | 0.2 | 1.2 | 1 |
| 70 UCRs | 32 758 | 59.3 | | 71 547 |

of tilling, pesticides, herbicides, and monoculture crops. Year-round importing of crops no longer available, is yet another alternative. Not only will this affect Canada's import and export trade balance, but it may very well contribute to food shortages, soil degradation, and global climatic change as Third World countries attempt to meet the demand by industrialized nations such as Canada. We would be exporting the problems associated with intensification of use and clearing new agricultural lands to countries less prepared or able to deal with them.

The decision of whether to retain rural lands for renewable-resource use or allow urban growth to expand onto them is not an easy one. In the short term, building cities and roads is economically attractive for many people. Municipal governments frequently see urban development as a means of increasing their tax base. Builders prefer the more level, well-drained agricultural land and are willing to pay more than what can be gained through their use for agricultural purposes. Farmers, as stewards of the land, would like to maintain prime capability agriculture land in production. However, they also want to maintain the option of selling the land for the best price before their retirement or during an economic crisis. In areas surrounding urban centres, the best price is usually for urban purposes.

It is economically difficult to rationalize maintaining prime capability agricultural land near urban centres at a time of agricultural surpluses and bankrupt farms. Shortsightedness now will have ramifications on future Canadian generations as the best farmland continues to disappear. Canada's urban centres will continue to expand as the population grows and economic development advances. Urban development often, however, can be directed towards areas with lower capability for renewable resource use. British Columbia and Quebec have attempted to achieve this goal through legislation and Ontario through a series of guidelines. The results have been a mixed success. What is needed is for all Canadians to appreciate what is the long-term price of this vanishing resource. The principle of sustainable development demands that some options for renewable resource development be retained for future generations.

SUGGESTED READING


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Fact sheets and further information on urbanization of rural land in Canada may be obtained from:


Sustainable Development Branch
Canadian Wildlife Service
Environment Canada
Ottawa, Ontario
K1A 0H3