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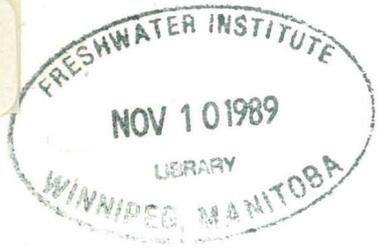
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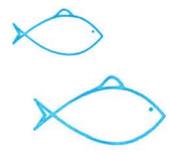
NORTHERN FLOOD AGREEMENT

MANITOBA

A Retrospective Analysis of a Native Information Program

number 89 - 8

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Canada

A RETROSPECTIVE ANALYSIS
OF A NATIVE INFORMATION PROGRAM

prepared by: L. McKerness
Sept., 1989

PREFACE

Finishing this paper was difficult because of the temptation to continuously revise it to incorporate new ideas which emerged from the analysis. This paper cannot be considered complete; rather, it is an attempt to document some of the experiences from the information program of the Canada-Manitoba Agreement on the Study and Monitoring of Mercury in the Churchill River Diversion and to generate awareness of the special challenges in planning and implementing native information programs. It is hoped that this analysis may benefit future native information programs conducted in the six native Manitoba communities which have been affected by the Lake Winnipeg, Churchill-Nelson Rivers Hydroelectric Development Project.

ACRONYM LIST

- Agreement - Canada-Manitoba Agreement on the Study and Monitoring of Mercury in the Churchill River Diversion.
- CRD - Churchill River Diversion
- H & WC - Health and Welfare Canada
- LWCN - Lake Winnipeg, Churchill and Nelson Rivers
- NFA - Northern Flood Agreement
- NFC - Northern Flood Committee
- PAB - (4-Party) Program Advisory Board

EXECUTIVE SUMMARY

Mercury levels in fish in some northern Manitoba lakes and rivers have increased as a result of the environmental impact of a large scale hydroelectric development project. Advising the public of the results of investigations into this mercury problem was one of the objectives of the Canada-Manitoba Agreement on the Study and Monitoring of Mercury in the Churchill River Diversion (hereafter referred to as the Agreement). A retrospective analysis of the Agreement information program developed for the two native communities affected by this mercury problem, South Indian Lake and Nelson House, is the subject of this paper.

Planning and implementing the Agreement information program was a challenge because of: the scientific complexity of the mercury problem; the limited knowledge of the native communities, especially of their information needs with respect to mercury; and the difficult communication climate, a climate characterized by feelings of mistrust, hostility and fear caused by both the troubled history of the hydroelectric development project and the potential health hazards of mercury.

The focus of the Agreement information program, namely mercury and human health, was determined as a result of community participation at public meetings held in South Indian Lake and Nelson House. Creative, innovative techniques, such as Cree language videotapes and mercury contests, were used to communicate the program's message to community residents. Local support (e.g. the Nelson House Nursing Station staff's assistance in that community's mercury contests) was the single most important contributing factor in the apparent success of some of the

Agreement's activities.

Assessing the effectiveness of the Agreement information program, even from the advantageous position of hindsight, is difficult because of the lack of objective measures and because of the limited feedback received from the communities. The need for community participation in all stages of a native information program - planning, implementation, and post-program evaluation - has emerged as the most important conclusion of this retrospective analysis.

The incorporation of greater community participation in future native information programs will require increased support for these programs. In particular, there must be explicit recognition of the unique cultural identity of native communities and of the need for cross-cultural expertise.

Another native information program (part of the Federal Ecological Monitoring Program (FEMP)) , is currently being planned for which the target audience is northern Manitoba native communities, including South Indian Lake and Nelson House. Suggestions are made whereby the experience of the Agreement information program and the opportunities offered by recent important events can be incorporated into the FEMP information program.

DISCLAIMER

This report was prepared as part of the Federal Ecological Monitoring Program. Any conclusions, recommendations or opinions expressed herein are those of the author and are not necessarily the same as those of the sponsoring department.

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| Preface | i |
| Acronym List | ii |
| Executive Summary | iii |
| Disclaimer | v |
| Background | 1 |
| Native Communities and the Hydro Project | 1 |
| The Mercury Problem | 3 |
| The Communication Climate | 5 |
| Program Considerations | 9 |
| Identification of the Audience | 9 |
| Communication Techniques | 11 |
| Pragmatic Considerations | 12 |
| Implementation | 14 |
| The Message..... | 14 |
| The Means of Communication | 17 |
| Observations | 22 |
| Community Knowledge | 22 |
| Program Funding | 24 |
| Program Effectiveness | 26 |
| Conclusions | 31 |
| Future Action | 36 |
| References | 41 |
| Acknowledgements | 43 |

List of Figures

| | |
|---|----|
| Fig. 1 Federal Ecological Monitoring Program Location Map.. | 44 |
|---|----|

BACKGROUND

Native Communities and the Hydro Project

The Lake Winnipeg Churchill Nelson Rivers (LWCN) Hydroelectric Development Project is located in northern Manitoba. This project, with a total design capacity of approximately 8400 MW, involves the regulation of Lake Winnipeg and the diversion of flows from the Churchill River into the Nelson River via the Rat and Burntwood Rivers. (See Figure 1.) Major construction activities required for Lake Winnipeg regulation and the Churchill River diversion (CRD) were completed by the mid-1970s; currently, the construction of the fifth of a planned fourteen generating stations is underway.

Two native communities are located within the area of the Churchill River diversion route: South Indian Lake, with a population of approximately 700 people, is located on the east shore of Southern Indian Lake, near South Bay; and Nelson House, with a population of approximately 1300 people on reserve, is located on the north shore of Footprint Lake.

The pursuit of the traditional activities of fishing, hunting and trapping were, and still are, important culturally and economically to both communities. In fact, South Indian Lake had been established because it provided "good fishing and hunting, it was on the main migration route of the caribou and there were plenty of moose in the lake" (LWCN, App 8 Vol 2-C 1975, p. 60). While income from the wage economy and government transfer payments had become important parts of the local economies by the mid-1970s, income and, especially, income-in-kind from traditional activities was still significant. For example,

in 1972-1973, the traditional economies of Nelson House and South Indian Lake accounted for 14% and 37% respectively of their total community incomes (LWCNSBR 1975).

Soon after the announcement, in 1966, of the decision to proceed with the hydro project, concern was expressed about the possible impact of the project on South Indian Lake (Tritschler 1979). A major concern was the serious detrimental effect on the area's resources that would be caused by the significant alteration of the hydrologic regime, e.g. changes in annual streamflows, lake levels, seasonality, and range of fluctuations.

Similar concerns about the project's impact on Nelson House were expressed later. The residents of Nelson House were not informed until late 1973 that they too would be affected by the project, even though the impact was significant. For example, the water level of Footprint Lake was raised over three meters due to increased Burntwood River flows (LWCNSBR, App. 8 Vol 2-B 1975, Bodaly et al. 1984a).

Fears about the project expressed by the residents of Nelson House and South Indian Lake included the destruction of wildlife habitat, loss of trapping and hunting, shoreline slumping caused by the melting of subsurface permafrost, and a significant and lasting drop in the fish population (LWCN, App 8 Vol 2-B and Vol 2-C 1975).

Unfortunately, a number of their fears proved justified. For example, there has been a decline in catch per unit effort to one-third of pre-impoundment levels in Southern Indian Lake and a reduction in the quality of the whitefish catch

from export to continental grade (Bodaly et al. 1984b). In the lakes of the Nelson House area, there has been a decline in walleye abundance in Rat and Threepoint Lakes, limited shoreline access because of timber and debris, and the fouling of fish nets and damage to equipment (MacLaren 1989). An unanticipated serious fisheries problem in the CRD area was the increase in mercury levels following impoundment and flooding.

The Mercury Problem

Routine mercury sampling of the commercial fish caught from the lakes along the CRD in 1977/78 led to the discovery of elevated mercury levels. Two main questions emerged in a series of discussions between officials of the governments of Canada and Manitoba on the mercury issue: first, was there a problem with mercury in the environment of the CRD area; and second, if there was a problem, what if any, was the relationship to the hydroelectric development project? These questions lead to the signing of the Canada-Manitoba Agreement on the Study and Monitoring of Mercury in the Churchill River Diversion (hereafter referred to as the Agreement).

The four-year Agreement was signed in March 1983, but was retroactive to April 1982. The Agreement's five objectives were:

- (a) to further investigate mercury levels in water, sediments, and the aquatic food chains along the Churchill-Nelson Rivers Diversion route (including if possible, comparison with levels in a similar water body in northern Manitoba which has not received inorganic mercury loading as a result of human activity, and has not been subject to diversion);

- (b) to determine the source(s) of mercury input to the diversion system;
- (c) to research the mechanism(s) whereby the mercury is released and enters the food chains;
- (d) to assess the significance of these phenomena to future water management activities; and
- (e) to advise the public of the purpose, progress, and results of studies undertaken.

Fulfillment of the majority of these objectives necessitated the use of rigorous scientific and technical methodology. Investigations ranged from the measurement of the very little (e.g. mercury concentrations in the water and sediments were so small that they were most often undetectable) to the measurement of the very many (e.g. the measurement of mercury levels in thousands of fish of different species, from different lakes, and over a number of years); from the evaluation of existing information (such as the data on the atmospheric fallout from the smelters in Thompson and Flin Flon to assess the potential of these smelters as a source of mercury to the Agreement study area) to the development and application of new research methodology (such as the measurement of the specific rate of demethylation of methyl mercury).

The results of the Agreement clearly showed that post-impoundment mercury levels in the CRD lakes were elevated in comparison with pre-impoundment levels, with mercury levels in fish from other non-flooded lakes within the Agreement study area, and with Canadian guidelines for allowable limits of total mercury in fish sold in Canada. The elevated mercury levels in the fish resulted from increases in the net rate of methyl mercury production; the net production of methyl mercury increased because the physical, chemical and biological changes that occurred following the diversion affected the natural balance of methylating and

demethylating activity in the bacterial community.

The inclusion of objective (e) in the Agreement was an explicit recognition of the importance of communicating the Agreement's progress and results to the public. However, communication is never conducted in a vacuum. Historical and ongoing events not directly related to the Agreement's implementation collectively influenced the communication climate in which the Agreement's results were communicated.

The Communication Climate

Three main factors determined the communication climate in which the Agreement public information program was conducted: 1) the historical communication patterns; 2) the concurrent demands for the communities' attention; and 3) the pre-existing knowledge of mercury within the target communities.

The historical pattern which had prevailed in the communication of information about the impact of the hydroelectric development project to the communities of South Indian Lake and Nelson House was a consistent one: the information was typically late, incomplete, and unidirectional in flow. For example, the first meeting held at South Indian Lake to inform the people of the hydroelectric development was not held until April 22, 1968 - two years after the official announcement by the Premier, Duff Roblin, that the LWCN Project was ready for government approval and five years after the signing of a federal-provincial agreement to cost share studies to investigate the power potential of the northern rivers (Waldram 1988). Six years after that initial meeting, at an April 1974 meeting between the representatives of Manitoba Hydro, Manitoba

government officials, and the affected northern communities including South Indian Lake, hostility quickly erupted over the issue of providing accurate information on Manitoba Hydro's plans to the communities (Waldram 1988).

As noted previously, it was not until late 1973 that Nelson House became aware that they, too, would be affected by the hydro project. They, and the other four Indian reserves affected, experienced the same difficulties in obtaining accurate and timely information as had South Indian Lake. Their frustration led to the formation of the Northern Flood Committee (NFC) whose purpose "is to inform these people in the North as to what is happening so that they can be better prepared to take part in some of the decision-making" (NFC as quoted in Waldram 1988, p. 149).

The lack of effective communication mechanisms was one of the symptoms of the basic underlying problem of a lack of meaningful participation by the communities in the decision-making process. The Commission of Inquiry into Manitoba Hydro observed that had meaningful negotiations with the communities began prior to 1968, or even as late as 1972, the course of events would have been vastly different. Instead "Government and Hydro adopted a stance toward the native communities and the NFC of confrontation, hostility, and procrastination with, on more than one occasion, a lack of frankness." (Tritscher 1979, p. 220).

The second factor, the concurrent demands for the communities' attention, was largely the result of a landmark agreement signed in 1977, by Manitoba, Manitoba Hydro, Canada, and the Northern Flood Committee, called the Northern Flood

Agreement (NFA). The objective of the NFA is to ensure that all persons represented by the NFC who are adversely affected by the project receive fair and equitable treatment. The 25 articles and 8 appendices of the NFA and the approximately 150 claims filed under its auspices have generated an enormous demand for information, not only in terms of understanding the biophysical and socio-economic impacts of the hydro project but also in terms of the evaluation of potential remedial, mitigatory, and compensatory measures.

Elevated mercury levels in fish were (and still are) just one of the many complex, project-related issues requiring the attention of these native communities. Furthermore, all of these issues must be addressed through the bureaucracies of the other signatories to the NFA, systems which are foreign to the traditional decision-making process of the native communities. The cumulative result of these factors has been to place a continuing burden on the communities to process information, much of which is presented in a format that is not best suited to their purposes. (In fact, the increased requirements for decision-making and the escalated costs incurred by the band councils and organizations is itself the subject of NFA claim #129.) It was against this background of competing demands for the communities' attention that the Agreement public information program was conducted.

The third important influence on the communication climate was the pre-existing level of knowledge in the communities about mercury. Methyl mercury as a significant environmental contaminant first came to world attention in the 1960s following major epidemics of poisoning in Japan. These epidemics resulted from the consumption by local residents of fish contaminated by the

industrial release of methyl mercury. By the mid-1970s, the two epidemics in Japan had resulted in the deaths of approximately 190 people and a total of approximately 1400 diagnosed cases of "Minamata Disease" (H & WC 1987).

Other outbreaks of methyl mercury poisoning from many parts of the world continued to attract world attention: the largest and best documented outbreak occurred in 1971/72 in Iraq involving at least 400 deaths. The recognition that inorganic mercury released into the aquatic environment can be methylated and the resulting methyl mercury accumulated up the aquatic food chain prompted investigations into mercury levels in fish and native people living downstream from chlor-alkali plants in northwestern Quebec and northwestern Ontario. These investigations showed that 89 residents of two Indian reserves in northwestern Ontario, White Dog and Grassy Narrows, who had been exposed to methyl mercury by ingestion of contaminated fish had a number of signs and symptoms associated with methyl mercury poisoning; however, the signs and symptoms were weak and many of them were thought to be due to other factors (H&WC 1987).

The Canadian media attention given to the ongoing issue of compensation for mercury problems at the White Dog and Grassy Narrows reserves and the world-wide deaths attributed to methyl mercury poisoning would suggest that residents of South Indian Lake and Nelson House likely had some awareness of mercury poisoning before the Agreement information program began; however, the extent of this knowledge was unknown. Undoubtedly, this knowledge coupled with the restrictions on the commercial sale of locally-caught fish because of elevated mercury levels resulted in feelings of fear and uncertainty about mercury in South Indian Lake and Nelson House.

In summary, historical and current influences, both locally and elsewhere, affected the communication climate in which the Agreement information program was conducted. Mistrust, antagonistic attitudes, fear, uncertainty, and competing demands on the communities' time and information-processing skills were predominant characteristics of the communication climate.

PROGRAM CONSIDERATIONS

Identification of the Audience

The first and most important program consideration was the identification of the target audience. An initial evaluation of the Agreement information program's potential audience identified three distinct groups: the native communities located within the LWCN impact area; the scientific community; and numerous individuals and groups with varied interests in the Agreement's results, such as politicians, civil servants, hydro companies, environmental organizations, and health officials. (The informational activities directed to the last two groups will not be discussed in this paper, other than to note here that their information needs were addressed through the use of conventional means of information dissemination, such as scientific journals and annual reports.)

The native communities clearly had the greatest need to know about the Agreement's results because of the importance of the LWCN area's fisheries to them. Moreover, the communities' geographic isolation, the importance of Cree as the primary language in the communities (especially among the elders, who are highly respected community residents) and the difficult communication climate

(previously described) were factors which might have prevented these communities from receiving this information. It was therefore decided that these communities must receive special attention. In particular, the communities of South Indian Lake and Nelson House were identified as the main target audience for the Agreement information program because of their location in the CRD area, the area with the highest mercury concentrations in fish, and because the residents of these two communities had significantly higher mercury concentrations as measured from hair samples than the other four NFC communities (H&WC 1987).

Determination of who should comprise the target audience is just one of two vital components in audience identification; the second component is the determination of what their specific information needs are with respect to the program. These two components are tightly interwoven in that the more that is known about the parameters that define the target audience - their socio-economic, cultural, educational, geographic, and historical profile, the greater the likelihood that their informational needs will be accurately assessed.

For example, it was recognized that the communities' pattern of domestic fish consumption would be an extremely important factor in determining their informational needs with respect to mercury. However, there was little information available on these patterns; such as the average level of consumption, any preference for fish of a particular species or from a particular lake, or which individuals were heavy fish eaters.

The lack of domestic fish consumption information was part of the larger problem of a lack of accurate and complete community profiles. Such information which did exist was either limited and/or outdated, such as the LWCNSB report which was released in 1975. Nor was there any activity underway or planned at the time of the Agreement information program to generate this type of information. Clearly, a primary consideration for the Agreement information program was the need to obtain a better understanding of the communities' information needs about mercury.

Communication Techniques

The scientific nature of the Agreement had a significant influence on the Agreement information program in two ways. Firstly, it necessitated the use of chemical and biological concepts that would not have been familiar to most laymen, e.g. methylation, microbial, parts per million, etc. Secondly, and more importantly, the adherence to the rigorous scientific methodology necessary to successfully conduct the Agreement research provided essentially no opportunity for public input into the Agreement projects. This helped foster a bias towards not soliciting public input into the conduct of the Agreement information program, including the selection of the most appropriate communication techniques.

A variety of communication techniques have typically been used for the communication of the progress and results of federal-provincial agreements. These techniques involve either written formats, such as newsletters, annual reports, questionnaires, newspaper articles, etc. or face-to-face contact such

as public meetings and drop-in centers. The dominance of Cree and the limited use of its written form suggested that written forms of communication would not have been effective. Face-to-face contact seemed more preferable; however, this format was limited by the geographic isolation of these communities and the uncertainty of which individuals to contact and when. For example, individuals who regularly spend considerable amounts of time in the bush pursuing traditional activities may also be heavy fish eaters and consequently highly interested in information on mercury in fish. They are, however, also difficult to contact.

Another means of communication, and perhaps the best, would have been the use of existing communication mechanisms within the communities. Unfortunately, the lack of socio-economic information referred to previously also included a lack of information on the communities' communication mechanisms. Furthermore, it was not known if their existing means of communication would have been suitable for communicating information of a somewhat scientific nature that was required for the Agreement information program.

In summary, the usual means of communicating the results of federal-provincial agreements were considered inappropriate for the Agreement information program; yet, little was known about the traditional means of communication within the target audience. New, creative communication techniques were required.

Pragmatic Considerations

Time, or rather the lack of it, was an important pragmatic consideration. The

public information program began a year and a half after the official commencement of the Agreement. During this time, there were Agreement activities which could have attracted the attention of the community residents, such as the presence of researchers conducting field activities. In addition, the signing of the Agreement was given media attention. These activities would likely have heightened the communities' concern about mercury, without providing them with any information to address this concern. It was therefore imperative that an information program begin as soon as possible; consequently, the planning time for the information program was brief.

Money was a second pragmatic consideration. The information program budget was less than 2% of the total Agreement budget. Small budget environmental information programs are not unusual; for example, Environment Canada's annual budget for public information and public participation is less than 1% of its total departmental budget (Schwass 1985). However, the special needs of native information programs (e.g. the communication barriers previously noted) should have warranted a proportionally larger budget.

The two pragmatic considerations of time and money reinforced the decision to focus the Agreement information program on South Indian Lake and Nelson House only. The other four native communities in the LWCN area - Split Lake, York Landing, Norway House and Cross Lake - received all of the Agreement's written material, such as annual reports, and often received copies of the material specially prepared for South Indian Lake and Nelson House, albeit at a later date. In addition, they were advised of the results of ongoing non-Agreement funded mercury activities being conducted in their areas, such as hair testing

in community residents and mercury sampling of commercial fish catches from nearby lakes.

IMPLEMENTATION

The Message

The first activity undertaken under the public information program was a series of discussions with a number of individuals who either had some experience working with the communities of South Indian Lake and Nelson House or who had experience in the field of communication. These individuals included federal and provincial government staff, particularly the communication branch staff of the Manitoba Department of Environment and Workplace Safety and Health, consultants, and the Northern Flood Committee personnel in Winnipeg. Some useful advice was obtained from these discussions, primarily with respect to the possible uses of conventional public information techniques in these communities. However, the most important result from these discussions was the realization that there was no local experience which could be used in a native information program. A communication strategy would have to be developed.

The determination of a communication strategy depends upon a knowledge of the intended audience and of the intended message. The only ones with a knowledge of the communities' concerns about mercury were the communities themselves. It was therefore decided to hold public meetings in South Indian Lake and Nelson House in order to present some general information on mercury and some preliminary Agreement findings. More importantly, the public meetings were

intended to provide an opportunity for the residents to ask questions.

Scheduling of these meetings proved to be a lengthy process, because of the difficulty in selecting meeting dates that were mutually convenient for the communities and for the meeting presenters. For example, when a death in one of the communities caused a last minute cancellation of a scheduled meeting, it was many weeks later before the meeting could be rescheduled. Eventually, the meetings were held on June 14 and June 15, 1984 in Nelson House and South Indian Lake respectively.

Efforts were made to attract as many of the residents to the meetings as possible by advertising the meetings, in Cree and English, on the local radio stations and through posters in public places within the communities, by providing free refreshments, and by trying to arrange English-Cree translator services for both meetings. Mr. W. Thomas provided superb translator services throughout the entire proceedings of the Nelson House meeting; unfortunately, despite prior arrangements, there was no translator at the South Indian Lake meeting. Despite these efforts, attendance at the meetings was poor; approximately two dozen residents attended the Nelson House meeting and less than half a dozen residents attended the South Indian Lake meeting.

Both meetings consisted of presentations on mercury in the environment, mercury levels in the fish of the diversion lakes, and mercury levels in people. The latter presentation included a demonstration of the technique for testing mercury levels in people. Questions were encouraged throughout the presentations.

The nature of the questions asked at the meetings clearly indicated the different perspective which the residents of Nelson House and South Indian Lake had about the mercury problem in comparison to the members of the information program's secondary target groups (e.g. scientists). The communities' concerns were much more pragmatic. Some of the questions asked were: whether it was possible to tell if a fish contained mercury just by looking at it; whether cooking, freezing or canning fish changes its mercury content; and whether minks and otters were the only animals tested for mercury. The one major concern that was reiterated throughout both meetings was the effect of mercury on human health.

Despite the low attendance at the meetings, they were successful from two key perspectives. The meetings clearly showed that the effect of mercury on human health was the single most significant local concern about mercury. Interest in the results of the Agreement's scientific investigations was primarily within the context of their relationships to mercury and human health. Therefore, although mercury and human health was not one of the five Agreement's objectives, it had to be the foundation for the Agreement information program. As a result, advising residents to have themselves tested for mercury became the central message of the information program.

The second way in which these meetings were valuable was that they illustrated the importance of the use of Cree. The meeting at Nelson House generated significantly more questions than the one at South Indian Lake, even when allowing for the difference in attendance at the two meetings. The translation

service provided by Mr. Thomas at Nelson House was the only difference in the conduct of the meetings.

Assessing the public meeting format as a mechanism of communication is more difficult. While the attendance was low, it may have been that the meetings succeeded in attracting those people with the greatest need to know or alternatively that the meetings succeeded in attracting those people who were the most effective communicators for accurately disseminating the meeting's discussions to the rest of the community. Judging by the caliber of the questions asked, the latter possibility would certainly have applied to the participants of the Nelson House meeting. Other possible reasons for the low attendances could have been poor timing (i.e. other competing commitments, including those outside of the community), insufficient or inappropriate efforts to attract participants, and/or generally poor community participation rates at public meetings.

The public meetings were invaluable in that they determined the Agreement information program's message. Additional means of communicating this message was the next consideration.

The Means of Communication

Various potential means of communication were evaluated on the basis of two criteria: providing as many of the community residents as possible with information on mercury, particularly the information to those questions raised

at the community meetings; and providing this information in Cree. On the basis of these criteria, the production of a Cree language videotape on mercury was selected.

Videotape machines were available at the nursing station in each community. The availability of these machines at these locations offered two advantages. One, it provided an opportunity for all residents to view the tapes at a time convenient for them; and two, it enabled the nursing station staff to readily incorporate the viewing of the tape as part of their mercury program of testing and providing dietary advice on fish consumption.

Shortly after the public meetings, work began on the production of the videotape. The scheduling consisted of hiring a communication specialist to produce the tape, preparation of the script, production of the tape in English, hiring a Cree translator, and then production of the tape in Cree. The English version of the videotape was ready for distribution in early December, 1984. The English version videotape was well received with requests greatly exceeding the anticipated demand; however, these requests were predominantly from members of the secondary target audience, such as Manitoba Hydro and Health and Welfare Canada. Nevertheless, this unexpected demand for the video suggests that there was an unmet demand for alternate forms of information.

Translation of the videotape into Cree proved more difficult than expected. A considerable amount of time was spent in locating a competent translator and narrator. Eventually such a person was hired - Allan Ross (who has subsequently

been elected Chief of Norway House). A second difficulty was the fact that many of the basic words and concepts used in the English videotape, such as the words "mercury" and "parts per million", are not directly translatable into Cree. As a result, Mr. Ross had to use the best approximations he could to convey these concepts. The Cree version was completed and distributed to South Indian Lake and Nelson House in the spring of 1985. The total budget of both language versions of the videotape was approximately \$4,000.

Other communication mechanisms were also developed which were specifically targeted to certain segments of the communities. Children were identified as a special group for a number of reasons: 1) they constituted a significant proportion of the communities; 2) mercury will be a life-long issue for them since it is expected to be a long term problem; 3) the communities' schools provided an existing communication mechanism with them; and 4) it was hoped that the children would discuss the mercury activities directed towards them at home with their parents, thereby also providing a secondary source of mercury information to the community adults.

One extremely popular activity was a colouring contest for children of ages 4 - 12. An artist was hired to draw a hair testing scene. Copies of the picture, along with boxes of colouring pencils and crayons, were sent to the communities. Prizes (books) were awarded to the winners in each of the three age categories in each community. Different coloured balloons, with an imprinted design showing a hair sample being taken for mercury analysis, were distributed along with the colouring picture. A total of 300 contest entries were received from the two communities.

The incorporation of an educational mercury program in the schools was also attempted. Discussions were held in the fall of 1984 with the principals of Oscar Blackburn School in South Indian Lake and of Roland Lauze School in Nelson House. While the principal of Oscar Blackburn School was agreeable to the idea, the full school curriculum for the 1984/85 school year prevented the incorporation of any new programs that year. However, he offered to consider the introduction of a mercury program for the 1985/86 school year.

In Nelson House, a mercury program was initiated in the 1984/85 school year. Material on mercury and on the progress of the Agreement was sent to the school to be used as reference material for teacher-led classroom discussions on mercury. Arrangements were also made to implement a hands-on project. Fish were to be purchased from local domestic fishermen and each child in grades 4-6 was to weigh and measure the length of one fish. The fish were then to be wrapped individually and identified with each child's name, collected, shipped to Winnipeg, and analyzed for mercury. The results of the mercury analysis were to be discussed in class, such as the differences in mercury content of fish of different species and of different sizes.

Arrangements were made with the Department of Natural Resources to obtain their assistance in the pick-up and delivery of the fish, using coolers which they took to Nelson House for this purpose. Arrangements were also made with the Department of Fisheries and Oceans to provide the results of the mercury analysis within a few days of their receipt of the fish. Unfortunately, a problem was encountered in obtaining the fish: repeated attempts to catch fish

in the Nelson House area were unsuccessful due to environmental conditions at the time, e.g. nets freezing to the ice. As a result this fish project was not implemented.

Another segment of the communities that was targeted for special attention in the information program were the individuals who prepared the fish meals. A whitefish recipe contest was held to draw their attention to the fact that whitefish have lower mercury concentrations than do many other fish species, such as pike and walleye. A cash prize of \$100 was offered to the winner in each community. In South Indian Lake, there were only two entries received and it was decided to split the prize money between them. In Nelson House, where a number of entries were received, the recipes were prepared at the nursing station, judged by three community residents, and the prize awarded.

Meetings were also held with two organizations which represented all of the Northern Flood Committee (NFC) communities. A meeting was held with the Wildlife Planning and Advisory Committee to address their questions about the Agreement and its progress and to solicit their assistance in the mink and otter mercury testing program. Regular meetings were also held with the NFC personnel in Winnipeg to update them on the Agreement's progress and to provide them with an opportunity to ask questions. In addition, the meetings with the NFC were also used to solicit their comments and suggestions about the mercury information program's objective and progress.

Finally, all material distributed to the secondary target audience (e.g.

government officials), such as the Agreement annual reports, was also sent to the communities. The wide release of these reports often resulted in the generation of other sources of information, such as the publication of articles in the Winnipeg Free Press, the major Manitoba newspaper, and interviews by CBC which were broadcast throughout Manitoba.

OBSERVATIONS

Community Knowledge

The greatest difficulty encountered in the mercury information program was due to an insufficient knowledge of the communities of South Indian Lake and Nelson House. Socio-economic information on these communities vital to the successful conduct of the mercury information program, such as their fish consumption habits and their internal communication mechanisms, was either outdated or not available. Nor were there any individuals with any experience in conducting information programs in the NFC communities.

The need for a comprehensive information dissemination program to inform residents of northern settlements of resource development activities and likely implications to their communities was one of the recommendations of the LWCNSB report in 1975. Yet, almost 10 years later, such a program was still not in effect. The result was that there were neither individuals with the practical expertise to offer advice based on personal experience in these communities, nor any existing effective communication mechanisms to emulate, or to utilize, for

the mercury information program.

Now, 5 years after the initiation of the Agreement information program, there is still no effective two-way communication mechanism(s) with South Indian Lake, Nelson House or the other NFC communities. The lack of such mechanisms is even more regrettable given the increasing level of cultural awareness which such current events as the Inquiry on Justice and Aboriginal People are fostering.

The lack of external expertise on South Indian Lake and Nelson House would not have been significant if it had been possible to have made greater use of the expertise which did exist within the communities. However, as noted previously, these communities, and in particular their elected and appointed officials, were very busy handling community concerns resulting from the hydro project and from the provisions of the Northern Flood Agreement, as well as normal community activities. Their numerous duties prevented them from having the time to become actively involved in the mercury information program.

However, the community assistance that was available clearly resulted in a more vigorous information program with increased community participation. For example, the nurse-in-charge at the Nelson House Nursing Station made an enormous contribution to the success of both the colouring contests and the whitefish recipe contests in that community. She set up a mercury booth at a community event and decorated it with mercury testing theme balloons. Colouring posters and crayons were distributed from, and recollected at, the booth; balloons were also distributed. In addition, she provided the nursing station

kitchen as the testing center for the whitefish recipe contest. She and the other nursing station staff, including the community health representative, assisted in the meal preparation and also selected the recipe judges.

Community participation was also vital in arranging the public meetings in both Nelson House and South Indian Lake. For example, Mr. L. Linklater, the NFA implementation officer in Nelson House, took an active role in the preparations for the community meeting, including the hiring of Mr. Thomas. In each community, a community health representative participated as the guinea pig in the demonstration on hair sampling for mercury.

Finally, it was the community participation at the public meetings that was the essential factor in the determination of the message of the mercury information program.

Program Funding

The limited financial resources for the Agreement information program offered both advantages and disadvantages. Because the limited financial resources did not enable the preparation of a variety of public information products, it forced the early identification of a specific focus for the information program both in terms of audience and content. Without this enforced rationalization of the program, there might have been the temptation to begin a number of poorly conceived, and perhaps inappropriate, program activities. The late start of this program would have further added to this temptation.

The small information budget also fostered the use of creative, and low-budget, approaches to the implementation of the program. For example, the use of theme balloons is not an information technique that has been used in disseminating the results of either federal-provincial agreements or scientific research. Yet, they were a popular, inexpensive technique which drew attention to the program's main message of getting tested for mercury.

More generous program funding would have offered two advantages. One advantage would have been the ability to provide better quality visuals for the videotape. The visual portion of the videotape was produced using borrowed slides. The transfer of the slides to the videotape format reduced the quality of the visual material, some of which was not of high quality initially. Additional funding would have permitted original videotape taping specifically for the mercury program, which would have produced not only high quality visuals, but visuals that were more closely matched to the videotape script.

Improvements in the visual quality of the videotape, which additional funds would have enabled, would have been implemented in such a manner as to enhance the tone of the videotape, but not substantially change it. The focus of the videotape was objectively informative, neither minimizing nor overstating the mercury problem.

The second advantage that a larger budget could have provided would have been the subdivision of the large, secondary target audience (i.e. everyone other than South Indian Lake or Nelson House). The other four Indian reserves located

in other parts of the hydro project area would have been identified as a special subgroup within the secondary audience. In particular, Split Lake and York Landing, as the two native communities located downstream of the Churchill River Diversion route, merited consideration of their special needs.

The above observations are offered from the perspective of what a modest increase in program budget could have permitted. A much larger budget would have provided greater opportunities but not necessarily greater program effectiveness. For example, additional dollars could have been used to finance additional public meetings in the communities, but it would not necessarily have been more successful in increasing the total number of community residents who participated in the meetings. An evaluation of program effectiveness must be made from a broader perspective than a strictly financial one.

Program Effectiveness

A comprehensive evaluation of the Agreement information program's effectiveness should now be possible, given the fact that it was completed a few years ago. Since the central message of this program was to encourage community residents to be tested for mercury, one obvious test of the program's effectiveness would be to determine whether the number of people tested for mercury increased after the information program was conducted. There were, however, a number of factors other than community awareness which affected the number of people tested for mercury each year in these communities. The setting of a minimum number of hair samples by Health and Welfare Canada to be collected for analysis each year, the

focus on the testing of individuals in specific groups (e.g. women of child-bearing age), the repeat testing of individuals with mercury levels above "normal", the competing demands on the time of the community health representatives who initially did most of the testing, and the later hiring of individuals solely for the purpose of conducting hair sampling were important factors which affected the number of samples taken each year. These changes in Health and Welfare Canada's program, over time, prevent an assessment of the Agreement information program's influence on the number of community residents tested.

The Agreement information program stressed the importance of fish consumption as the main determinant of mercury levels in fish eaters. Therefore, another possible measure of the program's effectiveness would be a comparison of the communities' fish consumption patterns before and after the program (e.g. species and amount). However, as noted previously in this paper, socio-economic data on these communities is limited. In addition, there is a lack of social, economic, and historic context needed to interpret the existing data and to obtain meaning from them (Usher and Weinstein 1989). Therefore, it is not currently possible to determine the spatial and temporal changes in the communities' fish consumption, let alone what role the Agreement information program may have had in these changes.

There was however, a comment made by a Nelson House resident, a year or so after the conclusion of the Agreement, that residents of Nelson House became aware of elevated mercury levels in fish around 1984 (although he did not say how) and,

as a result, some people decreased their fish consumption. This stated awareness of the Agreement problem coincides with an active time in the Agreement information program, e.g. public meetings, release of the English language mercury videotape. It is not known what components of the information program were the most successful in facilitating this awareness (and what, if any, role was played by other non-Agreement sources of information on mercury).

The best judges of the effectiveness of the information program are the community residents. Unfortunately, there has been only limited feedback from them either during or after the program. Accordingly, it is not known, for example, the number of people in each community who saw the mercury videotape and of those who did, what their reaction to it was. Similarly, while the colouring contest attracted many participants, it is not known whether it resulted in either more community discussion about mercury or encouraged more people to be tested for mercury.

One comment that was received during the life of the Agreement was a concern about the manner in which the word "mercury" had been translated into Cree in the Cree videotape. Apparently it had been translated as something like a poison, in that too much of it is harmful. It was felt that the use of the word "poison" was too stressful; it was suggested that the concept of a poison be replaced with the concept of a sickness. Retention of the English word "mercury" in the Cree videotape has also been recommended.

These comments suggest that there may be is a stronger connotation to the

concept of a poison in Cree than there is to the same concept in English. Such nuances draw attention to the importance of the translator's role and the difficulty of his or her task.

The limited feedback on the Agreement information program from the native communities was the result of two main factors. The most important factor was the difficult communication climate and in particular, the lack of effective communication networks. Because of these circumstances, there was neither the trust and credibility necessary to foster productive interaction, nor the practical aspects, such as designated community contacts, the readily available services of qualified English-Cree translators, etc. to enable feedback to occur.

The second factor was the artificially short duration of the Agreement information program, necessitated by the arbitrary time constraints inherent in any formal agreement (i.e. designated commencement and termination dates). The expected longevity of the mercury problem, and by extension the length of time an information program is required, greatly exceeded the life of the Agreement. Trying to conduct the information program in this abbreviated time period (made even shorter by the late start of the Agreement information program) further diminished the opportunity for feedback.

Given the limited unsolicited feedback, emphasis should have been placed on specifically trying to generate this feedback by initiating follow-up activities. For example, discussions could have been held with the officials

from the communities' schools in 1985/86 regarding the classroom activities in Nelson House in 1984/85 and the possibility of introducing similar activities in South Indian Lake in 1985/86. A combination of other demands and a failure (at that time) to fully appreciate the importance of follow up/feedback activities lead the information project leader/Agreement coordinator to direct her attention to other aspects of the Agreement during that year.

The lack of objective measures and the limited feedback received from the Agreement information program's target audience make it difficult to assess the program's success. However, the popularity of some of the program's activities such as the colouring contests, suggest that the program may have been effective in achieving its objective, although this evidence is not conclusive.

There are two other criteria by which this program can be considered successful. Firstly, it has spawned imitations in other mercury information programs such as the production of a mercury videotape by Ontario Hydro and the use of the Agreement's colouring contest posters by Health and Welfare Canada, in 1988/89, in another NFC community, Norway House. (An interesting modification to the colouring contest idea was incorporated in this latter version by having the local businesses provide the colouring contest prizes. Not only does this method provide a free source of prizes, but it also involves another segment of the community population in the mercury program.) Secondly, the Agreement information program has provided valuable lessons which can be applied to future information programs in the native communities of northern Manitoba and elsewhere.

CONCLUSIONS

1. A SOUND KNOWLEDGE OF THE INTENDED AUDIENCE IS ESSENTIAL TO THE SUCCESS OF ANY INFORMATION PROGRAM; WHEN THIS AUDIENCE CONSISTS OF A CULTURALLY DISTINCT GROUP, SUCH AS CANADA'S NATIVE POPULATION, THIS KNOWLEDGE IS IMPERATIVE.

Cultural traditions and socio-economic conditions exert a strong influence on the determination of a community's values, which in turn influence their informational needs. For example, in South Indian Lake and Nelson House domestic fish harvesting and consumption are highly valued activities. The practical considerations associated with these activities resulted in the need for pragmatic information, such as the possible effects of cooking, freezing or canning fish on their mercury content.

The cultural and socio-economic information on the communities that was available was used in the planning and implementation of the Agreement information program; for example, a Cree language videotape was produced because of the recognition of the importance of Cree communication and oral, rather than written, forms of communication. However, a more effective information program could have been conducted if more comprehensive and current information had been available on these communities. For example, knowledge of the communities' seasonal patterns of fish consumption could have been used to identify that period of each year in which the greatest effort should have been expended to provide the communities with information on the mercury levels in fish of different sizes and species.

2. ACTIVE INVOLVEMENT IN ALL STAGES OF A PUBLIC INFORMATION PROGRAM BY MEMBERS OF THE TARGET AUDIENCE IS CRITICAL, WHEN THIS TARGET AUDIENCE IS A CULTURALLY DISTINCT GROUP.

Different cultures have different value systems and what and how we choose to communicate is a reflection of our own value system. Furthermore, this cultural bias is usually unrecognized. For example, despite the careful consideration given to the mercury videotape in terms of format (Cree narration) and content (based on questions raised at community meetings), there was still (at the time) an unrecognized bias in the production of the videotape. Production first in English and subsequent translation into Cree structured the videotape according to the mode of thought used in English rather than in Cree (e.g. order of presentation of information). It also necessitated a faster Cree narration than normal in order to match the audio to the pre-recorded visuals, even though the English version (for which the visuals were timed) had been purposely narrated at a slower than normal pace to try and accommodate the more lengthy Cree translation.

Community involvement in the Agreement information program was limited and confined almost exclusively to the planning stage. It was the community input that determined the information program's focus, namely mercury and human health, an issue that was not one of the Agreement's objectives. Rigid adherence to an information program which had considered only Agreement objectives would not have permitted the necessary flexibility to address the most significant local mercury concern and undoubtedly would have produced an ineffective information program.

Determination of the effectiveness of the Agreement information program is difficult - even from the advantageous position of hindsight. The best measure of program effectiveness is the feedback from the target audience; unfortunately, feedback from the community residents, both during and after the program, has been limited. This limited feedback and the lack of objective measures to assess the Agreement information program's effectiveness (discussed earlier in this paper) argue for the need to conduct follow-up activities, to encourage additional community input, as an integral part of future native information programs. Increasing community input is dependent, however, on providing stronger support for public information programs in native communities.

3. INCREASED SUPPORT MUST BE MADE AVAILABLE FOR PUBLIC INFORMATION PROGRAMS IN NATIVE COMMUNITIES. THE SUPPORT IS NEEDED IN THE FORM OF GREATER AVAILABILITY OF EXPERTISE ON CULTURAL AWARENESS, ESPECIALLY CROSS-CULTURAL COMMUNICATION, AND IN INCREASED PROGRAM TIME.

The availability of cultural expertise is fundamental to a successful cross-cultural communication program. Such expertise can provide sensitivity to cultural differences and specific knowledge of the socio-economic conditions of the target audience. Furthermore, if the person possessing this information is from the target audience or is someone respected by them, there is a greater opportunity for the early establishment of productive two way communication.

The role that the cultural expert will play in the design and implementation of

the information program will depend on the size and cultural characteristics of the target audience, the complexity of the subject matter, and the time available for the information program. In the case of South Indian Lake and Nelson House, their informational requirements with respect to mercury were (and still are) one component of their informational needs (and those of four other native northern Manitoba communities) resulting from the development of a major hydroelectric project. The longevity of this project and the expected longevity of the project's environmental and socio-economic impacts will necessitate a long term, ongoing information program if the informational needs of these communities are to be addressed. Viewed from this overall perspective, there are potential benefits to all parties involved in this project (Canada, Manitoba, Manitoba Hydro, and the native communities) in obtaining the services of cultural experts.

Yet, the lack of cultural expertise so evident at the time of the Agreement information program still exists today. Even the most basic of cross-cultural tools, such as readily available and highly competent English - Cree translation services have not been established. Recent years have witnessed an increasing awareness of cultural identities; however, this awareness has not been translated into native information programs by the four parties involved in the hydro project in northern Manitoba.

A second element of support essential for public information programs in native communities, and one closely associated with the need for cultural expertise, is the need for an adequate time frame for planning, implementation, and post-program evaluation. Sufficient lead time must be available at the start of

a native information program to develop some understanding of the target audience and of their information needs. The smaller the amount of cultural expertise available, the greater this lead time must be. Similarly, the smaller the amount of cultural expertise available, the greater the need to have a post-program evaluation not only to assess the success of the program but to identify the "lessons" which can be learnt and subsequently applied to future native information programs.

The principle of public information has increasingly become a popular one. For example, recent federal water policy papers, such as Currents of Change and Water 2020, have stressed the need for public information activities as one of their basic tenets. A greater level of support must be provided for public information programs if this principle is to become a successful practice in native communities.

4. SUSTAINED, COORDINATED, FOUR-PARTY ACTION MUST BE TAKEN TO PROVIDE A PRODUCTIVE COMMUNICATION CLIMATE IN WHICH TO CONDUCT ALL FUTURE INFORMATION PROGRAMS CONCERNED WITH THE LAKE WINNIPEG, CHURCHILL-NELSON RIVERS HYDROELECTRIC PROJECT. FAILURE TO DO SO WILL RELEGATE THESE PROGRAMS TO ONLY PARTIAL SUCCESS.

The single most pervasive influence on the Agreement information program was the very difficult communication climate in which it was conducted, a climate characterized by feelings of fear, uncertainty and hostility. Since the initiation of the Agreement information program, there have been some improvements; however such changes have been too limited to produce a new communication climate, one that is based on trust, respect and credibility.

For example, the establishment of a four party Program Advisory Board (PAB), in 1986, has provided an opportunity for face to face discussions of conflicting views on environmental monitoring before they have become entrenched adversarial positions. Under the PAB process there has been some limited information sharing, such as the production of annual reports. Much more is needed. At a minimum there should be a regular, current, comprehensive and objective reporting of the plans and progress of all environmental monitoring programs in the LWCN area; the ensuing reports reviewed from both a technical and editorial perspective (the latter in the sense of improving readability); and all reports widely distributed, with copies placed in a central repository. These steps would greatly improve the "internal" communications climate, that is, the communication between the various programs managers.

Future information programs which address specific information needs of the affected communities, such as the Agreement information program, will benefit from these improvements in "internal" communication. But broader improvements in the communication climate are also needed if future information programs are to succeed. In particular, interactive mechanisms must be implemented to develop a good relationship with the communities. Mechanisms which have been used in the 10 years since the NFA was signed have not been effective for this purpose. New, creative and courageous approaches must be implemented if there is to be any hope of achieving a mutually rewarding communication climate.

FUTURE ACTION

1. INTEGRATE A LONG-TERM, WELL-SUPPORTED PUBLIC INFORMATION PROGRAM INTO THE

DEVELOPMENT AND IMPLEMENTATION OF ANY FUTURE STRATEGIC PLAN FOR ADDRESSING THE ENVIRONMENTAL AND SOCIO-ECONOMIC CONSEQUENCES OF THE LWCN PROJECT IN THE NFA COMMUNITIES AND SOUTH INDIAN LAKE.

Recently senior representatives of the four parties to the NFA have been meeting to try and reach a consensus on what are the outstanding issues in the NFA and on the means for addressing them, an exercise being referred to as global negotiations. An important component of this exercise is the development of a framework for a long term environmental and socio-economic monitoring program to determine ongoing and future adverse effects resulting from the LWCN project. The successful conclusion of these global negotiations offers the promise of not only a truly integrated and effective strategic plan for the resolution of the NFA, but also an opportunity to incorporate a long-term and well-supported public information program into the process.

On the basis of the conclusions drawn from this analysis of the Agreement information program, it is obvious that the residents of the affected native communities must be full partners in the development and implementation of the public information program. In particular, they possess an unmatched knowledge of their communities' concerns, of the existing level of knowledge about these concerns within each community, of who in the communities most needs particular information, when, and in what format. What is less obvious is the means by which this partnership can be achieved.

Despite the difficulties in determining the best means for community involvement

and the uncertainty (at this point in time) of the eventual outcome of the global negotiations, implementation of a jointly developed NFA information program provides the best hope of addressing the limitations of individually sponsored information programs, such as those of the Agreement. However, if this course of action should not prove possible, efforts must be redirected towards the better utilization of existing communication mechanisms.

2. IDENTIFY EXISTING MECHANISMS WHICH CAN BE UTILIZED OR EMULATED TO ENCOURAGE COMMUNITY INVOLVEMENT IN THE DISSEMINATION OF INFORMATION ON THE NFA ENVIRONMENTAL AND SOCIO-ECONOMIC MONITORING PROGRAMS.

There are a number of individuals such as community health representatives (CHRs), implementation officers, and key communicators who have participated in a formal manner in the NFA activities and whose experience could be of valuable assistance in the dissemination of information on the NFA environmental and socio-economic monitoring activities. For example, the CHRs, and more currently those who have been hired specifically for the purpose of conducting hair testing, have often been asked questions about mercury; yet, this source of information about community concerns has, to-date, been only partially utilized.

The greatest impediments to obtaining the assistance of such individuals are their heavy workloads and a lack of knowledge (in some cases, even awareness) by those involved in the NFA environmental and socio-economic monitoring programs of these people and their duties. The latter problem is made more acute by an apparently rapid turnover in some of these positions.

There are also a few community residents who have participated in a less formal manner in some of the NFA activities. For example, waterfowl hunters in the communities of Nelson House and Norway House have been interviewed as part of a current waterfowl monitoring project. The interviewed hunters are a logical group to approach for assistance in the dissemination of the results of this project as they become available. Those who administer future NFA information programs must bear the onus of establishing contact with such individuals, to solicit their advice and involvement in the information programs.

Efforts should also be directed to identifying information programs being implemented elsewhere which may be adaptable for use in NFA information programs. Information programs being conducted as part of the James Bay Project in northern Quebec may be particularly relevant in this regard because its principal target audience is also native communities located in a hydro project area. In fact, some Agreement information program ideas and materials have already been used in the James Bay Project mercury information program. Continued sharing of information program ideas and experiences should benefit both the James Bay information programs and those conducted in the NFA area, such as the Federal Ecological Monitoring Program.

3. ADAPT AND IMPLEMENT THOSE PUBLIC INFORMATION ACTIVITIES WHICH SEEM TO HAVE BEEN SUCCESSFUL IN THE AGREEMENT INFORMATION PROGRAM TO FUTURE NFA INFORMATION PROGRAMS, SUCH AS THE FEDERAL ECOLOGICAL MONITORING PROGRAM (FEMP).

The analysis in this paper of the successes and difficulties encountered in the

conduct of the Agreement information program must be widely reviewed and used in the planning of future NFA information programs if we are to benefit from this experience. One NFA program currently underway which will apply the lessons learnt from the Agreement information program is the Federal Ecological Monitoring Program, a federal program of environmental research and monitoring in the LWCN area.

The Agreement information activities which were effective, such as the videotape and colouring contests, and those which offered promise but were not given a sufficient test, such as the incorporation of material into the school curriculum, will be adapted to the FEMP information program. Activities such as these, which utilize a grass roots approach rather than a mass media approach, will form the core of the FEMP information program. A grass roots approach depends upon community involvement, which as this analysis of the Agreement information program clearly documents, is essential if future NFA information programs are to succeed.

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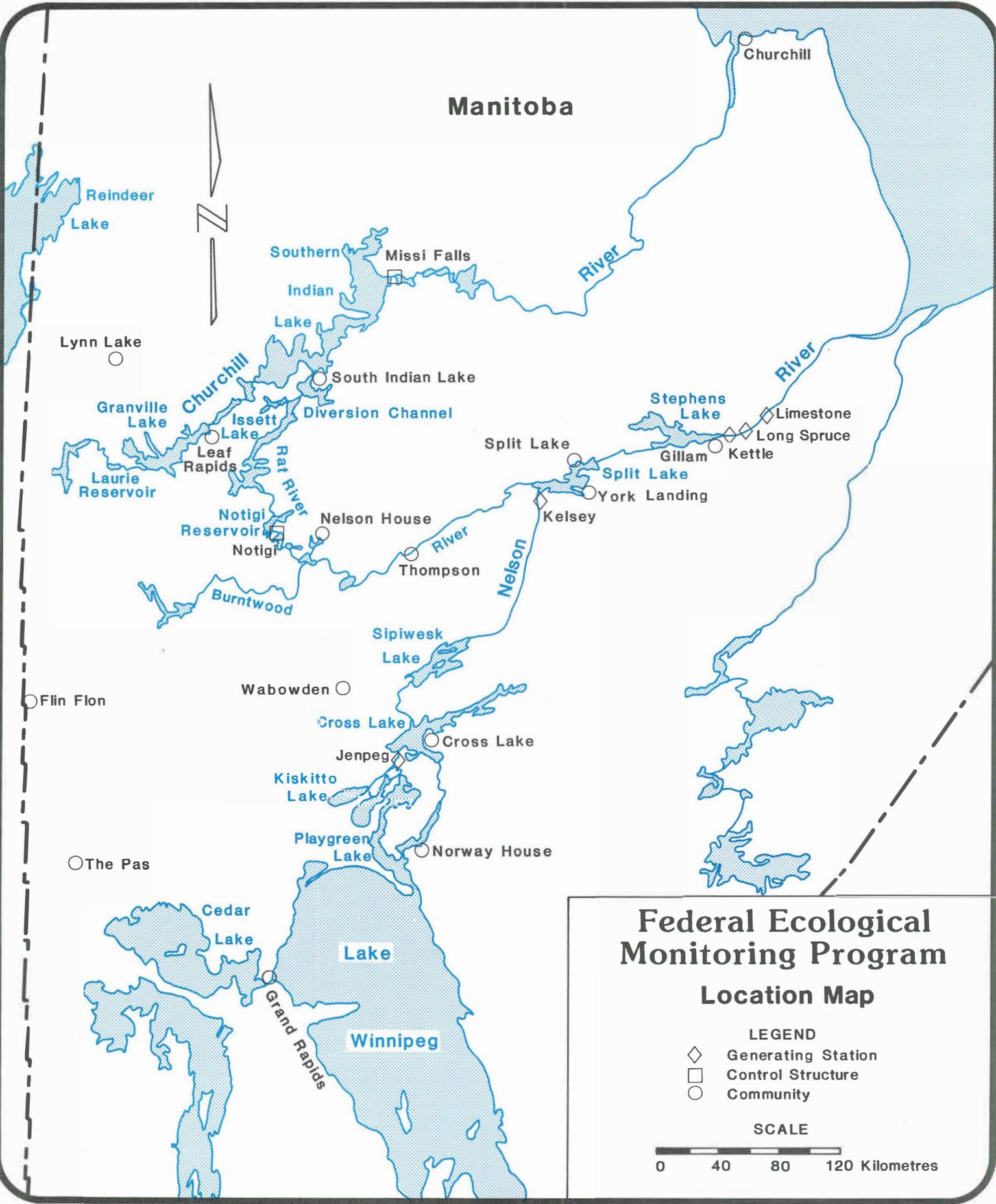
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Manitoba



Federal Ecological Monitoring Program Location Map

- LEGEND**
- ◇ Generating Station
 - Control Structure
 - Community

