THE NORTHWARD DIVERSION OF THE EASTMAIN AND OPINACA RIVERS AS PROPOSED: AN ASSESSMENT OF IMPACTS ON THE NATIVE COMMUNITY AT EASTMAIN VILLAGE

PART II - SOCIAL AND ECONOMIC IMPACTS

1974

By Harvey A. Feit

INTRODUCTION- by Alan F. Penn and Harvey A. Feit

The following paper sets out summary evaluations of the impact on the Eastmain native settlement of the proposed hydroelectric development of the Eastmain drainage basin according to the following headings:

(1 - 7: components of the Eastmain subsistence economy, prepared by A.F. Penn for the Cree/Inuit Support Team)

1. Beaver
2. Big Game
3. Fisheries
4. Fine-Fur
5. Small Game
6. Migratory Birds
7. Recreational Potential/Wilderness Value

(8 - 13: social and economic impacts on Eastmain village, prepared by H.A. Feit for the Cree/Inuit Support Team)

8. Impact on overall subsistence economy
9. Nutrition and Health conditions at Eastmain
10. Entrepreneurial opportunities
11. Inter-ethnic relations
12. Perception of environmental degradation
13. Sense of personal and community integrity

The sections written by Feit and by Penn are each prefaced with a short preamble which is intended to explain the writer's terms of reference, and to introduce a certain amount of explanatory background material.

The following statements consider each of the elements which we consider important for assessments of the impacts of diversion and provide summaries of our analysis of the most likely impacts. We focus on brief summary statements, and provide sufficient additional discussion so that the logic of our analysis is clear. Where we have used unpublished data we have briefly cited the data itself and its source. We have not undertaken a full 'statement of environmental impact', however, in the sense that this document does not explicitly report all information available on the topic, nor does it report our critical evaluations of the data. Nevertheless, the reader may be assured that careful consideration has been given to all the data available to us, in the course of our work. This document is therefore best seen as a summarizing report of our studies.

The proposed diversion of the Eastmain and Opinaca rivers affects land used not only by the people of Eastmain but also by the communities of Paint Hills and Fort George.

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THE NORTHWARD DIVERSION OF THE EASTMAIN AND OPINACA RIVERS AS PROPOSED: AN ASSESSMENT OF IMPACTS ON THE NATIVE COMMUNITY AT EASTMAIN VILLAGE

(PART II)

Preliminary Comments:

This part of the assessment outlines the cultural, social and economic impacts of the diversion scheme as proposed on the people of Eastmain village. Prepared by Harvey Feit, it consists of elements 8 to 13 as outlined in the general introduction to the assessment, specifically:

8. Impact on overall subsistence economy.
9. Nutrition and Health conditions.
10. Entrepreneurial and employment opportunities.
11. Inter-ethnic relations.
12. Perception of environmental degradation.
13. Sense of personal and community integrity

Each section consists of one or more conclusions (underlined texts), key statements that make clear the logic of our analysis (numbers with one decimal), and sufficient comments to provide the key supporting data. We use this format to make clear how the conclusions were arrived at, in the conviction that it is easier to evaluate such conclusions than those reached by unknown reasoning and implicit assumptions.

Throughout the assessment we have tried to start our analyses from general principles of the socio-cultural sciences, rather than from the data on the Eastmain community itself, which is very limited. This takes the form of a modelling approach, whereby we constructed a series of most likely logical linkages, and then modified and improved the analytical structure in the light of the available data on Eastmain. The process of testing and improvement is ongoing, but the aim is a generalized model that can be used in other similar assessments, rather than an analysis that is solely specific to the present diversion plan. This may help the reader to understand why the analysis was developed along the lines taken here and not others.

The present assessment makes the fundamental assumption that the population of Eastmain wish to continue to their present way of life, change is a fact of

life, and change is desired so long as it is along lines that are compatible with existing cultural values and knowledge. The main focus of this assessment is to establish what changes in existing conditions would be caused by the diversion scheme, to what extent these changes can be incorporated within the existing socio-economic developments, and to what extent the diversion scheme alters the possibilities for future socio-economic developments. The emphasis is on the type and extent of long-term impacts.

We consider the assumptions made in our assessment to be the most likely ones, but we recognize that in many cases alternative assumptions are also plausible. We have given consideration in our work to these alternative assumptions, and have found that in general alternative plausible hypotheses rarely reverse the conclusions of our assessments, they lead to different emphases.

8. Overall Effects of Activities on the Subsistence Economy

Conclusion (A): Trapping on Traplines Directly Affected - Diversion would make four traplines (VC34, VC35, VC37 and E1-6) unusable on a regular basis, and will make three other traplines (VC36, VC33, and E2) usable only on alternate years of a rotation. Diversion is also likely to significantly reduce the desirability of late winter use of those affected traplines which continue to be used.

8.1. Trappers decide to use a trapline primarily on the basis of their judgement that sufficient subsistence resources can be efficiently caught so that subsistence for the trapper and his family will be relatively secure and abundant, and secondarily on the basis that cash returns will be great enough to cover the costs of transportation and outfitting.

8.2. Decisions to use inland traplines, including all those directly affected by diversion (VC33, VC34, VC35, VC36, VC37, E1-6, E2), are dependent primarily upon the expected catches of beaver, but plans for the length of stay on the trapline are also affected by expected catches of big game.

8.2.1. Beaver, moose, black bear, and caribou provide respectively 14.3, 356, 210, and 110 pounds of boneless edible meat per animal by our estimates, and each can be harvested with several times the efficiency* of winter harvesting of fish or small game. The use of fish and small game is important in the fall when trappers first arrive on the trapline, before freeze-up and snow make beaver and big game harvesting efficient. Fish and small game are also important in winter if beaver or big game should be unavailable, or illness should affect the trappers. Nevertheless, fish and small game harvests play less of a role in trappers decisions and plans than do beaver and big game (see sections 3.4, 4, 5).

8.2.2. Big game are the most efficiently harvestable resources, but moose, black bear and caribou kills are not made on each inland trapline in each year, and when they are, they most frequently are made late in winter. Expectations of harvests of big game are strengthened and confirmed during the fall and early winter trapping

* measured as: calories of edible meat harvested/calories of work performed during capture and transportation of the animals.

period when signs of the animals are frequently seen in the course of trapping beaver. Big game harvest expectations therefore significantly affect the decisions on the length of the stay on the traplines, but are less important than expected harvests of beaver in decisions to use a trapline in a given year.

8.2.3. Beaver harvests have been adequate (section 8.4.2.) in recent years on the inland traplines directly affected by diversion and have been the main subsistence support during early winter on these traplines as well as the most regular source of income among the fur-bearers. Beaver is the most important species for evaluating the level of subsistence security that can be attained on a trapline, and in most years, it is the source of the majority of the cash income of the trappers on the inland traplines.

8.3. On the seven inland traplines directly affected by diversion (listed under 8.2.) we estimate that a minimum beaver harvest of thirty animals per trapper must be expected by the trapper before he will normally use his trapline.

8.3.1. Our figures on meat provided by animals caught on traplines during the 1972-73 trapping season for the eight Eastmain hunting groups for which we have adequate data indicate that an average of 2.24 pounds of boneless meat was harvested per adult-consumption unit per day. Our data from studies in the Waswanipi region indicate that catches in the range of less than two pounds per adult-consumption unit per day are not considered adequate for security by the native people, and appear in fact to be nutritionally marginal.

8.3.2. We estimate that the expectation that harvests will provide a level of subsistence comparable to at <u>least</u> 2 pounds of food per adult-consumption unit per day would be necessary for a trapper to use a trapline. We estimate that a trapper on the inland traplines would expect to be able to catch at least one-half of this amount in beaver. An expected harvest of one pound of beaver per adult-consumption unit per day means an expected catch of 30 beaver per

trapper, assuming 3.35 adult-consumption units per trapper with beaver returns (calculated from our 1972-73 data), and assuming an average trapping season of 4.5 months or 135 days (calculated from our 1972-73 data).

8.3.3. We have checked our figure by noting the occasions on which beaver returns dropped below 30 beaver per trapper in the beaver returns on the seven inland traplines between the 1968-69 and the 1971-72 seasons. Less than thirty pelts per trapper were reported on fourteen occasions, and on ten occasions (71 percent) the trappers responded to this situation the following year. On four of the occasions trappers abandoned the trapline the year following the low returns, to let the beaver populations grow. On the other six of the occasions the trappers reduced the total number of trappers using the trapline the following year. (In fact if one anomalous trapline is excluded, eight of ten cases show one or the other of these responses).

8.3.4. It should be noted that a harvest of 30 beaver per trapper is our minimum estimate of the expected beaver harvest needed for a trapper to consider the use of a trapline secure and attractive, it does not represent a good harvest to the Eastmain trappers. Mr. Teddy Moses has indicated that Eastmain trappers consider a good harvest to be 40 or more beaver.

8.4. The inland traplines are now producing beaver at levels comparable to the minimum level needed for security and are sufficiently attractive to trappers that they are being used on a regular basis.

8.4.1. In general, trappers will not plan to use a trapline, especially an inland trapline, unless accompanied by at least one other trapper, thus providing security should accident or illness incapacitate one of the group. It is possible for trappers using more than one trapline to camp together, but this cuts in half the geographical area within each trapline that is accessible from the camp. Our data from Waswanipi indicate that trappers normally trap within a radius of six miles from their camp. When a single camp is made for the families using more than one trapline , it is common for the trappers using each separate trapline to set up one

or more mens' camps that serve as temporary bases in the middle of the area they are trapping, from which they trap, and from which they periodically return to the main family camp. Under these conditions it is still common for more than one trapper to use each trapline. For the period from 1960-61 to 1972-73, on the six inland traplines for which we have complete records (VC33, VC34, VC35, VC36, E1-6, and E2) there were a total of 64 trapline uses, and only two occasions on which only one trapper reported beaver returns, i.e. only three percent of uses were made when only one trapper reported beaver returns.

8.4.2. The average number of beaver reported per trapline per use for the six inland traplines for which we have twelve years data (listed in section 8.4.1.) is 55 beaver, or slightly (8 percent) below the sixty beaver minimum per use that we estimate would make a trapline attractive for use by a pair of trappers. (The actual per use per trapper returns for the period 196^{8}-6^{9} to 1972-73, for the seven inland traplines directly affected, listed in section 8.2.,is 21 beaver).

8.4.3. The six traplines for which we have twelve years of data (see 8.4.1.), were used a total of 64 times in the twelve year period for a rate of use of 89 percent of possible uses.

8.5. In the light of these figures <u>any</u> reduction in the present beaver harvests on the inland traplines directly affected by diversion (listed in section 8.2) would reduce the viability of trapping in the view of the trappers, and would necessitate significant changes to the existing intensity of use of these traplines.

8.6. Traplines VC33, VC36, and E2 will experience losses of beaver habitat in the range of ten to twenty percent (see section 1), which would probably result in a rotational use of these traplines on an alternate year basis, but might result in abandonment of regular use of the trapline. This will cut cumulative beaver harvests by 50 percent on these traplines, and displace the trappers and their families for 50 percent of the years.

8.6.1. Our work at Waswanipi indicates that non-use of a trapline for a year allows the beaver populations to grow sufficiently for the trappers to get a 25 percent higher harvest when the trapline is

used in the succeeding year. Thus, the same level of harvest per use can be attained after a twenty percent reduction of beaver, by rotational use of the trapline in alternate years.

8.6.2. On a trapline which has experienced up to twenty percent reduction in beaver a trapper may therefore expect the trapline to produce the minimal harvest of beaver necessary for security and attractiveness if the trapline is used on a rotational basis in every alternate year.

8.6.3. This however assumes that other features of the trapline are not made less secure, through more than minimal disturbance to animal behavior and predictability, camp sites, shorelines and portage routes, by construction works, flooding, over-flights and other project-related activities. If these effects are not minimized then even a trapline experiencing ten to twenty percent reduction in beaver might be perceived as too insecure for use by the trapper.

8.6.4. It must be noted that alternate year rotation cuts the cumulative harvest over the years by 50 percent, because the same number of beaver required for security and use of the traplines which were formerly harvested annually, are now harvested every second year.

8.7. Traplines VC34, VC35, VC37, and E1-6 will experience losses of beaver habitat of over 25 percent (see section 1), which would probably result in abandonment of the regular use of the traplines.

8.7.1. Our work at Waswanipi indicates that non-use of a trapline for two or more years allows beaver populations to grow sufficiently for the trappers to get a 36 percent higher harvest when the trapline is used after rotation. Thus, the same level of harvest per use can be attained after a twenty-five percent reduction by cutting uses to one out of every three years or less frequently.

8.7.2. On a trapline which has experienced a 20 to 25 percent reduction of beaver a trapper may therefore expect the trapline to produce the minimal harvest of beaver necessary for security and attractiveness if the trapline is used on a rotational basis every third year or less.

8.7.3. Rotational use of a trapline for one year out of three or less will cut the cumulative harvest over a period of years by 67 percent or more, and will also result in displacement of the trappers and their families for at least two out of every three years.

8.7.4. When rotational use of a trapline is reduced to every third year or less a trapper will have to spend most of his trapping seasons, and therefore meet most of his annual winter subsistence and cash requirements, elsewhere and the use of his trapline must become a secondary consideration in his planning. Under these conditions plans for the use of a trapline become primarily dependent on conditions external to the trapline, and regular or systematic use is unlikely. Infrequent irregular use may however remain possible.

8.8. The reduced availability of moose on the traplines directly affected by diversion (see section 2.2.) is likely to have the effect of reducing the late winter use of the traplines that could be used after diversion. If this occurs it is likely to place increased demands on beaver harvests as well as small game as the alternative subsistence resources during the late winter period.

Conclusion (B): Trapping on Traplines not Directly Affected - Diversion would displace a total of twelve trappers and forty-five people from traplines directly affected by diversion, very few of whom will be able to successfully relocate on other Eastmain traplines. Since the displaced trappers will desire to continue full-time trapping their displacement would be very disruptive in the whole trapping economy of the settlement. No satisfactory solution of their needs seems possible within the existing trapping economy of Eastmain.

8.9 A total of twelve trappers and approximately forty-five people (28 adults and 17 children) will be displaced by the impacts of the project on the seven traplines directly affected (listed in section 8.2.). This is 34 percent of the number of Eastmain trappers with reported beaver captures in the period from 1968-69 to 1972-73, 38 percent of the winter population we recorded on Eastmain traplines for the trapping seasons of 1972-73 and 1973-74, and the adults are 28 percent of the registered band membership of Eastmain over 15 years of age in 1971.

8.9.1. On the four most affected traplines (VC34, VC35, VC37, and E1-6) there were a total of 7.4 trappers with reported beaver captures per year, between 1968-69 and 1972-73. Our previous analysis (section 8.7.) indicates that all of these men will be displaced from their traplines.

8.9.2. On the three seriously affected traplines (VC36, VC33, and E2) we expected that the trappers who regularly use these traplines will be able to use them only in alternate years, so that every year an average of half of the trappers will be displaced. On these three traplines there were an average of 8.8 trappers with reported beaver captures per year, between 1968-69 and 1972-73, so that an average of 4.4 trappers with reported beaver captures will be displaced annually.

8.9.3. On the basis of our records of hunting groups at Eastmain for 1972-73 we estimate that there are 3.8 people living on the traplines for each trapper with reported beaver returns, so that we estimate that an annual average of forty-five people (28 sixteen years of age or older, seventeen of less than sixteen years of age)

will be displaced from the seven traplines directly affected by development.

8.10. The displaced trappers and their families will want to have access to other traplines in the Eastmain area in order to continue trapping on a regular basis.

8.11. It is unrealistic to expect that all the displaced trappers and their families can be accommodated on those traplines that are not directly affected by diversion, and in fact, there are very limited opportunities for re-location of trappers on the Eastmain traplines.

8.11.1. The eight traplines that are not directly affected by the diversion scheme (VC15, VC30, VC31, VC32, E3, E3A, E4, and E5) have an area of 2393 square miles or 40 percent of the area of all Eastmain traplines but during the period for which we have complete records, from 1968-69 to 1972-73, these traplines were used by a cumulative average of 18.8 trappers with reported beaver returns per year, or 54 percent of the annual average number of Eastmain trappers with reported beaver captures for the same period (35 trappers). These figures indicate that with the additional 12 trappers with reported beaver captures displaced from traplines directly affected by diversion, the people of Eastmain would be faced with the problem of accommodating 88 percent of the trappers with reported beaver captures on 40 percent of the original area of their traplines.

8.11.2. Traplines VC-32 and E-3A are immediately adjacent to Eastmain village, and are used intensively by residents of the village for harvesting subsistence game, including, but not limited to beaver. The official beaver returns do not therefore adequately reflect the intensity of use of these traplines. Our data for 1972-73, which we believe is a year of somewhat more than average intensity of use of these traplines, indicate that twenty trappers used these two traplines intensively during this season, and a probably larger, but undetermined, number of other adults used these traplines on an intermittent basis. We conclude that these two traplines offer no opportunities for additional use by full-time trappers.

8.11.3. Trapline E-3 is an inland trapline which is harvested in part on an irregular basis from Eastmain village and in part is harvested on the pattern of the other inland traplines which are directly affected by diversion, the emphasis being on beaver. From 1968-69 to 1972-73 this trapline was used by an average of 1.25 trappers with reported beaver catches per use, and produced an average of 30 beaver pelts per use. It is therefore unlikely that any additional full-time trappers would be able to regularly use this trapline.

8.11.4 The remaining five traplines not directly affected by the diversion are coastal traplines and our data indicate that on these traplines beaver and big game are less prominant resources, and subsistence is provided by a more diverse range of resources than on the inland traplines. This is in part, we feel, because these traplines are being used intensively, and the trappers must harvest the less efficient small game to meet subsistence requirements. It was noted above (section 1.2) that the coastal traplines are short of good beaver habitat, report low beaver inventories, and also report a low capture rate expressed as a percentage of the inventory or of the quota. This low rate appears to be a function of fully utilizing a limited resource, because these traplines are used very regularly for beaver trapping (96 percent use from 1968-69 to 1972-73). These coastal traplines are now being harvested for the full range of reliably harvestable resources, so that no major increases in the range or intensity of harvesting seems possible, and few of the displaced trappers are likely to find adequate alternate areas to trap.

8.12. The displacement of twelve trappers and their families from the traplines directly affected by diversion will have serious repercussions for the trapping economy of Eastmain because it is unlikely that more than a few of the displaced trappers will be effectively accommodated on the traplines not directly affected. There will be strong pressures to give access to traplines not directly affected to some displaced trappers, at the risk of over-harvesting these traplines. There will also be strong pressures for some of the displaced trappers to give up full-time trapping, but this will itself give rise to additional part-time winter use of the resources

immediately around Eastmain village, at the risk of putting additional pressure on the resources depended on by the winter residents of Eastmain. No solution within the framework of the existing trapping economy seems possible.

Conclusion (C): Fishing economy: Uncertainties surrounding the estuarian and lower Eastmain, Fishing and Cold Water River fishing resources raise concerns about the summer subsistence economy of the people of Eastmain, and the winter subsistence of the old, sick or employed winter residents of the settlement.

8.13. Estimates provided earlier (section 3.2.) indicate that the Eastmain River and its tributaries support fisheries which provide more than ten percent of the total annual subsistence harvest of the people of Eastmain. It is predicted that in the short-term there would be a gradual decline in the fishery resource (see section 3.3.2.) and in the long-term the impacts are unknown. The uncertainty of the impacts combined with the importance of the resource should be noted.

9. Nutrition and Health Conditions

Conclusion (A): Reduced usage of the traplines directly affected by diversion is likely to result in a reduction of approximately 8,000 pounds of edible meat per winter, or a reduction of approximately thirty percent of the estimated winter subsistence harvest and nineteen percent of winter nutritional requirements of Eastmain. An unknown, but limited, percentage of this loss is likely to be replaced by increased winter harvests on traplines not directly affected by diversion. Declines in the quality of subsistence foods available are also likely to occur. Such declines are usually associated with nutritional and related health problems.

9.1. In our view the nutritional economy of Eastmain village has been and continues to be quantitatively and qualitatively dependent upon the harvest of local subsistence food resources. We estimate that a minimum of 60 percent of the winter nutritional requirements of the people of Eastmain are provided by subsistence harvests. On the basis of our data from Waswanipi, 80 percent of the food available by weight to families living on the traplines comes from subsistence activities, whereas a minimum of 25 percent of food available by weight to families living in settlements comes from subsistence harvests. In the winter of 1972-73 our data indicates that 61 percent of the Eastmain families lived on the traplines, whereas 39 percent lived in the village. This gives a minimal weighted estimate that 59 percent of the diet by weight is of bush origin.

9.2. Our best estimate is that sixty percent (range 55 to 70 percent) of the subsistence production of Eastmain in winter is presently provided by beaver and big game, and that the percentage will be significantly affected by reduced harvests due to diversion. Our data indicates that in most years beaver and big game together would be expected to provide approximately 25 percent of the annual subsistence production of Eastmain (see introduction to Part I, page 6), and that most of this harvest occurs on the traplines in winter. **Diversion may reduce this by as much as four tons.**

9.2.1. The four traplines which will be rendered unusable on a regular basis by diversion (VC34, VC35, VC37 and E1-6) produced an average of 204 reported beaver per year from 1968-69 to 1972-73. The three

traplines that would be usable on an alternate year basis (VC36, VC33 and E2) produced an average of 154 reported beaver per year. If 154 beaver were now harvested every second year on these traplines the annual loss of beaver as a result of diversion on the seven traplines directly affected would be 281 animals (see estimate in section 1.3.). This represents 4,018 pounds of edible meat, or 16 percent of our estimate of winter subsistence harvests (25,000 pounds),by all active adults engaged in full-time subsistence activity.

9.2.2. If beaver represented one-half (see section 8.3.2.) of the total subsistence harvest of the inland traplines affected directly by diversion, a total of 8,000 pounds of edible meat would be lost as harvest as a result of reduced usage of these traplines.

9.2.3. Displaced trappers would engage in subsistence activities elsewhere, but our analysis (see section 8.11.) indicates that few will be able to regularly engage in full-time trapping. If some of the men are forced to abandon regular winter trapping, they and their families would be limited to winter harvests of small game and fish on the traplines that are accessible daily from Eastmain village and that are already intensively harvested.
Should some displaced trappers utilize the coastal traplines, they will in effect share the existing harvests of beaver and big game because the evidence suggests that these harvests cannot be increased (see section 8.11.). Only small game and fisheries harvests might be increased on the coastal traplines in the winter. It is unlikely that these activities would result in an increased harvest comparable to the loss of harvests that will be experienced on the traplines directly affected by diversion.

9.3. Nutritionally the quality as well as the quantity of the diet depends on significant inputs from bush foods, because purchasable foods do not provide the same nutrients as bush foods, and an adequate diet depends on a balance of bush and purchased foods. Diversion will reduce the availability of foods important for the overall quality of the diet.

9.3.1. Based on studies in other northern native communities bush foods probably provide the majority of the protein, fat, vitamin A, iron, calcium, riboflavin, niacin, and ascorbic acid in the diet, whereas purchased foods probably provide the majority of carbohydrates and thiamin in the diet. Our data on the diet of five Waswanipi hunting groups during the winter trapping period indicates that 79 percent of protein, 83 percent of fat, 94 percent of ascorbic acid, 77 percent of iron, 53 percent of calcium and 90 percent of vitamin A, available for consumption by the families were available from bush food sources.

9.3.2. Among the nutrients, the most likely to be insufficient in the diet (in decreasing order of likelihood) are: ascorbic acid, iron, calcium, vitamin A, riboflavin and niacin.

9.3.3. The most important sources of nutrients among the bush foods are internal organs of mammals and fowl and the flesh, organs and skin of fish. Fresh internal organs of animals are important sources of iron, riboflavin, vitamin A, and ascorbic acid, and the stomach contents of some mammals are a source of ascorbic acid. Fish are good sources of vitamin A (especially the livers of whitefish, pike and barbot), of phosphorous, vitamin D, unsaturated fats, and calcium (especially the heads of whitefish).

9.3.4. Native peoples prepare and consume bush foods so as to maximally benefit from its nutritional qualities, including the practice of eating internal organs (often soon after the kill is made), eating heads, skins and stomach contents, and drinking the broths in which the food is prepared.

9.3.5. Internal organs come primarily from beaver and big game during the winter period, and primarily from waterfowl at other times of the year, while fish are of nutritional importance throughout the year. Diversion will affect nutrition among the people of Eastmain in winter by reducing the harvests of beaver and moose and the viability of the inland fisheries, and in summer and fall by reducing the availability of anadromous whitefish, and other species (see section 3.)

9.4 Prevailing health conditions in a small and isolated community like Eastmain depend upon a number of social and economic factors which are closely related to nutrition. These relations, however, are subtle and reflect the many different individual responses to changed social and economic circumstances. In our view, an overall decline in standards of nutrition (involving any combination of the components of nutrition identified in 9.3. above) could express itself in a decline in the level of community health.

9.4.1. Declines in nutritional levels could result in greater susceptibility to infectious diseases, notably respiratory tract infections and notably at the end of winter, and greater incidence of serious respiratory diseases developing from relatively minor complaints, e.g. pneumonia and bronchitis, originating from influenza, or the 'common cold' .

9.4.2. Declines can also result in a risk of higher infant mortality, due in large part to exposure to infectious diseases and their consequences as set out in section 9.4.1. above.

9.4.3. Declines in vitamin D and calcium intakes increase the possibility of more rapid decline in bone strength among older, but still active, members of the community who are receiving too little of these nutrients necessary for maintenance of good bone condition.

9.4.4. In general there is a risk of increasing incidence of other diseases which have been linked to nutrition, notably coronary disease.

9.5. The analysis suggests that the diversion scheme for the Eastmain River will probably cause displacement of about 45 persons from the inland trapping grounds. Some, perhaps most, of these individuals will spend more time resident in the Eastmain settlement, and as they accommodate to conditions in the settlement the composition, and probably the quality, of their diet will change accordingly. These changes in diet will operate in general to increase the incidence of the health problems identified in 9.4.1. to 9.4.4. above. The increase would be more pronounced among those individuals displaced by the diversion scheme, but may also be felt in other groups within the community affected by changes in the organization of the local economy.

Conclusion (B): New sources of fresh water will need to be provided.

9.6. Fresh water supplies are now taken from the river at Eastmain village. Changes in the salinity of water near Eastmain village after diversion will make it necessary for the community to change its fresh water supply.

10. Entrepreneurial and Employment Opportunities

Conclusion (A): The diversion scheme will greatly reduce the long-term potential for business and employment related to tourism and outfitting for the Eastmain community. In the absence of the diversion scheme, tourism and outfitting represent the sector in which the greatest economic development could occur. However, if the diversion scheme as proposed is built, it will create few, if any, permanent jobs for the native people.

10.1. Analysis of the prospects for economic development at Eastmain village suggests that in the absence of the diversion scheme, tourism and outfitting together provide an economic sector which is most likely to be developed, and that this sector will provide considerable potential for the creation of businesses and related employment for the residents of Eastmain on a permanent basis.

10.1.1. Tourism and outfitting provide jobs that are especially attractive to the Cree people for several reasons:

a) the location of the work permits close contact with the bush, and the seasonal nature of the work makes it possible to integrate work in this sector with subsistence activities;

b) many of the jobs depend on the use of traditional Cree skills;

c) the work is relatively flexible in organization and scheduling so that family groups can work together, and time commitments can be adjusted;

d) the work allows for substantial individual autonomy;

e) some tourist and outfitting enterprises require relatively small capital inputs and require a physical plant which can be built mainly of local materials using local labor.

-- It should be noted however that the long daily contact with non-natives and non-Cree speakers is a less desirable feature of the tourist and outfitting sector. Nevertheless, we have clear indications that the people of several native communities consider tourism and outfitting as a sector which they desire to develop.

10.1.2. Tourism and outfitting can also have seriously disruptive effects on the native subsistence economy, unless they are developed in close coordination with the native people. A growing awareness of this potential conflict may be one of the incentives to natives to become involved in this sector.

10.1.3. Considerable incentives for development of a tourism and outfitting will be available as a result of the Quebec and Federal Government programs to encourage growth in this sector. These incentives include financial and management advice and training, promotion, financial assistance, and development of a regional plan for tourism and outfitting in the James Bay area. These encouragements were specifically offered in the proposal for settlement made by Premier Bourassa in the fall of 1973.

10.1.4. The road from Matagami to LG-2 will provide access to the region of the Eastmain and Opinaca drainage basins for the considerable numbers of southern Quebecers interested in viewing the hydroelectric developments, primarily LG-2, and in wilderness areas, sport hunting, and fishing.

10.1.5. In their present state both the Eastmain and Opinaca drainage basins offer considerable attractions for tourists interested in recreational and wilderness areas as well as for sportsmen interested in hunting and fishing. Whites visiting the Eastmain region would chiefly be attracted to areas that were relatively accessible from the road and areas of special scenic beauty. These sites would probably be: the sequence of gorges from Conglomerate to Basil Gorge on the Eastmain River, including Talking Rapids and Clouston Gorge; Low Lake and Little Lake Opinaca; and further north Lake Opinaca and further inland Lichteneger Lake, although we have less in information on these areas.

10.1.6. The present state of the living resources of the Eastmain and Opinaca drainage basins offers the possibility of a number of types of sport hunting and sport fishing, including camps organized for: inland lake and river fishing of trout, inland

and coastal goose hunting, and, if populations continue to rise, sport hunting for moose and caribou.

10.1.7. With the data available to us we cannot now estimate the exact number or size of tourist and outfitting establishments that could be developed in the Eastmain area, but the diversity of tourist and outfitting resources possessed by the region indicates that a significant number of establishments could be created serving the variety of tourist demands described above.

10.2. The proposed northward diversion of the Eastmain and Opinaca Rivers largely eliminates the possibilities for both tourism and for outfitting in the Eastmain region.

10.2.1. From a scenic viewpoint, the region from Conglomerate Gorge eastwards as far as Lichteneger Lake (approximately 70 miles) and from the Eastmain River near the EM-1 barrage site northwards to Lake Boyd (approximately 60 miles) will be largely without value for tourism since it will be characterized chiefly by shallow impoundments containing extensive areas of 'standing deads' and floating timber, by other areas of artificial shoreline where attempts at clearing have been made but which will still contain piles of slash and other debris remaining from the clearing operations, and by abandoned river beds. The region of the Eastmain and Opinaca Rivers west and downstream from their points of diversion would lose most of its tourist potential, particularly in the fast flowing sections of rapids and gorges because of the extreme reduction of flow.

10.2.2. After diversion the prospects for sports fishing in the larger rivers and lakes will be very limited because the shores of most lakes of some size in the region of diversion will be inundated by between 10 feet and 30 feet of water, and the Eastmain and Opinaca Rivers downstream of the diversion structures will not have sufficient flow to support a sport fishery (see section 3).

The prospects for establishing a sports hunt for waterfowl on the inland Eastmain traplines will be similarly limited after diversion because much of the habitat suitable for breeding duck

and geese will be lost, and few lakeshore stretches will remain where it is possible, or indeed desirable, to conduct a sports waterfowl hunt (see section 6.3.). On the coast where there will not be major direct impacts on the geese, the likelihood of a sports goose hunting may be reduced because the overall reductions of the Eastmain subsistence harvests may lead to a greater reliance on the subsistence goose hunt.

10.2.4. Prospects for establishing a sport hunt for moose or caribou in the Eastmain region depend upon increased populations of both of these animals. These changes will be much less likely because of the anticipated impacts of diversion on moose habitat (see section 2.2.), because of a decline in attractiveness of the affected areas for sport hunters, and because if reasonable big game populations continue to exist, native people will place a greater reliance on them for subsistence purposes.

10.2.5. With reference to those traplines, or portions of traplines which are not directly affected by the diversion works, or by related activities, we expect that the Eastmain people would want to protect these areas from future disturbance, and that they will be reluctant to develop tourist or outfitting facilities on these lands. Our prediction is based on the fact that the people of Paint Hills have said to us that they were interested in developing outfitting facilities, but could not see how this would be possible after diversion. The analysis above indicates that this view is well founded for Eastmain as well because a real shortage of land and probably of subsistence resources would exist after diversion (sections 8 and 9).

10.2.6. In summary, the combined effect of the loss of scenic attractions, the loss of recreational areas near the road, the loss of much of the access to and potential of the resources for sports hunting and fishing, the loss of the attractiveness of the area as hunting or fishing country, the subsistence pressure for use of remaining resources, and the desire of the

Eastmain people to protect lands that remain relatively unaffected, make the prospects for the development of outfitting very dim. It is unlikely that even one or two outfitting operations would be established in the Eastmain region given the nature of the presently proposed diversion and its impacts on the native subsistence economy.

10.3. If the diversion scheme should proceed, few, if indeed any, permanent jobs would be created in addition to those created by other aspects of the La Grande complex. Those few jobs that may be created will require technical skills which native people do not now have, and which they have not started to acquire since the announcement of the James Bay Project.

10.4. If the diversion scheme should proceed, it will not provide opportunity for Eastmain people to become entrepreneurs providing goods or services to the JBEC, given the present purchasing policies of the Corporation.

Conclusion (B): Diversion will require a temporary work force during the construction period which could provide jobs for some native people. Our analysis indicates that in effect there will be no additional opportunities for employment if the diversion scheme proceeds than if the La Grande complex were to be built without an Eastmain diversion.

10.5. Diversion of the Eastmain will require a peak work force of possibly 1,000 men during the period of construction, and temporary employment opportunities will exist for native people in this work. Nevertheless, the increased work force required by diversion will not create any increase in the possibilities of employment in comparison to the conditions that would exist if diversion were not to take place.

10.5.1. During the construction of the diversion from 1975 to 1978 employment on the LG-2 complex will be at a peak, and will not go below approximately 2800 workers according to data provided us by the JBEC. The December 31, 1971 band lists of James Bay Cree Indians listed a total of 1441 men between the ages of 15 and 64 years of age. Thus, the number of jobs available at LG-2 during the diversion construction period is twice the best estimate of the size of the James Bay Cree work force.

10.5.2. However, even the comparison of these figures is grossly misleading because only a small fraction of this work force has taken employment on the project, or expressed interest in such employment. This work is often not considered highly desirable by the Cree people both because of their general opposition to the James Bay Development scheme and the way it has proceeded without adequate attention to their interests, and because of the specific conditions of the work that is available, namely: the usual necessity of living in non-native communities, the high level of interaction with whites, the limited autonomy and responsibility of the worker for his task, the inflexible hours and schedules.

10.5.3. Relative to the number of Eastmain men who are now seeking employment related to the James Bay development, or who may be expected to do so in the next four years, the increased work force required by diversion does not increase the value of the opportunities available for employment. Diversion does increase the number of jobs, but no value attaches to the increase in numbers, because opportunities already available exceed demand many times over.

11. Inter-ethnic Conflict

For purposes of this analysis we consider changes in inter-ethnic conflicts as a result of diversion to be a function of the relative potential for inter-personal conflict situations, specifically: non-native workers in Eastmain village; Eastmain people at work sites; and non-native workers at Indian bush habitation sites.

Conclusion (A): At Eastmain village, and at the work sites, there will be some inter-ethnic conflict situations created by the diversion scheme, but permanent installations will be sufficiently removed that limited permanent impacts are expected.

11.1 Native settlements are a major attraction for workers, in part because they afford the possibility of conducting illicit activities - including the purchase of products of native harvesting, guides for illegal non-native harvesting, and the exploitation of native women. These activities are recognized as exploitive by the native people, and while not banned by native people, the effects on the community are disruptive. Even when not engaged in overtly exploitative activities, workers are a disruptive element in native settlements because they do not know and respect community limits of valued social behavior and privacy.

11.2. Native access to work sites is motivated in large part by access to otherwise relatively inaccessible goods, including cash for products of bush harvesting (e.g. bear skulls, moose and caribou antlers, meat), items disposed of as garbage by the non-native workers, and alcohol. Native behavior in the work sites is often demeaning, but also subtly exploitive of the non-native, which when discovered often results in violence. Even when natives are not engaged in illegal or exploitive activities, the exposure to the high standard of living characteristic of workers is likely to increase the level of expectations of the native people to levels that they often cannot attain with the means available to them, and this is likely to have a long-term disruptive effect on the individual and the community.

11.3 The frequency of access between native settlements and work sites is likely to be a function of the distances between the sites and the means of travel available, more than it is a function of regulatory efforts.

11.3.1. Control of access to native settlements and work sites is likely to depend primarily on non-native authorities. Non-native workers in a native community are immune from most native means of social control which operate effectively within the native population. Short of the threat of violence the native people often have no effective means of controlling access by non-native workers to the native community. Native authorities generally exercise some, but limited, means of controlling native access to work sites.

11.3.2. Control of access between native settlements and work sites by non-native authorities depends primarily on control of roads, and on control of non-personal vehicles. These means will be of limited effectiveness where travel between the two settlements is relatively easy, so long as the individuals seeking access are doing so for exploitative or illegal activities which encourage that the individual's presence be covert, and so long as the activities involved provide highly valued benefits. Where native settlements and work sites are close enough that personally owned, off-road, transportation is possible by skidoo, canoe, or on foot, effective control of access will be impossible.

11.3.3. How close settlement and site must be for control to be ineffective will depend on the existence and condition of a road, and on the type of terrain, ground cover, and waterways. The settlement of Mistassini is linked by good road to the city of Chibougamau sixty miles away and there are problems of access by non-natives. Chibougamau is however a relatively large non-native settlement and little restriction of travel is attempted so that this distance probably represents an outer limit for control problems. Our experience at Matagami however suggests that travel by non-native residents over rugged winter trails and on summer water courses with several portages drops off rapidly for distances greater than 25 to 30 miles, so that this might be an estimate of the minimal distances involved, where roads do not exist, and there is no continuous body of water.

11.4. The development of the hydroelectric potential of the Eastmain basin by diversion will involve some impact on inter-ethnic conflict with the native people at Eastmain village, because survey, research and other crews will periodically be at or near the village, but the impacts will be relatively limited because construction camps and installations will not be within easy access, being some 70 miles or more from the village.

Conclusion (B): <u>At native bush habitation sites, the area in which works will occur and in which conflict situations will arise is significant, but it is limited to the zone east of the road.</u>

11.5. The area included in the Eastmain basin is covered by a network of native habitation sites including various kinds of camps, caches, portages, burials, landmarks and historical sites, which native people use and afford a high standard of care, protection and respect.

11.6. When non-natives with access to the bush "discover" these sites they often vandalize and burglarize these habitation areas, and even when conscious violations are not committed, the non-natives do not know and cannot maintain Cree standards of protection and respect. These trespasses are deeply resented by the Cree, a resentment for which monetary compensation is not adequate.

11.7. We assume that conflict situations are in effect unpoliceable; the number of conflict situations at native bush habitation sites is probably a function of the size of the work force, the number of camps in which they are distributed, and the size of the areas in which work will occur.

11.8. Diversion will involve construction or land preparation work on at least seven traplines in the Eastmain trapping area, sixty percent of the total area, but works will not occur in all sectors of these traplines, and the entire block of affected traplines is localized in the areas east of the Matagami-Fort George road.

12. Perception of Environmental Degradation

Conclusion: The Cree will experience a strong sense of personal and community insecurity and reduction of confidence in their future as a result of their observation of what they consider as unnecessary, disrespectful and extensive, destruction of wildlife, fish and vegetation caused by the flooding, flow reductions and construction associated with diversion.

12.1. The Cree people have a deep feeling and concern for the land of the James Bay area that is based on the continued importance of their local subsistence economy, on the security which they derive from their sense of the history of the land and its products, and on the unique role which the land plays in their beliefs and personal identity.

12.2. The Cree people derive a strong sense of collective and personal security from their intimate relationship with the land and a conviction that their continued existence as a distinctive people is assured if the land is protected and productive. Threats to the land are threats to their security and future as a people.

12.2.1. Several Cree people have pointed out to us that they are secure and exist today because they and their ancestors for many generations before them have been able to harvest the products of the land and benefit from its production. They often noted that people sometimes starved to death in the past and that life was difficult then, whereas now life was easier and death by starvation unlikely, but nevertheless, they were here today because the land had been respected and protected from generation to generation, and because all in all the land had supported life more than it had denied life.

12.2.2. We were also told by several Cree people that the white men come and go, the prices rise and fall, material goods and jobs are here today and gone tomorrow, all determined by factors over which the Cree have no control. But the land stays, and the land produces, and by respecting the land the

Cree can be assured that it will continue to be productive and that there will be resources to help them survive.

12.2.3. Because of this the Cree can be assured that they will survive as a people in the future if they protect their land, if they use the land today mindful of the effects of what they do on their children and their children's children.

12.3. In the Cree view the animals help man by allowing themselves to be caught so that their bodies become food and nourishment for the hunter and his family, and the hunter helps the animals by treating the animal and its remains with respect so that the soul of the animal will be happy and will be re-born again as an animal in the future. Thus when man and environment are in balance the continued existence of both is assured. In scientific terms the Cree seek a balance with animal populations that maintains sustainable yields. Among the things a hunter must do to fulfill his obligations as a hunter is to kill animals quickly and efficiently, not to kill animals unnecessarily, and to utilize those he does kill fully. In this way the environment becomes understandable and predictable for the hunter and hunting becomes a source of great individual security. As a result, Cree hunters find acts disrespectful to their environment threatening and practically dangerous.

12.4. The Cree experience an intimate personal relationship to the land. They see themselves as hunters, even when they do not hunt or trap on a full-time basis, and in their culture hunting success is still the most effective way to establish esteem. The Cree find hunting an intensely satisfying experience that re-affirms their status in their society and their relation to their world.

12.5. The diversion as proposed threatens the security the Cree derive from their intimate relationships with the land, and threatens the personal and collective cultural identity of the Cree because the diversion scheme has extensive consequences that are disrespectful to

the Cree view of the environment. For the Cree the diversion scheme involves unnecessary and therefore dangerous destruction of wildlife, fish and vegetation. Flooding and construction will kill animals, will remove or flood the vegetation and diversion will remove water and result in fish kills. Such damages because they are seen to be unmoderated are practically dangerous and personally threatening, reducing both individual and community security that the land will continue to provide for the Cree people of Eastmain.

13. Sense of Personal and Community Integrity

Conclusion: The Eastmain diversion scheme as proposed has been planned without any design accommodations made specifically to reduce the impacts of the diversion on the native people of Eastmain, and without any effective inputs to the planning process by the native people. JBEC proposals to take the impacts of diversion on the people of Eastmain into account by initiating remedial programs are in our view unrealistic and naive. Remedial actions generally fail unless they are accompanied by a serious involvement of local people in the overall planning process, from an early stage through remedial planning and programs.

13.1. The native people of Eastmain strongly oppose the present diversion scheme both because of the serious detrimental effects they know it will have on their way of life (some of which have been documented in this assessment) and because the way the project is being planned has afforded them no effective opportunity to have their concerns about detrimental effects taken into account in the planning process.

13.2. The engineers and planners involved in the design and construction of the diversion have not shown any serious recognition of the real impacts the scheme will have on the population of Eastmain, and have made no provisions in the diversion plans that are specifically designed to reduce these impacts.

13.2.1. The statements on the impacts of diversion made to date by representatives of the JBEC in person, and in writing (see "Derivation Eastmain-Opinaca-La Grande - Premier Rapport d'Environnement sur les Parties Aval des Rivieres Detournees", 1974, Montreal: JBEC), have not provided a satisfactory analysis of the extent of dependence of the people of Eastmain on the land and its resources, and have not adequately

foreseen the seriousness of the impacts of the diversion, as outlined in part earlier in this assessment of impacts.

13.2.2. As a consequence there have been no attempts to take consideration of the social, economic and cultural impacts of the diversion on the population of Eastmain into account in the early planning stages of the project, or indeed at any of the stages where these considerations would modify and affect design decisions.

13.3. The main response of the planners of the diversion scheme to the social, economic and cultural impacts of the scheme on Eastmain village is a proposal to give serious consideration to remedial programs. In our view, remedial programs which are not part of a program involving real local inputs to the planning process at stages early enough to affect the design of the development scheme have very little chance of any success, and can cause yet more undesired changes. Planners who make such proposals seriously misunderstand the nature of the processes of socio-cultured change, and are naive concerning the place of the planner in this process. The diversion as proposed therefore has no effective means for either reducing or ameliorating the serious impacts the diversion scheme has been shown to have on the people of Eastmain.

13.3.1. Social scientists have found that social, cultural and economic change is universal, but that there is a critical difference between changes that conflict with the values and experience of a people, and those which are consistent with existing values and knowledge. In the former case change is felt to be imposed, in the latter it may be accepted as desirable, whether it originates from within or without the community, and even though it may involve some negative effects.

13.3.2. In the present case, the way to make the changes brought about by the socio-economic impacts consistent with local values is to accommodate the diversion project to local concerns, introducing local views into the project planning process at

an early stage so that project concept and design can be modified or adjusted to a real but limited degree to reduce local impacts. Such accommodations would be preventive in the sense that they could reduce overall impacts and the extent of undesired change required of the population that is affected, while indicating that local values could play a role in development

13.3.3. Remedial actions do not have the same order of beneficial effects as accommodations, and may have many undesired effects of their own because they do not reduce impacts and undesired change at all, but rather introduce yet additional changes. Remedies proposed by the JBEC have a high likelihood of being perceived as additional undesirable changes by those for whom the remedies are supposed to be beneficial. Social scientists have found that even when proposed with the best of intentions remedial programs planned without extensive community inputs fail nine times out of ten. The situation is somewhat better where the people concerned themselves desire the remedial changes and have the effective means to have their views incorporated into the planning process.

13.3.4. If the JBEC seriously wishes to provide remedial programs, it will require the cooperation of the local people in the planning process, and this requires that the JBEC convince the members of the community of Eastmain that JBEC is seriously concerned to moderate the impacts of the diversion scheme on the community. It is naive for JBEC planners to think that they can institute effective remedial programs after they have excluded consideration of the impacts of the diversion plan on the local people from the basic planning and design of the project. The people of Eastmain expect real modifications to the project that are specifically undertaken to reduce the socio-economic impacts, and if no such modifications are forthcoming from the JBEC, the planners cannot expect to get the participation of the native people in the planning and design of remedial programs. In summary,

effective remedial programs can only be a part of an effective involvement of the Eastmain people in the entire planning process, from early design of the diversion scheme through to remedial actions.

13.4. The present diversion plan affords no opportunity to develop any effective means of reducing or even ameliorating the impacts of the diversion because it has failed to incorporate native views into the planning process. The community and personal integrity of the community of Eastmain is threatened, because the diversion as planned puts the people of Eastmain in a position in which they will find it extremely difficult to sustain their present economy and society.

13.5. This assessment has indicated that the diversion scheme as proposed: will result in the displacement of 38 percent of the winter trapline population of Eastmain; will irremedially disrupt the trapping economy of Eastmain; will result in a significant reduction, in quantity and quality of winter subsistence food harvests; will cause a reduction in the nutritional adequacy of the diet which will probably be accompanied by a decline in health conditions; and will cause environmental changes that are likely to be viewed as threatening the relationship of the people of Eastmain to their environment, and the security of their way of life.

13.6. The diversion scheme as proposed will simultaneously reduce the possibilities for the people of Eastmain to engage in meaningful and productive activities in either the subsistence economy or potentially desirable sectors of the wage labor economy in the long run (see section 10) while the diversion also creates environmental impacts that are destructive of the security and confidence the people of Eastmain derive from their intimate relationship with their environment. A likely consequence is that personal integrity will be increasingly difficult to maintain for many individual members of the Eastmain community because they will find themselves unable to pursue satisfying lives within the trapping economy, and unable to find desirable employment in the Eastmain area. This can and may

lead to an effective dispersal and disintegration of the community of Eastmain. Faced with meagre prospects for meaningful productive activity in the Eastmain area some individuals will be likely to leave the area to seek employment elsewhere. We would expect such numbers to be small, because of the deep attachment most people have to the land and kin at Eastmain. Those who emigrate are likely to be the people with the greatest self-confidence and initiative. The people who remain will be confronted with the difficult task of maintaining self-respect and integrity in a community without confidence in its future, and it is very likely that the people who remain will experience the greatest individual stress. They will begin the downward spiral of increasing unemployment, family break-up, delinquency, drunkenness, poor health and violence. The final result of such individual losses of self-respect and integrity is the totally demoralized communities that are characteristic of some of the Indian reserves of Canada, and that serve as models of the effects on native communities of social and economic impacts of non-native development which is unmoderated by effective consideration for and participation of the native people.

THE NORTHWARD DIVERSION OF THE EASTMAIN AND OPINACA RIVERS AS PROPOSED: AN ASSESSMENT OF IMPACT ON THE NATIVE COMMUNITY AT EASTMAIN

SUMMARY

The following paper sets out summary evaluations of the impact on the Eastmain native settlement of the proposed hydroelectric development of the Eastmain drainage basin according to the following headings:

(1 - 6: components of the Eastmain subsistence economy, prepared by A.F. Penn for the Cree/Inuit Support Team)

1. Beaver
2. Big Game
3. Fisheries
4. Fine-Fur
5. Small Game
6. Migratory Birds
7. Recreational Potential/Wilderness Value (A.F. Penn)

(8 - 12: social and economic impacts on Eastmain village, prepared by H.A. Feit for the Cree/Inuit Support Team)

8. Impact on overall subsistence economy
9. Nutrition and Health conditions at Eastmain
10. Entrepreneurial opportunities
11. Inter-ethnic relations
12. Perception of environmental degradation
13. Sense of personal and community integrity

1. Beaver:

Major losses of beaver habitat (estimated in the range 25-40% for the Eastmain preserve) will seriously disrupt beaver trapping economy and probably will render the inland traplines VC-34, 35, 37 and E-1-6 unattractive for trapping and uneconomic with present patterns of use. Three other traplines VC-33, VC-36 and E-2 will experience losses of beaver habit in the range 10-20%.

2. Big Game (moose, bear and caribou).

Loss of moose summer habitat in diversion zone expected to reduce availability of moose as a late winter meat resource on inland traplines, and so diminish the security of food supply on these traplines. On bear, the impact is expected to be small, although some deterioration in meat quality is anticipated. The impact on caribou resources is not known.

3. Fisheries:

Much of the information necessary for the evaluation of impacts on fisheries resources is unavailable. There is a significant risk of a major impact on summer and fall fisheries resources in and near the Eastmain estuary, but the nature of the impacts cannot at the moment be predicted. On inland traplines, difficulty of access to inundated areas will considerably reduce availability of fish as a 'back-up' resource there.

4. Fine-Fur:

Flooding and other disturbance connected with construction will render much of VC-34, 35, 37 and E-1, 6 uninteresting for fine-fur trapping, particularly in the construction phase of the project. Significant impacts alsp expected on Vc-33 and E-2 as a result of flow reduction and road traffic. The impact on otter is expected to be most serious.

5. Small game:

Impact expected to be small. Some decline in the availability of small game as a complementary resource near areas where there is a marked reduction in riparian habitat may be noticed.

6. Migratory Birds:

Minor on native goose hunting, but significant loss of breeding ground potential in diversion zone.

7. Recreational Potential and ecological interest:

The Eastmain River is a river of outstanding natural beauty in an area little known to Quebecers. A number of rapids and slow reaches downstream from the diversion point make the river interesting as a wilderness area. The Lake Low region is also an area of considerable scenic attraction. In the absence of development, for hydro-power, development of a variety of recreational assets would provide extensive opportunities for Eastmain village to provide entrepreneurial services.

8. Overall Effects of Activities on the Subsistence Ecnomy:

Conclusion (A): Trapping on Traplines Directly Affected - Diversion would make four traplines (VC34, VC35, VC37 and E1-6) unusable on a regular basis, and will make three other traplines (VC36, VC33, and E2) usable only on alternate years of rotation. Diversion is also likely to significantly reduce the desirability of late winter use of those affected traplines which continue to be use.

Conclusion (B): Trapping on Traplines not Directly Affected - Diversion would displace a total of twelve trappers and forty-five people from traplines directly affected by diversion, very few of whom will be able to successfully relocate on other Eastmain traplines. Since the displaced trappers will desire to continue full-time trapping their displacement would be very disruptive in the whole trapping economy of the settlement. No satisfactory solution of their needs seems possible within the existing trapping economy of Eastmain.

Conclusion (C): Fishing economy: Uncertainties surrounding the estuarian and lower Eastmain, Fishing and Cold Water River fishing resources raise concerns about the summer subsistence economy of the people of Eastmain, and the winter subsistence of the old, sick, or employed winter residents of the settlement.

9. Nutrition and Health Conditions:

Conclusion (A): Reduced usage of the traplines directly affected by diversion is likely to result in a reduction of approximately 8,000 pounds of edible meat per winter, or a reduction of approximately thirty percent of the estimated winter subsistence harvest and nineteen percent of winter nutritional requirements of Eastmain. An unknown but limited, percentage of this loss is likely to be replaced by increased winter harvest on traplines not directly affected by diversion. Declines in the quality of subsistence foods available are also likely to occur. Such declines are usually associated with nutritional and related health problems.

Conclusion (B): New sources of fresh water will need to be provided.

10. Entrepreneurial and Employment Opportunities

Conclusion (A) The diversion scheme will greatly reduce the long-term potential for business and employment related to tourism and outfitting for the Eastmain community. In the absence of the diversion scheme, tourism and outfitting represent the sector in which the greatest economic development could occur. However, if the diversion scheme as proposed is built, it will create few, if any, permanent jobs for the native people.

Conclusion (B): Diversion will require a temporary work force during the construction period which could provide jobs for some native people. But analysis indicates that in effect there will be no increase in opportunities for employment if the diversion scheme proceeds than if the La Grande complex were to be built without an Eastmain diversion.

11. Inter-ethnic Relations:

Conclusion (A): At Eastmain village, and at the work sites, there will be some inter-ethnic conflict situations created by the diversion scheme, but permanent installations will be sufficiently removed that limited permanent impacts are expected.

Conclusion (B): At native bush habitation sites, the area in which works will occur and in which conflict situations will arise is significant, but it is limited to the zone east of the road.

12. Perception of Environmental Degradation:

Conclusion: The Cree will experience a strong sense of personal and community insecurity and reduction of confidence in their future as a result of their observation of what they consider as unnecessary, disrespectful and extensive, destruction of wildlife, fish and vegetation caused by the flooding, flow reductions and construction associated with diversion.

13. Sense of Personal and Community Integrity

Conclusion: The Eastmain diversion scheme as proposed has been planned without any design accommodations made specifically to reduce the impacts of the diversion on the native people of Eastmain, and without any effective imputs to the planning process by the native people. JBEC proposals to take the impacts of diversion on the native people of Eastmain into account by initiating remedial programs are in our view unrealistic and naive. Remedial actions generally fail unless they are accompanied by a serious involvement of local people in the overall planning process, from an early stage through remedial planning and programs.