

THE SECRETS BEHIND PLUARG

SUBMITTED TO: THE WORKGROUP ON PARTIES IMPLEMENTATION

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THE SECRETS BEHIND PLUARG

In a reference given by the Parties in April 1972, it was recommended that the International Joint Commission “study and make recommendations on the extent and cause of pollution from land use activities and on possible remedies” (International Joint Commission, 1980). In particular the area of study would include the five Great Lakes, the connecting channels and the entire Great Lakes drainage basin (International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities, 1978). A binational group was then assembled to assist the Commission in answering the reference, this group was titled the Pollution from Land Use Activities Reference Group (PLUARG). The group was to address the following questions; “are the boundary waters of the Great Lakes System being polluted by land drainage from land use and where is the pollution taking place? If pollution is occurring, by what causes, to what extent and where is the pollution taking place? What remedial measures would be most practicable to deal with such pollution, and what would be their probable cost? The Commission was also asked to assess the adequacy of existing programs and control measures for addressing non point pollution” (International Joint Commission, 1980).

Non Point Source Pollution

It seemed that the initial focus of the group was Annex 3 of the Great Lakes Water Quality Agreement and therefore the non point source pollution problem of phosphorus (Dodge, 2003). Excess phosphorus, which can cause eutrophication in the lakes, is often the result of excessive or improper fertilizer application, urban areas with extensive impervious surfaces or lands undergoing construction (International Joint Commission, 1980). The focus on Annex 3 and future phosphorus loads shifted quickly as PLUARG began exploring the wide world of non point source pollution (Bonner, 2003). A number of additional pollutants became of concern including sediments, industrial organic compounds, fertilizers, pesticides and some heavy metals (International Joint Commission, 1980). The group realized that it must not only focus on non point source impacts in agricultural and urban areas, but also on the aspects of the regulations and technology that are encouraging poor land use (Shear, 2003).

The group believed that a successful strategy would incorporate the identification of major contributing areas of non point source pollutants, long term planning and management, research and public education (International Joint Commission, 1980). PLUARG was revolutionary because of its organizational structure, focus on public involvement, available funds and overall magnitude.

Organizational Structure

The reference group began to organize itself to meet the Parties' desired tasks. There were 17 panels, which ranged in size from about 12 to 20 individuals. This led to the formation of four individual task groups. The first was the Task A group, with a responsibility of assessing problems, management programs and research and attempting to set priorities in relation to the effects of land use activities on water quality in the Great Lakes basin. The responsibility of the Task B group was to create an inventory of land use and land use practices, emphasizing current trends and them into the future. The Task C group studied representative watersheds with the purpose of extrapolating data to the entire Great Lakes Basin and to relating contamination of water quality to specific land uses and practices. Finally, the Task D group had a mandate to diagnose the degree of impairment of water quality in the Great Lakes, which also included an assessment of concentrations of contaminants in sediments, fish and other aquatic resources. After five years of studies, workshops and public meetings a paper, titled "Environmental Management Strategy for the Great Lakes System", was presented to the International Joint Commission in 1978 encompassing a number of findings and subsequent recommendations (International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities, 1979). It is estimated that over 250 individuals, including scientists, engineers and contractors, were involved in the PLUARG project in total (Parizek, 2003).

A number of workshops were conducted in the initial process to ensure that experts assisted in refining the study plan, that best management practices being employed in the Basin were shared, and that current research was synthesized and future research needs were identified. Since each task group had a specific agenda, there was a variation in

goals and therefore studies conducted. The task group's activities included inventories and monitoring, legislation reviews, and evaluations of remediation techniques (International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities, 1979).

One of the prevalent positive aspects of the organizational structure was the cooperation of the two countries involved. Both Canada and the United States regarded the topics of non point source pollution and water quality quite seriously. Since the Great Lakes are transboundary waters, the sharing of information and willingness to work together was fundamental in order for the group to make significant progress (Parizek, 2003).

Public Involvement

Citizen participation was incorporated into the PLUARG project with the purpose of developing more workable and publicly acceptable courses of action (International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities, 1978). This was the first time that the public had been included as part of the study process instead of being notified of the course of action once it had already been established (Bonner, 2003). It was also a chance to educate the public on the value of the Great Lakes and the fact that the Lakes could not take in the endless amount of waste that the public seemed to think that they could (Parizek, 2003).

The first set of public hearings occurred in December 1972 and January 1973. The purpose of these meetings was to inform the community and interested organizations of the current study plans and to receive feedback from the public that could assist in the actions taken by the group. The public was involved again later in the process through a series of public hearings held in November and December 1978. These meetings were held throughout the basin with a purpose of obtaining the public's reaction to the PLUARG Report submitted in July 1978. Meetings had also been held earlier to familiarize the public with the findings of the study, which allowed the public hearings to be more productive and less explanatory (International Joint Commission, 1980).

The public had a number of main focus points. Though the desire for clean-up programs and agricultural non point remedial measures were presented, a concern with funding for these actions was presented. The public also encouraged ideas such as selective approaches instead of uniform ones, the idea of voluntary implementation, and the necessity of the commitment of all forms of government (International Joint Commission, 1980).

Available Funding

It is almost impossible for a project to grow to its true potential without an appropriate amount of funding. It seems that PLUARG did not have problems obtaining funding and was therefore able to flourish. Funding from both American and Canadian governments assisted the project as well as additional provincial and state funding (Shear, 2003). Funding totaled between 15 to 20 million dollars, which would translate into much more today due to inflation (Rast, 2003). It has been noted that funding was not a problem for anyone involved in the project, which helped to create affiliations with universities willing to assist in research and with municipalities managing the pilot watersheds. The fact that funding was available was likely a drawing card for the participation of certain individuals and organizations, which inevitably contributed to the size and success of PLUARG (Bonner, 2003).

Actions

The Pollution from Land Use Activities Reference Group quickly realized that a simple management decision to combat non point source pollution was not possible (International Joint Commission, 1980). The group began by monitoring the waters around sewage treatment facilities and large rivers, but felt the necessity to move on to small streams as well and consequently a larger project (Parizek, 2003). The process continued to grow once the group realized that there were a plethora of problems in both agricultural and urban areas and the group began to move towards a watershed approach (Dodge, 2003). The focus became adopting an ecosystem approach, which was a basin-wide, long-term perspective that focussed on the co-ordination of policies and programs, as well as establishing standardized methods of practice and monitoring. It also

emphasized accountability regarding practices occurring in each region and the effects of these various practices on the Great Lakes Basin. A number of remedial programs resulted focussing on issues such as phosphorus loadings, agricultural measures deserving attention, livestock operations, water quality and erosion in urban areas, stormwater runoff, the value of wetlands, and recycling (International Joint Commission, 1980). See Appendix 1 for a full list of the recommendations.

To make immediate progress, the group focussed on the “hot spots”, instead of implementing a broad application of solutions to the entire basin. Actions were taken in areas that possessed problems that were impacting the Great Lakes at the time, followed by areas and problems that would impact the Great Lakes in the coming years. Monitoring of upcoming possible threats was also a focus. The group realized that there were a number of potential problems that had not yet been confirmed as negatively impacting surface waters and decided to monitor these possible threats in order to be aware of all aspects of the system. An example of a delayed impact could occur with contaminated groundwater having an eventual effect on surface water quality (Parizek, 2003).

Though some of the recommendations seemed to be ahead of their time, some small easy fixes were implemented relatively quickly. One example of these implemented recommendations included the installation of domes over piles of de-icing salts that were previously left uncovered. Dr. Shear commented that there were also recommendations that took a much longer to be accepted by local governments and community leaders (2003). One example is no till plowing, which did not become popular until approximately fifteen years after the project was completed and the recommendations were made. Eventually an increasing number of fields started to leave stubble. Dr. Shear stressed that sometimes it takes a long time for conservative communities, such as the farming community, to implement new ideas. Other recommendations, such as grassing waterways and buffers, are also currently being implemented approximately twenty years after their relevance was suggested (Shear, 2003),

Post-PLUARG

Some of the individuals involved in PLUARG have commented that the Post-PLUARG sentiment of the group was positive, however this tended to fade once the group realized that a number of recommendations were being ignored by the Parties. In a report written by the Post-PLUARG Non point Source Control Task Force in 1983, the Parties were criticized for their lack of a formal response to the recommendations of PLUARG. However, it was noted that less formal non point source control actions had been appearing by various agencies throughout the basin (Nonpoint Source Control Task Force, 1983).

Conclusion

PLUARG quickly became more than a workgroup and is known for accomplishing a number of revolutionary tasks. It had a unique structure and individuals have commented that it was one of the most organized and well-planned groups that they have been involved in to date and its nature was likely ahead of its time (Shear, 2003 and Rast, 2003). It brought together experts in a number of environmental fields that had not yet had the opportunity to work together. It was one of the first times that the focus of pollution turned from the “end of the pipe” pollution and to “non point source” (Shear, 2003). Finally, it was the first time that the public had been included as part of the study process instead of being notified of the course of action once it had already been established (Bonner, 2003).

REFERENCE LIST

Bonner, Patricia. 2003. personal communication via e-mail and telephone.

Dodge, Douglas. 2003. personal communication via telephone.

International Joint Commission. 1978. “Great Lakes Water Quality Agreement.”

International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities. 1978. “Environmental Management Strategy for the Great Lakes

System.”

International Joint Commission Reference Group on Great Lakes Pollution from Land Use Activities. 1979. “Annotated Bibliography.”

International Joint Commission. March 1980. “Pollution in the Great Lakes Basin from Land Use Activities, Summary.”

Nonpoint Source Control Task Force of the Water Quality Board of the International Joint Commission. 1983. “Nonpoint Source Pollution Abatement in the Great Lakes Basin: An Overview of Post-PLUARG Developments.”

Parizek, Richard. 2003. personal communication.

Rast, Walter. 2003. personal communication.

Shear, Harvey. 2003. personal communication.

APPENDIX A:

Taken from: International Joint Commission. March 1980. “Pollution in the Great Lakes Basin from Land Use Activities: SUMMARY.”

RECOMMENDATIONS

1. The Governments of Canada and the United States, in partnership with the state and provincial governments, and local jurisdictions where relevant, undertake to develop a comprehensive strategy of pollution control for the Great Lakes which would be specifically directed at but not restricted to non point pollution. The Commission further recommends that such a strategy have sufficient flexibility to permit

individual jurisdictions to maintain their resource and land management prerogatives to the extent that they are consistent with the Great Lakes Water Quality Agreement of 1978. This flexibility should also ensure that the strategy can be responsive to future scientific, technological and socio-economic developments concerning the pollution control.

2. Ongoing and priority programs be pursued without awaiting complete development of the comprehensive management strategy.
3. As part of the management strategy, governments develop and implement remedial plans for achieving reductions in non point pollution from priority areas. These priority areas should be selected on the basis of the most severe whole-lake and nearshore water quality problems, present land use activities and areas with a high potential or demonstrated ability to contribute pollutants, especially hydrologically active areas. In accordance with the ecosystem concept, selection of remedial programs should also include consideration of the principle of non-degradation of higher quality waters (further to the Commission's Report on Water Quality of the Upper Great Lakes), impacts on other environmental components including plankton, fish stocks and wildlife, occurrence of severe local problems (especially the nearshore areas of tributary mouths), and the impacts to be realized in downstream lakes in the Great Lakes System via connecting channels.
4. Governments implement low cost but generally beneficial measures throughout the Basin. Thus, certain measures to reduce pollutant loadings, to at least PLUARG "Level 1" rural and urban control measures, be applied throughout the Basin without regard for the criteria suggested above for establishing priorities.
5. Non point source pollution control not be considered in isolation of point source pollution or the relative cost-effectiveness of further control thereof. The economic and social impacts of remedial programs in individual areas should be considered in the development of such programs and efforts should be made to include elements in the program, which would alleviate such undesirable side effects. All alternatives for controlling specific pollutants, and their local, regional and national implications, should be considered consistent with the ecosystem concept, including the full range of all relevant point, non point and source-reductions controls and alternate practicable technologies for achieving these controls. The Governments initiate a program of assessment of the social and economic implications of non point and point source pollution control.
6. Jurisdictions, in formulating their management plans, recognize and consider the need for strengthening coordination within and between jurisdictions in developing and implementing required remedial programs. Senior levels of government, as relevant within each country, assume broad overview and basic control and monitoring of non point pollution control measures, centered in a lead agency or coordinating mechanism, while recognizing that effective implementation of such measures will be

done at least in part at the local level; and review existing legislative and control programs and sufficient coordination.

7. In this regard, governments consider the utilization of such existing mechanisms as:
 - a) at the Canadian federal level, the coordinating and environmental review roles of Environment Canada;
 - b) at the United States federal level, a coordinating mechanism to focus the concerns of agencies whose programs are related to Great Lakes water quality;
 - c) at the Canadian provincial level, the systematic use of the Planning Act and the Environmental Assessment Act;
 - d) at the United States state level, the Section 208 agencies and the environmental or "little-NEPA" agencies.

These mechanisms could, if strengthened, provide the needed coordination of environmental perspectives in other policy areas such as development and energy programs. While existing programs would be used where possible and appropriate, new or revised programs should also be developed where necessary to address non point pollution problems.

1. Governments use and accentuate voluntary mechanisms and approaches where possible in implementing pollution control programs. Since public interest in, and acceptance and support of, such programs are of paramount importance, Governments ensure adequate environmental information, education and technical support is supplied to the public, and that provisions are made for their involvement.
2. For certain measures that are universally desirable, but for which voluntary compliance is not likely, governments adopt regulations in order to ensure their consistent and equitable implementation. Specific measures identified by the Commission requiring regulation are: prohibit winter spreading of manure on frozen ground, with financial assistance to farmers who incur expenses by doing so; regulate sediment runoff from urban areas under construction; and regulate industrial waste management to prevent environmental contamination. Other regulatory measures should be considered to deal with non point pollution problems when voluntary approaches are found inadequate.
3. Governments assure that adequate financial support for small scale agricultural operations and local municipalities is provided to adequately address the non point pollution problems outlined in this Report, and governments also assure that relevant agencies be given sufficient technical and manpower support to address these problems.
4. In recognizing the need for an informed public, the Governments institute a general environmental education program. The program should be designed to make the public aware of existing local pollution problems, as well as providing for public input into the solutions to such problems. Local civic and environmental groups should be used to the extent possible. Further, government officials at all levels should be made familiar both with ecosystem management in general, and non point

pollution in particular, and with the agencies which address such problems. In addition, remedial program managers and field personnel should be given all necessary technical information and skills necessary to properly implement their specific remedial programs or tasks. Finally, efforts should be made to provide environmental education and information at the public school levels.

5. As a follow-up to any management framework or strategy, the Governments establish some mechanism to review and evaluate the overall success of the various management plans. This evaluation should include a general review of the adequacy of all state, provincial and federal management plans; an enhanced continuous monitoring program within the surveillance program developed under the 1978 Great Lakes Water Quality Agreement, including nearshore, rivermouth and tributary monitoring to evaluate the effects of the various remedial programs in place or planned; and a determination of the ability of the overall management strategy to adequately fulfill the provisions of Article VI of the Agreement.
6. Governments implement the pollution control measures presented in Chapter VI of this Report to the maximum extent possible, to address the specific identified pollution problems regarding soils erosion, fertilizer application and control of runoff from livestock operations in agricultural areas; street sweeping and combined sewer systems in urban areas; and erosions control in construction areas, described in detail in pages 77-86 of this Report. The Conservation Authorities in Canada and the Soils Conservation Service in the United States could play a major role in these functions.
7. Governments urgently bring hazardous waste disposal priorities under control. To this end, governments:
 - a) prepare a complete inventory of operating and abandoned waste disposal sites in the Basin; including the nature and quantities of waste handled where possible;
 - b) determine the adequacy of such sites, and any proposed sites, to properly and safely handle hazardous wastes and implement necessary measures to correct any deficiencies found;
 - c) conduct a comprehensive review of all existing legislative and regulatory mechanisms and make alterations where necessary to assure the safe transportation and disposal of hazardous wastes in the Basin;
 - d) establish a compatible manifest system for hazardous wastes between all jurisdictions within and beyond the Basin;
 - e) because siting of hazardous waste facilities depends in part on public acceptance of such sites, efforts be made to demonstrate that safe disposal sites are technically possible, or that associated risks can be held to a minimum;
 - f) in addition, embark on a long term effort to reduce or eliminate pollutants at their sources, including increased resource recovery efforts and alterations in the manufacturing process.
1. The production, sale, transport or use of persistent synthetic organic compounds with known highly toxic effects whose use will result in their entry into the environment be prohibited.

2. Governments continue to enhance efforts to find innovative and effective means of encouraging resource conservation, recovery and recycling efforts.
3. Governments recognize the values of preserving prime agricultural and wetland areas in the Basin.
4. With regard to phosphorus control, and pending the final report on the Commission's Phosphorus Management Strategies Task Force, the Governments accept the 1976 phosphorus load estimates presented in Table 5 of this report as the best estimates of "present" loads. Further, the proposed phosphorus target loads in the 1978 Great Lakes Water Quality Agreement should be taken as valid minimum goals for phosphorus control programs. The Commission has pointed out that recent work and interpretation of the Agreement indicates that lower target loads may be indicated for the Lake Erie and Saginaw Bay if more restrictive interpretation of the phosphorus management strategies, Governments exercise caution when approving municipal sewage projects to ensure that such projects would not inhibit later upgrading to accommodate new phosphorus management strategies that may be considered following the Commission's further report on this matter.

APPENDIX B:

Approximately ten individuals involved in PLUARG were contacted to be involved in this report. The following four interviews resulted.

INTERVIEW 1:

Patricia Bonner via e-mail November 18, 2003, additional information received via phone conversation on November 20, 2003

How were you involved PLUARG?

I sold the IJC on paying for much of it, helped to recruit the people to do the panels in US and Canada, managed the over all process the PLUARG panels, helped both lead people to develop criteria for gathering members, helped PLUARG members develop/review materials, edited the final PLUARG panel reports. Helped Canada's coordinator of the public panels to get approval to organize on a watershed basis and the US person to organize by states, with 2 for Michigan (one in the Upper Peninsula). Helped PLUARG leads and participation coordinators sell IJC on doing the reporting of the panels publicly at the annual meeting. Attended at least one meeting of most panels during the time they met to get their feedback and cause it to be used to continue improving the process as we proceeded. Also helped both sides of the border with media lists and targeted news releases on their meetings and the information they were compiling/reviewing.

Approximately what was the size of the committee and what was the structure like?

The panels ranged in size from about 12 to 20. There were 17 panels. We structured them with a matrix. We made a long list of possible interests. For each panel, we checked all the interests that applied in that geographic area and tried to cover as many bases as possible, trying to find people who covered more than one interest. For example, one woman on the UP panel was a forester, a local elected official, a university professor and a member of a local Sierra group. If I could dig up the matrices you'd see how well that actually worked.

How well funded was the initiative and who was involved in this funding?

IJC funded the panels with support from Environment Canada for the Canadian coordinator. USDA funded the US coordinator on detail to the Windsor office. Technical support came as needed from the IJC Windsor staff, EC and other Cdn feds, Ontario ministries, State agencies, other US federal reps and the occasional regional or even local government person.

How did this initiative become so large and successful?

It did not become large. The plan was proposed for 17 panels, and carried out. It did not expand as much as grew in depth. People on the panels wanted more and more information. When they got it, they had questions. We started by asking them a series of questions and providing as unbiased information as we could to help them develop answers and advice to IJC. We ended up feeding an elephant!

Did PLUARG have a large project in mind the entire time?

You may see this as large. I do not. PLUARG members did not know what they were getting into when we started, but they went along and got more and more enthusiastic as the panelists gave them new information about their watersheds and ways to look at things differently. Even the doubting Thomases came around by the time the report went to IJC.

Did partnerships with other organizations, foundations, or companies play an important role in the success and size of the project?

Partnerships across the agencies, yes, but as I recall, there was no corporate or foundation support.

Were the research and personal networks that were utilized in the project already in place, or did PLUARG work to bring experts together?

Both some were in place; some we found along the way. That we is very much the Coordinators, IJC staff and eventually the PLUARG members.

Were you involved in any of the public meetings held following the PLUARG Final Report? How helpful were these meetings?

Yes. The meetings helped to expand beyond the panelists to the public an appreciation for the extent of pollution from land use activities and the need to understand sustainable development.

The public involvement was done differently for each community depending on the demographics for each community. If there was a lot of a certain trade or age group in the community, we were sure to have them represented. Sometimes we advertised in Mining Organizations, sometimes in newspaper, schools, depending on whom we felt we should reach.

One problem however, was that some people on the public panels only seemed to represent themselves, when in fact, they should have been representing the wishes and thoughts of their entire community.

Did you feel the recommendations were well received by the parties? The public?

Yes and yes.

Though, it seems the things that were implemented were the low-cost easy-fixes. The major changes that change how we do business (and cost a lot) seem to take a long time because they often require a cultural change of sorts. Also, changing laws take time. This can cost money to implement the new law. For example, getting a farmer to change fencing costs money. And we are still trying to get feed lots identified as a point source of pollution instead of non point here in the US.

When the IJC finished a reference, unless another reference comes to implement some of the practices and ideas that were given, then it is just left and the information is just stored. From what I know the next level of the Agreement reference non point source

pollution, but that was the extent. What happened once the recommendations were made. Did Environment Canada do anything?

I don't think that the study was necessarily ahead of its time in the US, maybe in Canada with reference to the public involvement. But, I know that British Columbia was starting to involve the public as this time, so it was to come. People were beginning to get organized and to stand up for what they wanted.

What was the Post-PLUARG sentiment of the group (positive/negative)?

The public panels felt pretty good about what got to the IJC, but disappointed that their work just ended. PLUARG itself was disappointed when their recommendations were received and their work ended.

It would be interesting to know if anything appeared in IJC literature in the 80's and 90's once this was completed.

From what I know, no type of education resulted on sustainable development.

Were there any “lessons learned” that would lead you to change any aspects of the project if given the chance repeat it?

As the first public information staff person in IJC's history, I had quite a lot of walls to knock down when I arrived in 1974. Used to doing everything without public input until public hearings, IJC and its reference groups did not embrace my ideas for open annual meetings, citizen advisory groups, public input on our publications, and more. By the time PLUARG agreed to try something that seemed way out on a limb for them and IJC, we were well into the PLUARG information development process. Meaningful involvement needs to start much earlier, and when possible, the affected communities/stakeholders should participate in developing the public involvement process.

The public should have been involved very early in the process, when the terms of reference occurred. They should have been in on the planning and on how the process was to be done. There should have been a planned out way to involve the public from the beginning. The more the public endorses something, the easier it will be to get politicians and others behind it.

Canada really seemed to be lagging in the public involvement area. I had done some work in the US, in 1972 in San Diego where ordinary people were getting involved in the process.

The IJC felt then, and still feels now, that the public hearings are enough. But if people are involved in finding the decision they are most likely to follow it. With the public hearings, they have a little while to digest the decisions and that is it. They feel cheated.

Other comments or personal anecdotes:

*Clean Water Act – section 319 deals with watersheds.
Sustainability education has definitely been building since PLUARG, there is now
definitely a civic movement.*

INTERVIEW 2:

Doug Dodge via phone conversation at 10am on Tuesday November 18, 2003

How were you involved PLUARG?

I was working with MNR at the time as an aquatic habitat specialist, on water quality.

Approximately what was the size of the committee and what was the structure like?

*It was a cast of thousands that were very task oriented. There were some disparate points
of view within the group. It was important because it was the first attempt in Ontario
where they were looking at water and land combined.*

How well funded was the initiative and who was involved in this funding?

*It was a very well funded project with involvement in many levels of government (federal
and provincial). Examples of involvement include MNR, Conservation Authorities,
Environment Canada, Agriculture and Food, Farmer's Association*

How did this initiative become so large and successful?

*It kept growing as people realized that phosphorus was not the only problem. There were
issues with agriculture, urban areas, air. It also got people to begin to move towards a
watershed approach of thinking of how one thing effects another.*

**Did PLUARG have a large project in mind the entire time? Was there ever a limit
to the project in mind?**

*A larger project was not always in mind. But, when looking at pollution, land and air,
how high is up? Basically it was hard to have a cut off point. It mostly focussed on settled
land, agricultural land in Southern Ontario and the States. One area that did not have a
lot of work done was the Canadian Shield (hard rock area).*

**Did partnerships with other organizations, foundations, or companies play an
important role in the success and size of the project?**

*Yes, PLUARG wouldn't have been effective if partnerships didn't occur and it wouldn't
have gone beyond phosphorus, which was the focus of the 1972 and 1978 Agreement.
I'm not sure if companies were involved since pollution was not being looked at from the
"pipe source", but from the land. However, companies' proposals to deal with
stormwater drainage etc. would have been included and considered.*

Were the research and personal networks that were utilized in the project already in place, or did PLUARG work to bring experts together?

No, people got together that hadn't talked before. People began to look at the "big picture". For example: Ag. & Food would not just look at how to make the land produce the most amount, but also how much certain practices would effect the water quality. There had been opportunities before to work together, however PLUARG seemed to make it happen, it is possible that people started to take notice because of all of the money that was available.

Were you involved in any of the public meetings held following the PLUARG Final Report? How helpful were these meetings?

I was not involved in the public meetings.

However, there were public groups that kept bringing PLUARG up to the Parties and asking what they were going to do about it?

Did you feel the recommendations were well received by the parties? The public?

The Parties liked the recommendations because they were not pointed at one source, but many.

One obstacle was that it seemed that the farming community was not on board. For example: If a machine worked more efficiently if there was no fence on the land and the land had been drained of water, then this seemed to them to be the best practice.

The recommendations seemed to be well received by the public.

What was the Post-PLUARG sentiment of the group (positive/negative)?

Overall, the group seemed pleased and very "up" on the project, but this seemed to fade. It soon became obvious that the governments were back-peddalling because of funding capabilities.

Enthusiasm had been shown for the pilot project proposed for the Upper Thames that was supposed to show how everything would work together, however, this faded and the project was cut. It was to start very soon after the PLUARG Reports had been released.

Were there any "lessons learned" that would lead you to change any aspects of the project if given the chance repeat it?

Overall it seems to be a body of work that people constantly draw on. One lesson learned would be that after the studies were done, the Parties and organizations kept wanting people to go back and re-study things that had already been done (ie. certain practices and their effects on water quality). People began to get frustrated because it had already been done and there was no point in studying it again.

However, it is possible that the U.S. Soil Conservation went after some of these ideas better. In Canada, some ideas were implemented by Conservation Authorities, particularly the “watershed approach”.

Other ideas seem to be implemented even today and people don't necessarily even realize that they originated from PLUARG. Examples include: vegetation along streams, keeping cows and agricultural machines out of the streams, contour plowing,

However, there are still many examples where these are ignored such as on the road between London and Windsor where woods are constantly on fire to clear and extend the soy crops.

Other comments or personal anecdotes:

Watershed planning from PLUARG can be seen in many Conservation Authorities such as TRCA which now has watershed planning in all of its watersheds (as of last year). Things are also better now because the science regarding groundwater, soil and management is a lot better. There are a large amount of indirect effects from the study that are reflected in the way we do business today. Some people think that the practices were always done this way, but many of the ideas were from PLUARG.

INTERVIEW 3:

Dr. Harvey Shear, Personal Interview on November 19, 2003 @ CCIW

How were you involved PLUARG?

I was the IJC Secretary for two years from 1975-1977. I was also on the writing team for the final report. Had involvement in the first public meetings. In 1976 I was involved in the workshop meetings around the basin, these occurred during the studies to get the publics' view on where things should go.

Approximately what was the size of the committee and what was the structure like?

PLUARG was a total of 21 itself, 9 + 9, a national secretary from each side, and then the IJC Secretary. There were 4 task groups; A, B, C, D, each had about 10-12 people on them. A was controls and legislation, C was watersheds, D was the intake impact.

How well funded was the initiative and who was involved in this funding?

It was very well funded, there were never complaints from anyone regarding money. It was funded by the federal government (U.S. and Canada), and I believe that Ontario also provided funding, some other states may have as well.

How did this initiative become so large and successful?

Part of the success was timing; it was at the height of the environmental movement, there was a lot of enthusiasm around, there were a lot of questions to answer, the people involved were driven to answer them.

It became so large because it was a huge question to attempt to answer. We didn't know much about it, and to do it properly a lot of aspects had to be included; looking at non point source impacts in agricultural and urban areas, looking at regulations and technology, looking at what was encouraging poor land use. We are also 6 years to do this, so we had to time to touch all the tasks and be in depth.

Did PLUARG have a large project in mind the entire time?

I'm not sure, I came in mid-way.

Did partnerships with other organizations, foundations, or companies play an important role in the success and size of the project?

To me partnerships imply sharing money or an exchange of money. Money was not really an issue in the project. Universities were involved, but they received money from us to do things, so that's not really a partnership.

There were partnerships with municipalities in that that's who managed the pilot watersheds. There may have been partnerships with farmer's organizations.

Were the research and personal networks that were utilized in the project already in place, or did PLUARG work to bring experts together?

I think both happened. People know of other experts, but hadn't necessarily been given the chance to work with them yet.

Were you involved in any of the public meetings held following the PLUARG Final Report? How helpful were these meetings?

Yes, I was involved as earlier mentioned.

The information was helpful in that it gave a different perspective of priorities. The ideas may not have been use, but they at least tempered the thinking.

Did you feel the recommendations were well received by the parties? The public?

Not really. If we look at now, 25 years later, so many of the recommendations are constantly being restudied and rediscovered. The recommendations seemed to be radical to the government, since at the time they were set on looking at the "end of the pipe" pollution and not "non point source".

Some recommendations that did go into place were the really obvious ones, such as putting the “beehive” domes over the piles of de-icing salts. Prior to this the salt was just left outside for water to runoff of it and pick up the salt.

Another one is that street cleaning was to be increased so that it would eliminate all of the stuff on the street before a major rainfall picked it up and added it to the stormwater.

There were also recommendations like no till plowing. MOE thought that this just wouldn't work. It wasn't until about 15 years later that more and more fields started to leave stubble. But, sometimes it takes a long time for a conservative community, such as the farming community, to implement new ideas.

Other things like grassing waterways and buffers are also now being implemented. But, it has taken 20 years in some of the cases to see the work done.

What was the Post-PLUARG sentiment of the group (positive/negative)?

Overall it was a very positive group. We were proud of what we had done. Yes there is always more that could be done, but we were still proud.

We didn't really get together again, basically the information was presented in 1978 and that was it. There was no real final meeting or post-PLUARG type meeting that I recall. And since most of the people have retired.

It was a reference given to the IJC to present to the Governments. It was up to the governments to follow up on. They could have created another PLUARG type force to continue the work, but they didn't.

Were there any “lessons learned” that would lead you to change any aspects of the project if given the chance repeat it?

Well, I suppose the “follow up” issue would be one. Other than that, it was a very well run initiative, and I've been on a lot of committees since that haven't been as well run. But, basically once it was reported it seemed to fall on deaf ears. The Parties just weren't ready.

Other comments or personal anecdotes:

These issues can still be seen today. Lake Huron is dealing with possible beach closings in the South Hampton, Goderich area. It has been discussed in the Toronto Star that this may be the next AOC. It is because there are large cattle operations up there with 50 000 or more cows. If this type of waste was occurring in a city there would be a sewage treatment plant present for sure, but there is nothing up there right now. It will really affect tourism if these beach closings happen.

INTERVIEW 4:

Dr. Walter Rast received via e-mail December 4, 2003

How were you involved PLUARG?

I joined the IJC Great Lakes Regional Office staff during the course of the PLUARG study, and was given the task of chairing the small binational committee that prepared the PLUARG Final Report (text, figures, graphs, pictures, etc.). I also was responsible for the compilation and technical editing of about a dozen reports on different aspects PLUARG study during this period. I also prepared two PLUARG reports with a Canadian colleague involved in the study.

Approximately what was the size of the committee and what was the structure like?

There were approximately seven of us in the drafting committee, including three individuals from the USA and three from Canada. As noted above, I chaired the committee, which was an informal working committee in which everyone served in their private, professional capacity, or at least as much as one can be in this capacity, given that all the USA and Canadian members were staff members in federal, state or provincial organizations involved in conducting the study. Although I thought we were a very cordial group throughout our work, this informal atmosphere facilitated frank interactions between all members, some of which could become quite animated at times! However, there was no doubt in my mind that all were working to prepare a consensus document that was both scientifically-sound and palatable to the relevant governmental agencies.

How well funded was the initiative and who was involved in this funding?

The PLUARG study was funded jointly by the USA and Canadian governments. There was also some contribution from the State and provincial governments as well, in terms of providing PLUARG representatives and their time, travel, etc. The study was overseen by the PLUARG Committee of the IJC. As I recall, the total direct funding was on the order of \$15 million (1970s), although I'm recalling this figure from memory.

How did this initiative become so large and successful?

It was (and remains to the present day) the most systematic study ever conducted on the nature of nonpoint source pollution, its sources, impacts, possible solutions, etc. It was large because it involved the entire Great Lakes drainage basin. I think it was successful because (1) it was a topic of considerable interest to both governments, particularly because it significantly impacted the Great Lakes Basin Ecosystem; (2) it was a scientific area in which little had been done to that time; and (3) because it had the blessing and cooperation of all the governmental and nongovernmental entities involved.

Did PLUARG have a large project in mind the entire time?

I'm not sure about this one, since the study design preceded my tenure at the IJC Great Lakes Regional Office. Given that the U.S. Chairman was the head of the Soil Conservation Service of the U.S. Department of Agriculture, and the Canadian chair was of equal stature, it is clear that both governments gave the project high priority. And, as noted above, since it involved the entire Great Lakes drainage basin, it almost had to be large in nature in order to achieve the desired results.

Did partnerships with other organizations, foundations, or companies play an important role in the success and size of the project?

I think this was an important factor in the success of this study. Public hearings were held throughout the Great Lakes drainage basin, with presentations made by a myriad of organizations, foundations and companies. Hearings were held both during the study, and again by the IJC upon its receipt of the study and its recommendations. What was very evident during the conduct of the hearings was that there was considerable interest on the part of many different entities regarding this topic, and the IJC recommendations to the governments thereof.

Were the research and personal networks that were utilized in the project already in place, or did PLUARG work to bring experts together?

Both situations were in play during the PLUARG study. The research and organizational network involved in the varying degrees in the study included natural and social scientists, and other relevant participants, from such organizations as the Great Lakes Fisheries Commission, the Great Lakes Basin Commission, the US EPA, Environment Canada, State and Provincial environmental agencies, etc. These obviously existed prior to the initiation of the PLUARG study. At the same time, the PLARG group also had no hesitation in fingering experts as needed to address specific aspects of the study.

Were you involved in any of the public meetings held following the PLUARG Final Report? How helpful were these meetings?

I was involved in virtually all the public hearings, as an IJC technical expert. I found these meetings to be interesting, challenging, helpful and most informative. I was particularly impressed that both PLUARG and the IJC paid considerable attention to the presentations at these meetings, and did not simply hold them as an obligatory activity that simply had to be done and "let's get it over with as quickly as possible."

Did you feel the recommendations were well received by the parties? The public?

Yes, I thought the recommendations were well received by both the parties and the public. As noted above, this was an important study for both the parties and the IJC. It is probably the largest study every conducted by the IJC (at least it was when I was at the Great Lakes Regional Office), and involved technical experts and government officials at many levels. It also encouraged and incorporated the inputs of the public, both verbal and written. Thus, much interaction took place at many levels throughout the process. I

think this made the public feel that their views were important and would be considered. In the same vein, I think it made the parties feel they had received the widest possible range of input for the recommendations ultimately made to them by the IJC.

What was the Post-PLUARG sentiment of the group (positive/negative)?

I think it was very positive. We had just completed a major study of considerable significance and I think everyone was rather pleased at the final result.

Were there any “lessons learned” that would lead you to change any aspects of the project if given the chance repeat it?

Given that this study was the most systematic that had ever been done on nonpoint source pollution, and based on my scientific background, there were many areas that I felt were only touched upon and I would have like to explore them more deeply. However, given the range of studies undertaken (there were ultimately 110 individual technical reports produced during the PLUARG study), the magnitude of the Great Lakes Basin Ecosystem, the myriad of nonpoint sources studied, and the financial and human resources available at that time, I think we did the best job that could be done under the circumstances. If I could change anything, I would probably delve more deeply into some of these topics more deeply, including the magnitude, timing and characteristics of nonpoint source runoff from agricultural and urban land, as well as some socioeconomic avenues (e.g., how does one assess the adequacy of the institutional basis for addressing nonpoint source pollution? How does one assess the legal framework? etc.)

Other comments or personal anecdotes:

To this day, it ranks as probably the most interesting transboundary study in which I have been involved during my professional career. It has sparked an interest in nonpoint source pollution that I maintain to this day. It also remains the most systematic study ever undertaken of this difficult topic, and I think a supplemental effort to this study would be most productive.

INTERVIEW 5:

Dr. Richard Parizek received via phone December 23, 2003

How were you involved PLUARG?

I was an original member and served in the group from approximately 1972 to 1980 (the group was extended for an additional period). I was also the Task A Chairman from 1973 to 1980, which focused on researching the current state of knowledge, research needs, evaluating technical methods. I was also a Technical Advisor of Information Programs for Pennsylvania from 1977-1978, which focused on sharing the outcomes. I was also part of the testimonials at the IJC hearings and meeting of the final report. I was at the Buffalo, Cleveland and Chicago meetings in 1978.

Approximately what was the size of the committee and what was the structure like?

There was a representative from each state and province as well as the US and Canadian Chairpersons and secretaries. It was a very balanced committee. However, if one includes everyone involved from scientists, engineers and contractors it was likely a cast of about 250 people.

How well funded was the initiative and who was involved in this funding?

The two governments, the United States and Canada, funded the project with some help from the individual states and provinces. One of the biggest issues was trying to create parallel budgets since the American and Canadian fiscal years are different. The entire budget was approximately 20 million dollars. But a lot was done with this money from pilot watershed studies to open lake and lake bottom studies to fisheries and biomass studies.

How did this initiative become so large and successful?

I think the project became so successful because it involved a transboundary water concern. Both countries seemed to taken the issue of non point source pollution and water quality very seriously since the waters transferred across the borders and they must be sufficient for use. There was a sense of co-operation that helped the project to be so large. It was not considered spying to be interested in what was going on in the lakes since it effected both countries equally, instead information was shared freely. Even though Lake Michigan was considered a tributary and not a boundary water, the health of this lake was still very essential to the other lakes, and thus Canada and the United States had an interest in its health.

I believe that the project was large because it was a massive study on a fairly large area, it is approximately 1000 miles from Duluth to Kingston. It was not well mapped in between these areas and there was no organized standard way in which anything had been done previously. Therefore, LANDSAT imagery capabilities were used and it was the first major remote sensing activity used in the Basin. Overlays were created to bring information together on common scales.

Ideas also tended to grow, such as beginning with monitoring the waters around sewage treatment facilities and large rivers, and then realizing that this wasn't enough and that small streams also needed to be monitored.

We also realized that we not only had to look at surface water but groundwater since both are important in the stream tributaries.

Did PLUARG have a large project in mind the entire time?

Initially, the group attempted to understand what the common purpose was at the first few meetings. We knew that we were dealing with diffuse contaminants and there was not a lot of information to compare.

The scale and complexity of the issue at hand became evident in the first few months of the project. The initial study plan was made and then modified later on. It was a focussed effort with a lot of people contributing.

Did partnerships with other organizations, foundations, or companies play an important role in the success and size of the project?

The money was from the United States and Canadian government, but other agencies were involved. Groups mainly worried about their own watershed in particular. Data didn't really exist for some areas, so these projects were a good opportunity to contract out to other companies to find the data throughout the basin.

Were the research and personal networks that were utilized in the project already in place, or did PLUARG work to bring experts together?

Networks were utilized. Methods of testing and preserving sediments were one differently throughout the basin. The project allowed for standardised methods to be developed and thus for comparisons to be made.

The basic things that were hard to bring together for this project were ensuring that the thinking was co-ordinated and therefore standardised data was compiled and could be compared. Also, making sure that the money was co-ordinated since the U.S. and Canada run on different fiscal years.

Were you involved in any of the public meetings held following the PLUARG Final Report? How helpful were these meetings?

The interaction with the public was interesting. As previously mentioned, I was involved in a number of meetings and hearings. Most of the public had a desire for the Lakes to be in good condition, however, sometimes the Lakes were misunderstood. Some of them didn't even know which watershed they lived in. But, the public was concerned and there was a willingness to pay for the Lakes to be in good condition.

Overall, the meetings were not heavily attended. The reports were distributed widely to libraries and a lot more people seemed to attend the information meetings and workshops than the public hearings.

People thought that the Lakes were endless and could take a lot of waste, which was obviously wrong. We educated the public by starting with simple questions.

Did you feel the recommendations were well received by the parties? The public?

Overall, I think that they were well received by both, but that the action was not what it could have been. It was obvious that money was running out and solutions were going to be harder to implement. We decided that we needed to make sure we attacked the hot spots instead of doing a broad application of solutions to the entire basin. We focussed on the hot spots that were impacting the Lakes at the time. Then we focussed on the areas and problems that would be impacting the Lakes soon.

The knowledge and information in areas varied by state. We tried to focus on Best Management Practices for each of the areas. We also made sure to monitor things that weren't threatening the Lakes directly at the time. Just because a problem had not yet been detected, it does not mean that it wouldn't be detected eventually. An example of this would be the fact that contaminated groundwater eventually effects surface water.

We also looked at atmospheric contribution. An example was an island that had PCB's in the lake and the only way they could have ended up there was from atmospheric deposition.

What was the Post-PLUARG sentiment of the group (positive/negative)?

Overall I would say that the atmosphere was positive after the project. A lot of methods were borrowed from PLUARG, which demonstrated that it was effective. Also, many people including myself felt that working on this project was a unique opportunity and I felt a lot of pride that I had been involved.

Were there any "lessons learned" that would lead you to change any aspects of the project if given the chance repeat it?

It seemed very important that the project did not include political debate and that legalized thought was not employed. We looked at the Basin as a whole and wanted to share information. We just wanted to understand the system and therefore used a systems approach to study the chemical, biological and physical aspects. The approach was basically to look at what we do know, and what we didn't know and to eventually get to an endpoint.

The importance of biological indicators was also obvious, such as osprey eggs. It was apparent that we could not attempt to monitor the entire system, so having an indicator to look at was useful.

To recreate something of this magnitude they must grasp an understanding of the common goals, update and modernize it. Keep in mind the social costs. Reinitiate the project with experts in the form of a workshop.

It became obvious we had to work at a number of aspects, such as industrial and urban runoff as well as agricultural. We had to focus on the hot spots such as one farm that contributed more pollution to the Lakes in comparison to another.

There was also a challenge in that some of the basin is Amish country. We had to explain things in a different way in order to make sure they knew how the pollution problems could affect their lifestyle as well as ours.

Other comments or personal anecdotes:

Overall, I felt privileged to be involved in this project. There was a lot of travel involved, which made it interesting and allowed me to take my family around the Basin. It was a very useful process to see the watersheds.

It was great to see that the fish became usable again in Lake Erie and Lake Ontario, both of which were pretty much dead at the point in which we started.