

Great Lakes Nonpoint Source Workshop: A Post-PLUARG Review – Canadian Perspective

Dennis Gregor, PhD, P. Geo.
Senior Aquatic Scientist
Gartner Lee Limited

In November, 1972, the International Joint Commission appointed an International Reference Group on Great Lakes Pollution from Land Use Activities (PLUARG). The Reference Group was comprised of nine Canadian and nine United States Representatives, who were to conduct the study under the IJC's Great Lakes Water Quality Board.

The purpose of PLUARG was to:

- Determine and evaluate the causes, extent and locality of pollution from land use activities;
- Gain an understanding of the relative importance of various land uses in terms of their diffuse pollutant loads to the Great Lakes;
- Examine the effects of the diffuse pollutant loads of Great Lakes water quality; and,
- Determine the most practicable remedial measures for decreasing the diffuse pollutant loads to an acceptable level and the estimated costs of these measures.

Detailed study plans were developed in 1973 and updated in 1976. The Reference Group reported at the IJC annual meeting in Windsor, July 17 – 20, 1978. PLUARG identified two sets of problems within the Great Lakes watershed, i) those parameters that have a demonstrated water quality problem within the Great Lakes and ii) those for which no Great Lakes problem has been identified but for which there may be a problem in inland surface waters or groundwater. These parameters are summarized in the two tables below with an assessment of whether or not they have been addressed in a timely and adequate manner over the past 25 years.

Table 1: Pollutants for which a Great Lakes water quality problem was identified

Pollutant	Lakewide	Nearshore	Land Runoff	Atmosphere	Sediments	Addressed
Phosphorus	Yes	Yes	Yes	Yes	Yes	Ongoing as population ↑↑
Sediment	No	Yes	Yes	Negligible	Some conditions	Ongoing as urbanization ↑ and sources not addressed
Bacteria	No	Yes	Minor???	No	No	Ongoing – Walkerton!!
PCBs	Yes	Yes	Yes	Yes	Yes	Ongoing – brown fields, atmosphere & sediments
OC Pesticides	Yes	Yes	Yes	Yes	Yes	Eliminated or banned in most cases
Industrial organics	Yes	Yes	Yes	Yes	Yes	Ongoing – brown fields, atmosphere & sediments
Mercury	Yes	Yes	Minor	Yes	Yes	Increasing – atmospheric
Lead	potential	potential	yes	Yes	Yes	Eliminated or banned

Table 2: Pollutants for which a possible inland surface water or ground water quality problem was identified

Pollutant	Lakewide	Nearshore	Land Runoff	Atmosphere	Sediments	Addressed
Nitrogen	No	No	Yes	Yes	Minor	Still working on it
Chloride	No	No	Yes	Negligible	No	Just starting
Pesticides – current	No ??	No ??	Yes	No	No	Ongoing assessments
Other heavy metals	potential	potential	Yes	Yes	Yes	Still working on it especially brown fields
Asbestos	No		No	?	Yes	Yes ±
Viruses	-----No data available-----					Emerging concern along with pharmaceuticals
Acid precipitation	No	No	No	Yes	No	Yes

The all encompassing and over-arching recommendation made by PLUARG was “**the development of management plans within one year of transmittal of IJC recommendations to the governments, which would stress site specific approaches to reduce loadings of phosphorus, sediments and toxic substances derived from agricultural and urban areas. PLUARG further recommends that a mutually satisfactory schedule for the reduction of non-point source loadings be annexed to the revised Great Lakes Water Quality Agreement.**” Such management plans are only recently being developed as part of the watershed plans developed by Conservation Authorities in association with municipal, provincial and federal partners and are certainly the scope of the proposed “source water protections plans” (SPPs). SPPs have been identified as a priority for the province although the procedures and funding are still in the air. In fact the SPPs have not been driven by PLUARG but by the reaction to Walkerton drinking water “catastrophe”.

Additional PLUARG recommendations covered a wide range of topics. These are summarized and evaluated with respect to the extent of implementation, effectiveness of the implementation and the timeliness of implementation in Table 3.

Table 3: Evaluation of the implementation of key PLUARG recommendations

Recommendation	Extent	Effectiveness	Timeliness
Better use of existing planning mechanisms	✓	✓	✓
Review of fiscal arrangements	ongoing	variable	delayed
Development and implementation of information, education and technical assistance programs	✓	✓	✓
Assess the adequacy of existing and proposed legislation	ongoing	variable	delayed
Develop regional priorities for implementing management plans	not done		
Point and non-point control programs be used to achieve the individual lake target loads for phosphorus	✓	✓	✓
Erosion and sediment control programs be improved and expanded	✓	✓	✓
Specific actions be undertaken to reduce inputs of toxic substances	ongoing	variable	delayed
Establish applicable microbiological criteria for contact recreation	✓	✓	✓
Develop and implement water quality plans through a single	Nutrient	to early to tell	very late

plan for each farm	Management Act, 2002		
Plans for control of urban storm water runoff	✓	Construction phase needs work	✓
Preservation of wetlands and the best farmlands	Wetlands yes, farmlands no?	Greenbelt, 2004 ?	Very late
Local awareness to local area problems identified by PLUARG	✓	✓	✓
Regular review by the IJC of the implementation of the recommendations	Only for the first few years	?	?
Increased surveillance of tributary loadings and atmospheric inputs	Tributaries–no Atmosphere–yes	Tributaries–no Atmosphere–yes	Tributaries–no Atmosphere–yes
IJC adopt a comprehensive public participation program	✓	✓	✓

In summary, while a great deal has been accomplished in the Great Lakes Basin over the last 25 years, it is likely fair to conclude that many of these resulted from initiatives not directly related to or stemming from PLUARG's recommendations. On the other hand, PLUARG prescribed a direction that was flexible and intended to address local priorities rather than being prescriptive basin wide. In this regard, perhaps PLUARG was very successful by providing a vision of the future which permitted flexible implementation