SUGGESTED TITLE

LAND USE: THE SECOND FRONT IN THE WAR ON WATER POLLUTION

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The authors are associated with the Canadian Environmental Law Research Foundation. The study discussed in this article was prepared for Environment Canada as part of the efforts of the Pollution from Land Use Activities Reference Group, an organization of the International Joint Commission, established under the 1972 Canada-U.S. Great Lakes Water Quality Agreement. Findings and conclusions are those of the authors and do not necessarily reflect the views of Environment Canada, the Reference Group or its recommendations to the I.J.C.

The province of Ontario has been at war with water pollution for the last twenty-odd years. The war has not always been successfully waged--indeed, observers of the government's dealings with the pulp and paper industry may be forgiven for thinking it has scarcely been waged at all. But at least it has always seemed to have the virtue of simplicity. We know who the enemy is and how he commits his crime. He is the factory whose drainpipe discharges contaminants into a stream, or the town that dumps its untreated sewage into the handiest body of water.

Since modern efforts at water pollution control began in the 1950's, they have been largely focused on this type of pollution--"end-of-pipe" or, as it is called, point source pollution. Control what comes out of the pipe, and you stop water pollution. It is the simple answer--and, as far as it goes, the right one.

Unfortunately, it no longer goes far enough. While government has been trying to perfect the simple answer, the question has changed. Water pollution is no longer (if, indeed, it ever was) simply a problem brought to us by the unregenerate, but easily identifiable, industrial or municipal polluter.

Far less obvious, but no less serious, is what has come to be known as "non-point" or "diffuse" source water pollution. As its name suggests, this type of pollution comes from many different activities, so that it is often impossible to pinpoint the source of a contaminant.

Much of it is also indirect: contaminants are put in or on the ground, from where they make their way into the water system; or land-disturbing activities result in soil and sediment being washed into lakes and streams.

In short, non-point source water pollution is a more complicated and in many ways more difficult problem than that posed by the dark satanic mills which cartoonists and government agencies are so fond of using to illustrate pollution. A few examples will make this clearer.

When it rains in a city, various things are flushed into the storm sewers, and then into wherever that city's stormwater goes--in much of Ontario that means into streams ultimately tributary to the Great Lakes. These things include--besides litter and street debris of every persuasion--road salt, oil and gas that spill from cars, various chemicals that have settled out, or been washed out, from the air, including lead and other components of automobile exhaust, and sediment runoff from construction sites.

Agriculture also contributes to non-point source pollution. When land cultivation is done so as to permit erosion; when manure from livestock operations is inadequately handled; when a farmer uses more pesticide than he needs, or more fertilizer than can be taken up by his crops, then sediments, pesticides, and nutrients are leached from the soil into surface and ground water.

Pollutants also leach into the water system from waste disposal areas. Modern "sanitary landfill sites" are replacing the old-fashioned garbage dumps; but even so, liquid industrial wastes and sewage sludges are being disposed of in places--such as Metro Toronto's Beare Road landfill site--where they may well end up creating water quality problems.

Any earth-disturbing activity permits sediment to be washed into streams. This happens during the construction not only of new urban developments, but of roads, airports, pipelines and other transportation corridors, and it happens in and around mines and pits and quarries. If--as is frequently the case--the site is not revegetated properly, or at all, then erosion and sedimentation from a road cut or a mine tailings area will continue long after the road has been built or the mine abandoned.

Because of the way we live--our density of population and even more, our density of activities such as construction, agriculture, resource extraction

and so on, each of which contributes its mite--pollution from these myriad sources can be enough to degrade not only local watercourses, but important regional and international waters, such as the Great Lakes.

Just how serious a problem is non-point source pollution for the Great Lakes? This is currently the subject of investigation by the International Joint Commission's Pollution from Land Use Activities Reference Group (PLUARG). Established as part of the 1972 Canada-U.S. Great Lakes Water Quality Agreement, PLUARG is responsible for supplying the I.J.C. with the answers to three questions:

1. Are the Great Lakes being polluted by non-point or land use sources?

2. If so, which land use activities are causing what types of pollution, and what is the extent of this contamination?

3. What can be done to control the problem, and what will the control measures cost?

PLUARG's final report to the I.J.C. is expected by the middle of next year.

Numerous technical and scientific studies are being done on the scope of the problem. The Canadian Environmental Law Research Foundation was asked to examine the legal and regulatory aspects of the problem--the laws and programs that exist to control non-point source pollution, how they are being used, and what are the possibilities for future legislative and regulatory action.

In general, we found that environmental legislation, particularly at the provincial level, is sufficiently broad to prohibit non-point source pollution. But it is one thing to prohibit, and another to prevent.

When for instance, the Environmental Protection Act makes it an offense to deposit a contaminant into the natural environment, it does not exclude non-point source water pollution -- not in theory. But in practice it does, for you cannot use this kind of law, which mainly imposes a penalty for pollution, when the violators cannot be identified, or when there are so many that

it is impossible to go after them all. Blanket prohibitions, but piecemeal enforcement, will not change business as usual.

What we need are systematic strategies that combine planning, regulatory, fiscal and educative approaches. And this, with some exceptions, is what we did not find.

We found that many government agencies were as yet largely unaware that land use activities can create water pollution, and that those which were aware of it often lacked the resources to do much about it. We found, too, that the power to regulate many of these activities is split up among many different government agencies, and sometimes among different levels of government; and we found government programs and policies that conflicted with each other.

A choice example is the Ontario government's policy, or rather policies, with regard to toxic liquid industrial wastes. The government has declared its intention to reduce the amount of those wastes which are disposed of in deep wells, and also in surface landfill sites.

However, there is presently no third alternative. Reclamation of these wastes is still in its infancy, and cannot begin to cope with the amount currently being generated, let alone the increases predicted for the future. The two policies are therefore mutually exclusive. Is Queen's Park making policy, or engaging in blind faith?

Another example concerns development on hazard lands, that is, lands which are especially prone to erosion or flooding. On the one hand, the province supports the idea that these lands should be designated and protected from unsuitable development by municipal official plans and zoning by-laws. On the other hand, the government states that it may in the past have put undue restrictions on development in flood plain areas. Again we have two declared policies which are largely incompatible.

Conservation Authorities are charged with, among other things, protecting water quality in their respective river valleys. But the planning processes that may lead to water quality problems are frequently beyond their control.

The province's development policies, as set out in the Toronto-Centred Region Plan and other documents, will have a significant effect on water quality, but this effect, according to the Conservation Authorities concerned, does not seem to have been accounted for in the planning.

A complicating factor is the provincial policy, first enunciated in the North Pickering Project, of preserving good agricultural land, and using, where possible, only the poorer land for urban development. Environmental studies showed that urban development had the greatest impact on water quality when it was located on the poorer agricultural soils. Here again -- by an irony of nature this time, rather than of bureaucracy -- are two policies, to preserve agricultural land and to minimize water degradation, both good in themselves, but which cannot be carried out simultaneously.

Future provincial developments, similar to North Pickering, might benefit from the comprehensive environmental planning process established by the Environmental Assessment Act. But the province -- as land developer -- has exempted itself from the Act's provisions.

Differences among government levels can also mangle environmental goals. The Durham Regional Goverment has a policy, set out in its official plan, of protecting significant marsh or wetlands areas (such areas are frequently vital for local water quality). However, the Oshawa Second Marsh, one of the most significant such areas in North America, is designated in the Durham Plan as an industrial use area. A principal owner of the Second Marsh land area is The Oshawa Harbour Commission, a federal entity.

These examples bring out the point that controlling non-point source

pollution is often a matter of planning -- of where, how much, and what kind of development is appropriate. It is also important to stress that when solutions are required, they do not always involve the so-called "technological fix". But this fact often goes unrecognized by government.

For instance, farmers can write off, for tax purposes, the costs of equipment and processes installed to control water pollution from animal wastes and feedlots. However, revegetation of streambanks, and fences to keep cattle from eroding streambanks and polluting streams, are not eligible for this tax allowance.

Similarly, in the recent flurry of concern surrounding preservation of farmland, scarcely anyone has talked about preserving what's on top of the farmland -- namely, the soil. But to protect tomorrow's food supply as well as water quality, systematic agricultural soil conservation may well be a priority. Yet since 1970, Federal-Ontario agreements have permitted soil conservation cost-sharing assistance programs to lapse. There does not appear to have been any protests from the agricultural community over this comparable to the outcry that has been raised over the issue of preserving farmland.

Many activities that create non-point pollution are not covered by any sort of environmental permit or licensing control. Among these are agricultural drainage schemes, feedlot operations, application by farmers of fertilizers and pesticides, and many federally controlled projects, including airports and dredging activities. Often the burden is expected to be carried by in-house administrative procedures and voluntary codes. This general approach can result in spotty -- if not arbitrary -- abatement and enforcement.

For example, no voluntary code is going to prevent a farmer from spreading manure on frozen fields in winter (despite the potential for pollution from spring runoff) if he decides that it is in his interest to do so.

Where the power to regulate an activity does exist, it is sometimes in the hands of an agency whose mandate has nothing to do with controlling water pollution. This is the case, for example, with new urban development, which is controlled by the Ministry of Housing through development planning legislation. It is also the case with mining, which is under the authority of the Ministry of Natural Resources.

The Ministry of Natural Resources has the power to require security deposits from mine operators, to ensure that when the mine is worked out, revegetation and other techniques will be used to prevent the site from becoming a continuing source of water degradation. But it has rarely used this power. On the other hand, the Ministry of Environment develops guidelines for mine operators on the post-abandonment control of contaminants -- guidelines which it cannot enforce. The province has begun a multi-million dollar program to identify and clean up abandoned mine sites where they have become serious water pollution problems.

Government programs that work at cross purposes are not new. But non-point source water pollution, because it arises from such a wide range of activities, many of which were not previously considered pollution problems, provides a new and formidable test of the ability of government agencies to work together, and also of the ability of the usual kinds of controls to do the job they are supposed to do.

Can voluntary guidelines, both for the private sector and within government itself, take the place of legislated environmental standards? Are traditional enforcement techniques, such as the occasional prosecution, adequate to cope with a problem so pervasive and so geographically broad? What about the public? Should the citizen be thought of as an obstacle to administrative efficiency, or should he or she have a greater role to play in environmental control efforts?

We do not wish to suggest less vigilance -- if that is possible -- against the tragedies that have resulted primarily from point source water pollution in areas such as northwestern Ontario. What we do want to say is that it is apparent that traditional abatement technologies and control approaches are largely irrelevant to the land management and stewardship problems posed by non-point source pollution. We may have to open a second -- and quite different -- front in the war on water pollution, despite the fact that the first is far from won.