SOIL AT RISK - CANADA'S ERODING FUTURE

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The following is an edited version of the presentation made by Senator Sparrow at the Soils and Crops Workshop.

Canada is facing the most serious agricultural crisis in its history and unless action is taken quickly, this country will lose a major portion of its agricultural capability.

The Standing Senate Committee on Agriculture, Fisheries and Forestry has travelled extensively in Canada examining the issue of "soil degradation", a problem which is already costing Canadian farmers more than $1 billion per year in farm income. It has determined that we are clearly in danger of squandering the very soil resource on which our agricultural industry depends.

Based on the evidence presented to it, the Committee has made a number of recommendations designed to raise public awareness of the problem and to improve the dialogue between the public, farmers, governments and environmental experts.

Put simply, soil degradation is the depletion of the productive capability of Canada's precious soils and it is costly problem.

* It is estimated that erosion of one inch of soil can reduce wheat yields by 1.5 to 3.4 bushels per acre.
* In Southwestern Ontario, the erosion problem has caused a loss in corn yields of some 30 to 40 percent.
* On lands affected by salinization in the Prairies, crop yields have been reduced by 10 to 75 percent, even though farmers have increased their use of fertilizer.
* It is estimated, at 1982 prices, that it would cost Prairie farmers $239 million in fertilizer to fully recover the present loss of grain production from wind and water erosion.
* More difficult to put a dollar figure on, but equally as serious, is the permanent loss of rich agricultural land to urban use. Between 1961 and 1976, Canada lost more than 3.5 million acres of farmland -- the equivalent of the size of Prince Edward Island.

These figures do not reflect the cost of soil degradation to forest or recreational lands, or on wetlands. They also do not reflect the total cost of the problem to the Canadian economy.

Why Does Canada Have This Problem?

The Committee found that much of the problem lies with the great pressures being placed on our agricultural sector. Canadian farmers have been asked to demand the last ounce of productivity from our soils -- largely because of economic necessity, international prices and technological progress.

As well, both old and new agricultural practices have contributed to the problem.

* Old practices and technologies such as summerfallowing and the use of mouldboard plows contribute to salinity and erosion in certain parts of the country.
* New practices and technology, such as the use of monoculture and large, heavy machinery contribute to loss of organic matter, soil compaction and erosion.

Farmers who realize the necesssity of taking conservation precautions find their implementation costly in the start-up stage. They may not be able to afford the expense of a new piece of conservation tillage equipment, or the loss of income caused by replacing a cash crop with a nitrogen-fixing rotation crop.

In these days of high costs and low commodity prices, the least expensive way to operate is often the only way a farmer can survive.

Increased Production

One of the main reasons our soils are rapidly being depleted is our preoccupation with increased productivity.

* The federal and provincial departments of agriculture have considered increased production a major priority, often without regard for the long-term consequences to the soil.
* Farmers are encouraged to produce in greater quantities, on the same amount of land, to meet the demands of both domestic and export markets.
* Until recently, relatively low cost fertilizer and fuels have made it possible for farmers to compensate for the resultant loss of nutrients.

Over the years this production has taken its toll on soil quality.

Conservation

In the past several years, a growing number of individuals and associations have become concerned with the serious impact of soil degradation.

Some major farm organizations have held seminars and conferences to discuss their mutual concerns and to try to find solutions to the pressing problem of soil degradation.

Farmers have formed educational and self-help groups, to provide moral support, and to exchange information. Groups such as the Warner-Dryland Salinity Control Association in Alberta, the Manitoba-North Dakota Zero Tillage Farmers' Association, the Huron Soil and Water Conservation District in Ontario, and Soil and Crop Improvement Associations are typical of local bodies being established as farmers seek the most appropriate solutions to degradation problems.

The Role of Government

In the past few years, Governments have begun to play a more active role in conservation -- due in part to pressure placed on them by these interest groups.

Nonetheless, Government response in this area has not been great when one considers how little is spent on combating soil degradation in relation to overall agricultural expenditures. The Federal Government -- which has always taken the major responsibility for agricultural research -- has done little about the problem. Conservation-related research accounted for only 4.7 percent of the federal agricultural research budget and for only 3.3 percent of person-years in 1983.

In the latest round of Economic and Regional Development Agreement negotiations, both federal and provincial governments made some commitment to conservation, but their financial contributions were relatively small. With one-half of the ERDAs signed and the Agricultural Sub-Agreements completed, the Federal Government has, so far, committed only $8 million per year to conservation for the next five years.

Ignoring the Limits

Why should we be concerned about this apparent lack of commitment to soil conservation at the official level? The reason is fairly straightforward.

Although Canada is the second largest country in the world, very little of our land is suitable for agriculture.

* Almost half of our land is totally unsuited for agricultural production because of our cold climate.
* A further 28 percent of Canada has low temperatures and is so rocky or dry that there is virtually no potential for agriculture.
* Less than 9 percent of Canada's land area is capable of being cultivated and of that, only about one-half is actually cropped. This 4.5 percent, quite literally, is spread from coast to coast.
* The other 4.5 percent is used for pasture, forests, recreational lands, transportation corridors and urban or industrial land.

There is no substitute for the agricultural land which Canada possesses, and indeed, the margin for error in trying to save the soil becomes smaller and smaller every year. We cannot ignore the limits of this vital resource.

A Canadian Perspective

It is clear that soil degradation is costly not only to agricultural industries, but to the Canadian economy and our rich, full lifestyle. The facts speak for themselves.

* Agriculture is the foundation of the economies of many provinces and accounts for between 0.4 and 14 percent of provincial incomes.
* While only 4 percent of the population actually earn a living as "primary producers", fully one job in ten in Canada depends on agriculture or agriculture-related industries.
* Approximately 40 percent of the nation's Gross Domestic Product is generated by the agribusiness sector.
* Agriculture is also important to Canada's balance of trade, making up a consistent 10 percent of export earnings.

The facts and figures in this report are presented to call all Canadians to action -- to show that soil degradation has become a <u>national</u> problem requiring <u>national</u> attention.

Soil degradation is more than a spectacular dust storm on the Prairies or a land use battle over the Niagara Escarpment or the Fraser Valley. It is a serious, ongoing problem in all regions of Canada. It is a multi-faceted problem which cannaot be dealt with inexpensively or easily.

To actively conserve the soil requires a major commitment by all Governments, farmers and scientists. It also requires a commitment to action from all Canadians -- coast to coast.

CONCLUSIONS

Having heard and carefully considered the testimony of the witnesses who appeared before it, the Committee concludes that:

1. Soil degradation is a serious problem in all regions of Canada.
2. There is sufficient awareness of the existence and the severity of the problem within all sectors of society.
3. Because there is insufficient awareness of soil degradation, the solution of the problem has not been a priority.
4. Canada risks permanently losing a large portion of its agricultural capability if a major commitment to conserving the soil is not made immediately by all levels of government and by all Canadians.

Therefore, the Committee further concludes that:

5. Soil conservation cannot be dealt with in isolation from related issues such as water quality, land use, wildlife management, fisheries and forestry.
6. Because of the complexity of the issue and the ramifications that policies set at all levels of government have on soil conservation, a valid conservation effort demands policy and program coordination.
7. Existing policies, not necessarily directed at soils, can have the effect of discouraging good soil management.
8. There is a need for further basic research on the causes and effects of soil degradation.
9. There is also an overwhelming need for practical, on-the-ground research to determine (a) the costs of degradation to the farmer and (b) the costs and the benefits of the use of conservation practices on the farm.
10. While there is a great deal of information available about soil conservation, the transfer of this information and the accompanying technology to the farmer is the key to a successful conservation effort.
11. The practical technical information and expertise necessary to adapt

conservation practices to individual farms is often unavailable to farmers because existing agricultural extension officers are overburdened and soil management technicians are few and far between.

12. Farmers are often not able to underwrite the initial costs of some conservation practices without financial incentives or tax concessions.
13. Canadians must become aware that soil degradation has a major environmental impact, a potential serious impact on consumers and an equally serious impact on the national economy.

RECOMMENDATIONS

Having reached the above conclusions, the Committee has determined that it is time for action. Therefore:

To establish a national commitment the Committee recommends:

1. That, because of its serious economic implications, the matter of soil degradation be added to the agenda of the next meeting of First Ministers, including Territorial government leaders, to demonstrate to the Canadian public the gravity with which all governments view the situation, to consider the recommendations of this report and to take action to implement them.
2. That a comprehensive federal soil and water conservation policy for Canada be developed and adopted immediately. It must (a) clearly state the Federal Government's intentions to make soil conservation a priority in the development of all of its policies, programs or projects; and (b) require all departments to coordinate their efforts to make the most efficient use of resources and information.
3. That provincial governments also develop comprehensive soil and water conservation policies.

To begin to resolve policy conflicts, the Committee recommends:

4. That the Canadian Wheat Board modify the quota system to extend (a) full quota entitlement, at the "bonused" level of seeded acreage, to

those remnant farmlands considered of marginal value for agriculture; and (b) partial quota entitlement, equivalent to current quota levels for summerfallow to extensive tracts of unimproved pastureland which form integral parts of farm units.

5. That provincial governments strengthen and more conscientiously enforce their land use legislation to preserve agricultural lands.

To intensify conservation research the Committee recommends:

6. That the Federal Government establish Soil and Water Conservation Institutes in Western, Central and Eastern Canada for the purpose of carrying out applied research.
7. That the Federal Government provide greater funding for soil conservation research through the Natural Sciences and Engineering Research Council's Strategic Grants Program for Agriculture.
8. That the Federal Government use the Special Fund for Centres of Specialization Program in the Secretary of State as a model for a ten year program to develop regional centres of specialization in soil and water conservation at universities across the country.

To facilitate the transfer of technology the Committee recommends:

9. That the Prairie Farm Rehabilitation Administration (P.F.R.A.) extend its activity into British Columbia, particularly the Peace River District.
10. That all Federal lands, especially Agriculture Canada Experimental Farms and Research Stations, be developed and managed according to good conservation practices and become conservation showcases for the nation.
11. That agricultural and technical colleges increase their training of agricultural technologists to work in the field providing assistance to the individual farmer, thus providing an important link in the transfer of conservation technology.
12. That the Skills Growth Fund of the Department of Employment and Immigration, be modified to include agricultural land-based

occupations, specifically the training of soil conservation technicians.

13. That all provincial governments adopt legislation encouraging the establishment of conservation districts or authorities such as those which exist in Manitoba and Ontario.

To provide a more favourable climate the Committee recommends:

14. That financial incentives be provided to farmers through federal-provincial agreements, appropriate to local needs, to help defray the costs of conservation practices.
15. That accelerated capital cost allowances be permitted on capital expenditures relating to soil conservation, such as conservation tillage equipment, grass waterways, terraces, etc.
16. That land tax assessment notices in all provinces clearly show the basis on which the land is being taxed so that the owner is aware of the worth of the productive capability of various portions of the land.

To increase awareness and to sustain a national conservation effort, the Committee recommends:

17. That the Federal Government declare a National Soil Conservation Week to ensure that soil conservation becomes , and remains, an important national issue.
18. That Provincial Governments commit themselves to the introduction of soil degradation and conservation studies at the primary and secondary school levels through the addition of environmental courses.
19. That the Federal Government sponsor a National Conference on Soil Conservation to promote awareness of soil degradation as a national issue and to foster coordination and cooperation amongst all of those involved.
20. That a Council on Soil and Water Conservation be established: (a) to provide a neutral forum within which the participants can discuss the issues and the actions necessary to conserve Canada's natural resources: (b) to encourage improved coordination and cooperation

between the participants; (c) to review methods of dealing with the needs and demands of particular sectors: (d) to aid in the priorization of research and program demands; and (e) to gather and disseminate information concerning conservation.

The Committee believes that if these recommendations are acted upon quickly the risk to our soils and to our future can be reduced - the time for action is now!