

The Impact of Major Resource Development
Projects on Aboriginal Communities:
a Review of the Literature

Prepared for the
Royal Commission on Aboriginal Peoples

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February 1994

RCAP NOTES

This paper was prepared as part of the research program of the Royal Commission on Aboriginal Peoples. Research carried out for the paper was conducted in accordance with the Commission's ethical guidelines for research, and the paper was reviewed under the Commission's peer review procedures.

The opinions expressed in the paper are those of the author and do not necessarily reflect opinions or positions of the Royal Commission on Aboriginal Peoples.

All documentation provided by the author appears in this CD ROM version.

ACKNOWLEDGEMENTS

The author would like to thank Martin Weinstein and Frank Tester for their valuable peer review comments on an earlier draft of this paper, Fred Wien for his encouragement and support during the initial drafting, and Audrey Armour for her advice, guidance and suggestions throughout the revisions process.

EXECUTIVE SUMMARY

This paper examines the literature relevant to the impacts of major resource development projects on Canadian Aboriginal communities. Many resource projects have clearly had a devastating impact on the social fabric and economic well-being of communities; the impact of others has been more benign or positive. The relationship between projects and communities is complex, and has been characterized by both diversity and change.

While resource projects affected Aboriginal people before World War II, they did not cause widespread disruptions. After the War, however, changes in the number, size and scope of resource projects as well as changes within Aboriginal society intensified the relationship between projects and Aboriginal communities and increased the potential for serious negative impacts.

Contributors to the literature have approached the assessment and interpretation of impacts from different theoretical perspectives. Some ascribe to the "modernization" paradigm of development which views industrialization as a key development tool. Resource projects are therefore assumed to be of inherent benefit to Aboriginal people. Other contributors reject modernist assumptions. They argue that resource projects are a way by which the southern industrial heartland exploits northern land and resources. Projects will extract resources and drain economic surpluses from the region, threaten the social health of communities, and will not be a tool for sustained economic growth. These differences in perspective were most clearly evidenced at the Mackenzie Valley Pipeline Inquiry, but have persisted to the present. Regrettably, the dominance of the modernist assumptions has had an adverse affect on the quantity and quality of impact assessments and has limited our understanding of the complex relationships the assessments must understand.

Economic impacts occur within the larger context of the economy of the resource hinterland. Contributors have interpreted this economy in different ways. Some view it as a "dual economy" made up of two distinct sectors - "traditional" (Aboriginal) and "modern" - with few links between them. Jobs in the modern sector are assumed to be preferred. Others note that the economy in communities is a "mixed economy" - at a community, household and even individual level, Aboriginal work patterns are characterized by participation in a mix of economic activities. Incomes come from a number of sources, including those associated with both the modern and traditional sectors.

One source of income in the mix is industrial wage employment, which is dominated by resource

development projects. The resource economy is characterized by: non-local ownership and decision making; cyclical, "boom and bust" patterns; and severe economic leakage from the region. The income earned through participation in the economy will likely not provide a dependable, long-term component of the economic mix.

Determining levels of aboriginal employment with resource projects has proven to be difficult, and attempts to compile meaningful statistics to measure trends have been unsuccessful. Existing data does, however, allow for some very general observations: resource projects have traditionally offered little in the way of employment benefits to Aboriginal people; actual levels of participation are increasing as is the potential for greater benefits; and employment benefits still vary enormously from project to project.

There are a number of factors which affect the extent of Aboriginal participation in resource projects. For instance, the number, duration, and permanence of employment opportunities, and the skills required to secure them, will depend on the employment needs of the project. These needs vary depending on the industry, the particular project, and the phases of the project cycle.

Increasingly, resource developers experience pressure or are obligated to facilitate Aboriginal participation in projects. This has transpired in large part due to the increasing leverage that governments, and particularly Aboriginal groups, have to influence and regulate resource developments. Aboriginal groups, for instance, have gained leverage as their ownership of, claims to, or control of lands and resources have been recognized.

A community's proximity to a resource project is also of relevance. Distance has been a barrier because it necessitated relocation, which presented practical difficulties, subjected Aboriginal employees to culture shock, and was generally not favoured as an option. The increasing use of long-distance air commuting systems in the past two decades, however, has provided an option to relocation.

Formal education and training are important selection criteria for formal sector employment. As Aboriginal people's levels of formal education are significantly lower than the national average, minimum educational requirements for jobs eliminate many prospective Aboriginal employees. Education levels also affect the types of jobs for which Aboriginal people are qualified, and their prospects for advancement. Problems relating to the availability and effectiveness of training programmes may also play a role in low rates of Aboriginal participation.

There is little doubt that discrimination has, in past, been a substantial barrier to Aboriginal employment with resource projects. Less certain is the extent to which discriminatory attitudes and practices persist - evidence from the literature is mixed. Discrimination may act as a disincentive, as well as a barrier to participation when Aboriginal people anticipate encountering racist attitudes on the job. In recent years, however, some communities have benefited from "preferential hire" status with resource projects. In general, therefore, the literature is unclear on the way in which an Aboriginal person's ancestry affects the hiring decision.

The interest that Aboriginal people have in participation is another determinant. Although the demand among Aboriginal people for jobs in the resource sector is not well documented, studies have shown that there is a significant demand for wage employment. Some interpret this as an indication of a preference for wage employment over traditional activities while others argue that wage employment is taken on only as a means to finance these activities. If the latter is true, then relatively high rates of turnover and the disproportionate involvement of Aboriginal people in part-time and seasonal jobs can be rationalized. If the former is true, factors other than personal preference must be considered. Still others argue that such generalizations about preference are misleading, and that the motivations, aspirations, and employment choices of Aboriginal people are shaped by contextual factors such as the size of the community, the age of the individual, their level of formal education, etc..

Resource projects can also induce spin-off economic impacts. Although wages from projects have seemingly generated few spin-offs through the "multiplier effect", some aboriginal groups have been compensated for the use of, or damage to, land and resources to which the group has some claim. These monies have been used in various ways: distributions to community members; expenditures on community infrastructure; investments in community or regional businesses; and funding of local political and administrative institutions. Spin-offs have varied according to how the money was allocated.

The land-based economy is at the foundation of the Aboriginal social and cultural heritage. Opinions differ on the net impact projects have had on the land-based economy. One contentious issue concerns harvesting equipment: some maintain that wages from projects are used to purchase needed equipment; others question this, and express concern that the capitalization of the traditional sector may eventually undermine its long-term viability. A second issue concerns the influence of wage employment: some argue that high wages in the resource sector will draw Aboriginal people out of the land-based economy; some believe that a strengthened land-based economy can compete for labour with the resource sector; others point

out that, under the right conditions, wage labour does not preclude and in fact may support participation in the traditional sector. A third issue relates to environmental impacts: in many cases projects have had a negative effect on the land and renewable resource base on which the land based economy depends.

The values inherent in the industrial and the Aboriginal land-based economies are profoundly different. The literature questions the extent to which these value systems can co-exist and yet remain distinct. One earlier view argues that Aboriginal values are already giving way to modern ones, and that the completion of this process is necessary if Aboriginal people are to succeed in the modern world. Another view states that Aboriginal values remain distinct, but might not if industrial expansion is allowed to proceed unchecked. A third view states that the key determinant is the extent to which the industrial system interferes with a community's ability to reproduce its traditional skills and social relationships. Here, it is noted that participation in mercantile forms of capitalism do not necessitate changes to traditional social relations of production, while participation in industrial capitalism does. Case studies indicate that resource projects and increased wage employment in communities sometimes have, and other times have not, led to the atrophy of traditional collectivist values.

Since World War II, many factors, including resource projects, have combined to put the nuclear and extended families in Aboriginal communities under intense pressure. When traditional roles and responsibilities which are grounded in foraging activities are disrupted, the bonds between family members have tended to atrophy. Resource projects, therefore, have been most disruptive to the family unit when they have damaged a community's land-based economy. Aboriginal families have also experienced stress when husbands are away working for extended periods, when families have relocated to resource towns, or when communities have experienced an influx of non-Aboriginal workers.

Few studies have investigated the on-the-job experiences of Aboriginal workers with projects. Some studies, however, have addressed the problems a worker encounters adjusting to a rotation work schedule or to life in a resource community. At a macro level, some argue that resource projects are contributing to a process whereby the Aboriginal work-force is being "proletarianized", or called on to fill the low-status, temporary and marginal positions in the industrial economy.

Many Aboriginal communities have experienced a political resurgence after years of political impotence. The role of resource projects in this process has been mixed. In some cases, projects have acted as the issue around which communities have mobilized in order to discuss,

define, and defend their interests. Some resource projects, however, may induce an out-migration and a consequent loss of human capital in communities.

Projects have affected the health of Aboriginal people by inducing dietary change, emitting pollutants, and influencing conditions which foster social pathologies. When the land-based economy of a community is damaged, local country foods are replaced with nutritionally inferior substitutes. Although the etiology of nutrition related illness is hard to establish, increases in various medical conditions in Aboriginal communities have been linked with dietary change. Causal links between pollution and illness are also hard to establish with certainty. In some cases, however, the link between projects, pollutants, and health problems has been reasonably clear.

There is concern that resource projects promote social pathologies in communities. Some, however, believe that unemployment and welfare are at the root of pathologies and regard resource projects as a partial solution to the problem. Evidence from case studies do not unequivocally support either side of the debate.

The theoretical literature reviewed suggests that social pathologies in Aboriginal communities are more likely to occur when they undergo change which: is rapid; affects the social order of communities; disrupts and increases stress to individuals and families; results in, or occurs in, less integrated communities without a strong collective set of values; and induces role loss in individuals. Accordingly, most projects which are believed to have provoked serious, long-term, social pathologies in communities have also inflicted considerable damage to the land-based economy. On the other hand, projects which help to alleviate some of these conditions through the provision of employment and business opportunities may help to reduce the incidence of pathologies.

The Mackenzie Valley Pipeline Inquiry, like World War II before it, ushered in a period in which the relationship between resource projects and communities underwent significant change. Before the Inquiry, social impacts of projects were often severe, and economic benefits usually slight. Since the Inquiry, the potential for Aboriginal communities to realize significant economic benefits from resource development projects has increased, and the likelihood that a community will experience significant, adverse, social impacts has decreased.

The most fundamental change in the relationship is that Aboriginal communities have gained more control. They are increasingly able to negotiate the parameters of the relationship, which were previously determined by the resource developers and government. As such, these

communities can choose to what extent they wish to participate in a project, and can try to tailor their involvement to suit their development goals.

Deciding to use resource projects as part of a development strategy involves both opportunities and risks. Informed decisions can only be made at the community level after weighing the various options. Whether or not the impacts of resource projects will help Aboriginal communities realize their goals in future will in large part be determined by the extent to which the process of increasing Aboriginal control over the relationship with projects continues and is extended to all Aboriginal communities affected by resource projects.

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INTRODUCTION

The relationship between major resource development projects and Aboriginal communities has been a long and stormy one. It appears to be a relationship that is full of contradictions. Among academics, resource projects have been viewed as both an integral part of the "development" and the "underdevelopment" of Aboriginal communities. Aboriginal people have, in some cases, vociferously protested the presence of these projects, and in other cases, welcomed them and sought to participate in their development. The general public has heard that the impacts of oil activity in Alberta could have "genocidal consequences" on Aboriginal people (Gorrie 1992:86), but also has read that Aboriginal people paid a high social price for the *decrease* in oil activity in the North in the early 1980s (Holman 1992).

This paper will review the literature concerning the impacts of major resource development projects on Aboriginal communities. Although the paper will discuss some of the limitations to the literature, its intention is not to provide a critical review, or to identify a direction for future research in impact assessment. Rather, the paper will explore the apparent contradictions in the relationship between resource projects and Aboriginal communities. The review will make generalizations about the relationship where possible, but will also show that the relationship is a diverse and evolving one.

The first sections of the paper provide an extensive lead-up and background to the literature addressing impacts. The history of resource development projects in Canada is presented in the context of their changing relationship with Aboriginal people. The different theoretical perspectives on the role of resource projects in the development of Aboriginal communities are outlined and the limitations to the literature are discussed. These sections provide a foundation for the review of recorded impacts which follows. Employment and economic impacts are considered first. The focus is not only on what the impacts have been, but also on why they have varied in different cases. The paper then addresses the impact of projects on the Aboriginal land-based economy. The effect of environmental damage and the availability of alternative wage-earning employment are both considered. Finally, the paper considers the social

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impacts of projects - that is, the effects on social, cultural, political, psychological and physical well-being.

The literature reviewed draws mostly from books and published articles in scholarly journals, but also considers various consultants' reports, government documents, student theses, and press articles and clippings. The review includes reference to a limited number of post-impact studies but does not consider pre-impact statements with the exception of a notable few such as the report of the Mackenzie Valley Pipeline Inquiry. The review is not exhaustive; in fact, it represents only a small fraction of the relevant literature, which is vast. The secondary literature has been reasonably well canvassed, but the less accessible "grey literature" -- reports commissioned by various project proponents, government agencies, or Aboriginal governments -- is not well represented. Consideration of the latter is limited to those readily available in Ottawa-based libraries -- the National library of Canada, the Departmental Library of Indian and Northern Affairs Canada, and the libraries of Carleton University and the University of Ottawa.

To date, there are few sources which address the impact of resource development projects on Aboriginal communities in a comprehensive way. This is not surprising considering the multi-dimensional nature of the task. The task is not to examine a single relationship, the impact of one thing on another; rather, it is to make generalizations about numerous relationships. Furthermore, generalizations must reflect the tremendous diversity that characterizes these relationships and the way they are interpreted.

There is diversity at the project level. Major resource development projects, for the purposes of this review, include any large-scale industrial operation involved in the exploitation of mineral, water, forest or fuel resources. This includes mineral, and oil and gas exploration and development; hydro-electric mega-projects; large forestry and pulp and paper operations; and road, rail or pipeline corridors which were integral parts of the projects. The industries, and projects within industries, differ in a number of ways that affect their impact on Aboriginal people. Some of the more salient differences are the size of the projects, their needs for labour, the nature of the activity and the extent to which it alters or damages the landscape and ecology of the region.

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There is also diversity at the community level. Some relevant differences include the location and size of the community, the characteristics and health of its economy, the social cohesion of its residents, the capacities of its institutions and leadership, and its previous experience with resource development projects. Cassidy and Dale note that native communities and governments "not only...differ in their attitudes towards mineral development, but they also vary in the likelihood that significant discoveries will be made on their lands" (1988:158). Hansen reminds us that differences in attitude occur not only among communities, but also within them: some residents are more industrially oriented, and others more subsistence oriented (cited in Elias 1991:29).

There is diversity in the legal, regulatory and political contexts in which projects and communities interact. These contexts play a significant role in determining the extent to which a project is required to maximize potential benefits to an Aboriginal community and to mitigate potential damage.

There is diversity in the kinds of impacts a resource development project has; it can influence any or all of the economic, social, cultural, spiritual, or physical health of a community. The term "impact", however, implies that communities are simply "acted on" by an outside force; in fact, the impact of a project is very much affected by the response of the community. Furthermore, the identification of impact is contingent on being able to associate change with a given cause, in this case a resource project. This is often difficult when there are many factors promoting change within communities.

Finally there is diversity in the way impacts are measured and the kinds of impacts observed, and there are differences in the particular perspectives and biases of those involved in the process.

In light of this diversity, the task of making generalizations becomes difficult. The task requires a review and analysis of many richly detailed post-project case studies - something which the literature does not provide. As such, this review concentrates on identifying, not resolving, the

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relevant issues.

A HISTORY OF RESOURCE DEVELOPMENT PROJECTS AND ABORIGINAL COMMUNITIES

The relationship between Aboriginal communities and resource development prior to the Second World War is not well documented in the literature. Various accounts of Canadian economic history make occasional reference to Aboriginal people in the context of the expanding resource frontier, but few have examined the impacts on Aboriginal people in any detail. This account of the earlier history of impacts draws on a variety of sources, but relies in particular on Coates and Morrison's (1992) history of the northern provinces. The section will provide an overview of the changes in the nature, size and scope of resource developments in Canada from first contact through to the post World War II era, and will outline some of the changes in Aboriginal societies which affected their relationship with the resource developments.

The early history of non-Aboriginal resource exploitation in present-day Canada involved the harvesting of fish, fur bearers, marine mammals and timber for European markets. Following in the wake of John Cabot's voyage to Newfoundland in 1497, European fishing fleets appeared off the coast of Newfoundland, Labrador, the Gaspé and Cape Breton. The fur trade became firmly established in the second half of the century.

The trade in squared timber, precipitated by the demand for pine masts for the British naval fleet, originated in Nova Scotia (which included present day New Brunswick) in the early 18th century, expanded westward into Quebec in the early 1800s, to Lake Ontario and its river systems of the lake by the 1820s, and westward to Lake Erie and Huron in the 1830s and 1840s. By this time, sawn timber had become an important export. During the 1840s and 1850s the trade increased to service the demand for lumber from the growing cities of the United States.

Although the logging operations encroached on Aboriginal lands, their impact was secondary to that of settlement, especially during the "settler juggernaut" that followed the war of 1812-14 in

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Upper and Lower Canada. The population of the area rose from approximately 750,000 in 1821 to 2.3 million by 1851 (Dickason 1992:224).

For the First Nations of British Columbia, however, resource exploitation was having a dominant effect by mid-century. The discovery of gold on the west coast set off massive in-migrations of gold-seekers from the coastal United States. The subsequent push inland and northward would not only infringe on Amerindian lands and trading routes, but also on their security, their traditional resource-base, and their hegemony over the region.

A discovery on the Queen Charlotte Islands in 1850 brought a short-lived flood of men onto lands occupied by the Haida. Eight years later, the Salish would face an invasion of 10,000 into their territory to pan for placer gold in the lower Fraser River. In 1862, a strike of hard-rock gold inland set off the Cariboo rush and led to the building of the Cariboo road which penetrated deep into the interior and into the traditional lands of the Chilcotins, a branch of the Salish. Further north, the mining frontier developed slowly in the Yukon. The most famous strike, on Bonanza Creek in 1896, led to the famous Klondike rush.

Throughout the northward march, the miners, who were essentially guests on aboriginally occupied and controlled lands, displayed behaviours that were akin to those of a marauding force. According to Dickason, the gold-seekers of the 1860s "interfered with Native salmon weirs, raided villages, and even looted graves" (Dickason 1992:260). The latter provoked an ordinance in 1865 forbidding such indignities. The behaviour of the miners, however, did not improve during the Klondike rush at the end of the century:

Far from exhibiting any concern about Amerindian rights, they were contemptuous of them and openly shot the Natives' horses and dogs, interfered with traplines, and exploited fish and game resources at will; the police were too few and the area too large for them to cope adequately with the situation (Dickason 1992:372).

It is not surprising, therefore, that in the absence of any policing force, the gold rushes led to conflict between the Amerindians and whites. Minor clashes on the Queen Charlotte Islands were the forerunners of more serious hostilities in the Lower Fraser and Cariboo regions. Both

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the Salish and the Chilcotins were naturally resentful of the uncontrolled invasion of their lands and moved to defend them. The resulting skirmishes were labelled the "Fraser River War" and the "Chilcotin War" in the Victoria newspapers. Perhaps the most ardent defenders of their territory were the Tlinglit who stood to lose control of the main passes between the coast and the interior; namely, the Chilkoot, Chilkat, and Taku passes (Dickason 1992:371). The Chilkoot pass was opened only after prospectors commandeered the help of a U.S. gunboat and some blank rounds were fired from a machine-gun (Crowe 1974, cited in Bone 1992:58). In June of 1898, 500 Aboriginal people at Fort St. John would not let the miners pass until a treaty was signed.

With the route to the Yukon cleared, miners came in droves. The disruptions to Aboriginal groups of the area were profound:

the coming of so many white men shattered the world of the Tagish, Tutchone, and other Indian tribes in Yukon. These Indians lost control of their traditionally occupied lands and became involved in the gold economy. Their participation varied from prospecting to packing supplies from the coast over the Chilkoot Pass. Some found a place as wage-earners and deckhands on the river boats, or even as carpenters in Dawson. Hunters sold game to the miners. The dark side of the gold rush saw the outsiders occupying Indian lands, killing wildlife for food, and exposing local people to 'new' diseases. Perhaps even more significant to the Indians was the sudden imposition of another economic lifestyle, forcing major adjustments in their way of life (Crowe 1974, cited in Bone 1992:57).

Resource exploitation during these early years was characterized by labour intensive means of extraction or harvesting, small-scale and often short-lived physical structures, and relatively small requirements for capital investment. In the years after Confederation, there emerged more of the type of "resource development projects" which are the focus of this study. These ventures were of greater size and technical intricacy, required greater capital investment and involved larger and longer-term infrastructures.

The small-scale placer mining which characterized the first years of the Klondike boom were replaced in the early 1900s by more capital intensive hydraulic and dredging methods. The

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industrial scale placer mining continued to dominate Yukon mining until silver-lead deposits were discovered in the Mayo district of Yukon in 1919. The western search for gold also led to discoveries and development of silver, lead and zinc deposits at Ainsworth, Slocan, and Kimberly B.C. toward the end of the 1800s.

Further to the East, the building of the railroads after Confederation resulted in a number of mineral discoveries, and the development of mines. In 1883, copper and nickel were discovered at Sudbury during the construction of the Canadian Pacific Railway, and commercial mining began by the early 1900s. The Northern Ontario Railway stimulated exploration along its route and led to an important find of silver at Cobalt near lake Temiskaming in 1903. As the railway pushed north toward James Bay, gold was discovered at Timmins in 1909 and Kirkland Lake in 1912, and extensions of the rail lines were built to these locations (Coates and Morrison 1992: 48,49). By the late 1930s, there were nearly 40 mines in the area (Rea 1976:48).

The finds of gold extended in a eastward belt into Quebec, leading to the development of the gold, copper and silver bearing ores of the Rouyn mining district. The mines at Noranda produced copper primarily, but focused on gold and silver when copper prices dropped in the 1930s. These finds stimulated further prospecting throughout northwestern Quebec and the development of a number of producing gold mines, including the large Kerr-Addison mine at Larder Lake.

Mining activity was slow in northwestern Ontario until the mid-1930s, when four new mines began production in the Red Lake area, northwest of Lake Superior (Rea 1976:51).

Large mineral deposits discovered in 1914-15 on the Manitoba-Saskatchewan border north of the Pas led to the development of the mines at Flin-Flon and the surrounding area. The drop in base metal prices during the depression years slowed mining activity on the Prairies; precious metal mines such as that at Goldfields, Saskatchewan, experienced few problems, but other mines were not as fortunate. The copper/zinc mines at Flin Flon were able to survive only by extracting meagre traces of gold from the ore, and the Sherritt-Gordon mines a little to the north,

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without any gold in the ore, were forced to close between 1932 and 1937. Lead and zinc mining at Kimberly, and coal mines in the Fernie district of B.C. also declined, but quickly recovered.

Coal dominated Alberta's primary resource production until the discovery of oil in the Turner Valley in southern Alberta and the establishment of Western Canada's first refinery in Calgary in 1921. The province, however, was to remain a relatively small producer of primary resources until the second half of the century (Barr and Lehr 1981:273).

In the Northwest Territories, the discovery of oil at Norman Wells in 1921 prompted a rush of 300 to 500 prospectors from Edmonton to stake claims in the area (Finnie 1948:119). Without a transportation corridor to southern markets, however, there was no use for the oil. The well was capped in 1925 and remained out of production until 1932 when the Eldorado radium mine on Great Bear Lake provided a new market. A few years later, the attention moved further south to Great Slave Lake, where four thousand claims had been staked, and three mines - the Giant, Con and Negus - were in production around Yellowknife Bay by 1938. The new mines, as well as the increased settlement and transportation activity in the area, provided a growing market for Norman Wells oil.

Northern Ontario and Quebec saw most of the post-confederation activity in the forest industry. The northern forests kindled the early economic activity and growth of towns such as Fort Arthur (Dryden), Fort William (Thunder Bay), Sturgeon Falls, Kenora and Kapuskasing in Ontario, and Chicoutimi, Trois Rivieres, and Shawinigan Falls in Quebec. The number, size and technical intricacy of pulp and paper mills grew steadily, especially in Quebec: there were 25 pulp and 20 paper mills operating in the province by 1911 (Coates and Morrison 1992:58). Following the First World War, the industry expanded rapidly as Canadian newsprint manufacturing capacity more than doubled during the 1920s (Read 1976:41). These mills established enduring industrial projects in the forest industry and enormously extended the area of exploitation (Lower 1936:115).

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In the prairie provinces, although there was less activity than further east, logging along the southern edge of the boreal forest had become a key primary activity by the turn of the century, and led to growth of towns such as Prince Albert, Saskatchewan. The completion of the Canadian Pacific Railway in 1886 provided coastal B.C. with access to the lumber market created by the settlement of the Western interior, and the coastal forest industry grew accordingly. While Vancouver remained the sawmilling centre of the region, small mills cropped up in the interior along the rail line. After World War I, pulp and paper mills were built along the coast (Bradbury 1981: 343).

Both the mining and the forest industries required a cheap source of power, and so hydroelectric dams and generating stations were built nearby. The extent of activity was considerable, so that "by 1900 it seemed as though a new dam was being built every year somewhere in northern Quebec and Ontario to supply the industries and the communities which surrounded them with power" (Coates and Morrison 1992:59). Activity, however, was not limited to Ontario and Quebec. In Saskatchewan, for instance, the Island Falls Dam on the Churchill River and the Whitesand Dam on the Reindeer River both produced and regulated power for the mines at Flin Flon (see Waldram 1988a:12).

There can be no doubt that resource projects affected the lives of Aboriginal people before World War II. Land previously used by Aboriginal people was destroyed, flooded or occupied by mines, logging and forestry operations, dams and transportation corridors. Often, the usurped lands were of special spiritual significance to Aboriginal populations (see Royal Commission on the Northern Environment 1985:136). Mining activity often brought floods of prospectors and claims-stakers, who had little respect for Aboriginal land-rights, and who brought 'new' forms of illness into the interior. Where resource towns sprung-up, they introduced a way-of-life profoundly different from the Aboriginal one. As Richard Finnie observed at the time of Yellowknife's early growth:

Yellowknife has brought to them a display of civilization as no trading post has done before, and they have been profoundly affected. They are learning from it the use of coins, they are acquiring from it new and expensive tastes that they can ill afford; and they are going back to their

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encampments bewildered and lacking in self-confidence (Finnie 1948:141).

Yet, while social and environmental damage was often serious, projects were not numerous enough for the impact to be widespread. . They tended to develop along or close to railways and in relatively disparate pockets of activity. Aboriginal people participated in a variety of capacities in the resource industries and, in some cases, their involvement was substantial (see, for example, Knight 1978) but more often than not, Aboriginal people tended to stay on the peripheries of the growing mining, forest, and hydroelectric industries.

The reasons for this are twofold. First, unlike the fur trade, there was little need for Aboriginal people's participation. Racism was a formidable barrier to Aboriginal participation, as the industries in general, and the workers in construction, mining and lumber camps tended to regard the Amerindians as economically backward and racially inferior (Coates and Morrison 1992:77). Aboriginal employees, therefore, were not sought. The more significant factor, however, was that Amerindians had little interest in this kind of work. The few who found work in the camps generally found the atmosphere uncongenial. The fur trade still dominated the Aboriginal economy in the sub-Arctic and the life afforded by it was preferable to the wage-earning alternative. The fur-trade provided more security and an activity that was "more culturally, socially, and spiritually appropriate" (1992:76). Aboriginal people, therefore, stayed on the periphery of the growing mining, forest and hydro-electric industries. Impacts were mitigated because, for the most-part, the projects were avoidable (1992:78).

The Second World War stimulated wartime defence projects that would have a profound effect on the course of northern development. The Alaska Highway, built in 1942-43 to give Washington a transportation and communications link with Alaska that would not be vulnerable to Japanese submarine attack, provided the first road access to the lands and resources north of the 60th parallel. The Northwest Staging Route, a string of airfields from Edmonton, Alberta to Fairbanks, Alaska added to the activity of the area. All the military activity required a source of fuel, and as tankers were in short supply and vulnerable to attack, the U.S. turned to the inland oil field at Norman Wells. The CANOL pipeline was built from Norman Wells to Whitehorse

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between 1942 and 1944. To enable construction, a number of airfields and access roads were built to construct and service the pipeline and to create an access to sources of supply in Northern Alberta. For this, a road was built from the railhead at Peace River, Alberta, to Great Slave Lake. This section was later upgraded as the Mackenzie Highway. A winter trail connected Great Slave Lake with Norman Wells. Many of the wartime developments, including the pipeline and its access road to Whitehorse, were eventually closed or dismantled, but a legacy of many roads, airfields, communication lines, and improved local facilities remained.

The Second World War and the wartime projects were a watershed in the history of resource development projects. Before the war, the northern regions of the country received little public attention. The Klondike gold-rush, the Alberta tar sands, and the Norman Wells discovery had alerted Canadians to the resource wealth in the North; but limited access, the preoccupation with settlement, and the expansion of the western frontier kept the area as a land of the future.

This attitude changed abruptly following the war. Two factors contributed to this. The first was that the friendly occupation of northern territory by Americans during the war had aroused fears among Canadians of potential threats to their sovereignty over the lands. There was, therefore, a desire to consolidate their position in the Arctic and sub-Arctic (Finnie 1948:224). The second factor was that the wartime projects had not only increased Canadians' awareness of the northern resource wealth, but they also made harnessing them a more realistic proposition.

Encouraged by the increased political attention to frontier regions, rising prices for base metals, a high demand for raw materials from U.S. industry, the renewed availability of skilled labour, and improved techniques for geophysical surveying, the mining industry launched "one of the most remarkable spurts of expansion in Canada's history" (Easterbrook and Aitken 1956:535). The era of the "megaproject" in Canada began (Bone 1992:138). One of the largest projects involved exploiting the huge iron-ore deposits in central Labrador. When mining started in 1953, a hydro plant near the site had been constructed to supply power, a 600 kilometre railway built to link the project to Sept-Isles and the St. Lawrence River, and a new town site established at Schefferville. Other sizeable integrated projects were subsequently developed in the Carol

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Lake and Mount Reed areas south of Schefferville.

In Manitoba, new mines were developed at Lynn Lake and adjacent areas in the early 1950s, but the most significant development, initiated in 1956 by INCO, involved a massive underground nickel mine and fully integrated processing plant. By 1961 the plant was operational, and within a decade, the new town of Thompson had reached a population of 25,000. Uranium mining in northern Saskatchewan and northwestern Ontario flourished in the post War years, leading to the new towns of Uranium City and Elliot Lake (Rea 1991:210).

In Western Canada, Imperial Oil's Leduc #1 oil well, drilled in 1947, ushered in the post War oil boom. Within a few years, thousands of wells were drilled in Alberta and Saskatchewan (1991:210), and in northeastern British Columbia, 68 oil wells and 200 gas wells were in production by 1960 (Brody 1981:130), and by 1965 530 gas wells were capable of production (Rea 1976:66). By 1967, the first synthetic crude was being produced from the Athabasca tar sands at Fort McMurray in northeastern Alberta, an undertaking considered to have been the largest industrial project in the province's history (Rea 1976:64). In British Columbia, Alcan built a huge aluminum smelter and hydroelectric complex at Kitimat.

The pulp-and-paper industry, whose growth had slowed during the depression, also grew considerably following the war. By 1954, there were 130 pulp-and-paper mills in Canada -- 56 in Quebec, 45 in Ontario, 12 in British Columbia, 14 in the Atlantic provinces, and a handful in the northern prairie provinces (Easterbrooke and Aitken 1956:539).

While the nature of resource development projects changed after the war, so too did the relationship between these projects and Aboriginal people. The changed relationship was based not only on the increasing number and size of resource projects, but also on fundamental changes occurring in Aboriginal society after the war.

Throughout the 20th century, the fur trade was characterized by boom and bust cycles, but the general trend was one of decline in large part because of increasing pressure on the supply of

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fur-bearing animals (Coates and Morrison 1992:71-72). In the late 1940s, a sharp drop in prices for pelts precipitated a significant downturn in the trade. Although the fur trade continued to be an important element of the northern Aboriginal economy after the war, and there were periods where fur returned as an important economic resource, the trade could no longer anchor the Aboriginal economy in the same way as it had before the war.

In addition, during the 1950s many Aboriginal people abandoned a semi-nomadic existence and moved into settlements. This was a response to poor economic conditions of the land-based economy and government incentives in the form of social assistance, health services, housing and federal employment programs. In order to encourage the schooling of children, attendance became a requirement for the receipt of Family Allowance payments. As children and their mothers tended to remain in the settlement throughout the winter, the extended family hunting and trapping unit lost its place as the principal social and economic grouping (Bone 1992:67).

Unlike the situation before the war, where the fur trade and subsistence foraging provided a viable economic system and an alternative to involvement in the resource economy, the decline implied that there had to be a greater dependence on government welfare and wage employment. Aboriginal people became more likely to seek employment opportunities with resource projects. In addition, the move to communities and the associated provision of housing, local infrastructure, government services, and welfare made it harder to avoid new and nearby resource developments. A more nomadic lifestyle was better suited to moving to where opportunities for hunting, fishing or trapping were not adversely affected by resource activity. Sedenterization created dependencies which made moving away from areas of environmental damage impractical.

These changes in Aboriginal society, combined with the changes in the size and scope of resource projects, intensified the relationship between the projects and Aboriginal communities. The post-war period of increasing social and economic impacts of projects led to a heightened interest in the recording and assessment of impacts.

**THE ROLE OF RESOURCE PROJECTS IN THE DEVELOPMENT OF
ABORIGINAL COMMUNITIES - DIFFERENT PERSPECTIVES**

This paper takes the position that the assessment of impacts has been and is influenced by the values, assumptions, and perspectives of the assessors. Clearly, there are different perspectives on the impacts that major resource development projects have had on Aboriginal communities. Likewise, there are different perspectives on the role that projects should play in the development of Aboriginal communities. It is beyond the scope of this paper to articulate fully the different theoretical perspectives which inform the literature, and the values and assumptions inherent within them.¹ It is important, however, to highlight and describe the two perspectives which seem to predominate.

Differences in perspectives are rooted in part on assumptions about the way societies change. Evolutionary theories of social and economic change assume that societies evolve from "primitive" or "traditional" societies to "modern" ones; hunting and gathering is replaced with agricultural and industrial production. This process is regarded as the natural and inevitable path of "development". Western societies have reached the end of the path; all others are at varying stages along the way.

Evolutionary theories of change provide the foundation for what is described as the "modernization" paradigm of development. Usher (1993, 1982) provides the most complete explanation of this paradigm as it applies to major resource development projects and social impact assessment in the Canadian North. He explains that this paradigm assumes that the key to the transition from "traditional" to "modern" is industrialization. This will lead to economic growth, the benefits of which should "trickle down" to all citizens in the form of a higher standard of living, and greater personal choice. For industrialization to occur, however, there must be a breakdown and replacement of the traditional social order - "a profound ideological and institutional change and a radical reordering of both the social organization of work and the prevailing conceptions of property and mutual obligations among people" (Usher 1993:104; see

¹ For a summary overview of some of these perspectives, see Wien (1986:56-82).

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also Usher 1982:89). Elias (1991:10) is blunt in his interpretation of the modernist agenda: "the modernization paradigm essentially advocates the destruction of traditional culture by the culture of modernism." From this perspective, major resource development projects will have a positive impact on the development of traditional societies, because they will accelerate the transition necessary for these people to become full and equal participants in modern society.

The assumptions of this paradigm have shaped the Federal Government's international, regional, and northern development strategies since the Second World War (Usher 1993:105; Bowles 1981:69-70), and have continued to influence the practice of impact assessment (Usher and Weinstein 1991:8).

The principal theoretical challenge comes from "dependency theory". This theory explicitly rejects the modernists' evolutionary interpretation of development. Dependency theorists interpret the "underdevelopment" of some economies as a direct result of the development of others. The economic relations between developed and underdeveloped economies are such that capital is controlled in the "core", or developed areas, and is used to exploit the resources of the "periphery". In Canada, the relationship is often expressed as one between the industrial "heartland", the large metropolitan centres, and the resource "hinterlands". The exploitation occurs as surpluses are drained from the hinterland and used to fuel further growth and accumulation in the developed centres (McArthur 1989:40-41). From this perspective, major resource development projects are a principle means by which the metropolis exploits the hinterland, and so, as long as economic relations remain as they are, the projects will have a negative impact on the development of these areas and the people who occupy them.

The differing perspectives on the nature of development and underdevelopment were most clearly evidenced at the Mackenzie Valley Pipeline Inquiry. The paradigm of modernization was invoked to back-up the case that the pipeline would benefit northern Native people. Dr. Charles Hobart argued that profound changes to the social order had already taken place in the North. The cumulative impact of the missions, the collapse of the fur market, the move to settlements, government administration, education with modern-based curriculums, television,

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etc. had "irreversibly changed the social structure, ideology, economic orientation and aspirations of the people" (cited in Usher 1982:89). Aboriginal people in the North, especially the youth, had been socialized for a life in the modern consumer society, and now expected to be able to take their place in it. Without the significant economic growth in the North that the pipeline project would create, their hopes would not be realized, and this would lead to frustration. According to Hobart, the root of social problems in the North was unemployment and poverty - manifestations of a process not yet complete.²

At the Inquiry, Mel Watkins provided the principal economic critique of the assumptions of the modernist perspective. His argument centred around a theory of Canadian economic expansion known as the "staple theory" - a distinctly Canadian variant of dependency theory (Elias 1991:21). As Berger explains in his report, this perspective makes clear who the beneficiaries of frontier development are:

Much of Canada's history is related to the export of staples from successive geographic frontiers to serve the needs of advanced industrial centres. The great Canadian export commodities have been fish, fur, lumber, wheat, pulp and paper, minerals, and oil and gas. All of these staple industries have been created to serve the needs of the metropolis - once France, then Britain, and now the great industrial centres of Canada and the United States (Berger 1977:117).

Watkins refuted the assertion that northern Aboriginal people would stand to gain economically from the project. Consistent with dependency theory, he argued that economic rents or surpluses - the revenue earned beyond what is needed to cover the costs of production and an adequate return on investment - would be drained from the region (Watkins 1977:89; see also Jellis 1977). Moreover, the project would create little economic activity beyond the primary sector because, in the North, the linkages between this and other sectors of the economy were so poorly developed. What the Northerners would be left with was the return on their labour, and this, especially for Aboriginal people, would be negligible (Watkins 1977; see also Page 1986:226).

² Summaries of the socio-economic argument advanced by the pipeline proponents can be

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Berger's interpretation of the pipeline's impact on northern Aboriginal people clearly reflects Watkins' arguments (see Berger 1977:116-119). His acceptance of the evidence of Watkins and others that the pipeline would create few permanent jobs for Aboriginal people (1977:135) was a blow to the case of the pipeline proponents.

The challenges to the assumptions of modernization, however, came from sources other than academics. Berger based his report on the testimony of almost 1,000 northerners given at public hearings in every settlement of the Western Arctic and Mackenzie Valley. Berger emphasized that what he heard from the people did not substantiate Hobart's contention that Aboriginal values and aspirations were now oriented toward the modern consumer society. Berger stressed that

There have been great changes in the life of the native people, particularly in the last 20 years, but they have tried to hold fast to the values that lie at the core of their cultures (Berger 1977:99).

Contrary to what the modernists might say, this is not because Aboriginal people have yet to understand what is best for them; but rather it is because the customs and values of the traditional system are essential to Aboriginal people's sense of identity and well-being.

From the critique of modernist assumptions first presented at the Berger Inquiry, an alternative paradigm of social change emerged in the literature. Compared with the modernization model, it is less well defined, and "there is not yet consensus about its categories and terminology" (Usher 1993:113). When the paradigm is given a label, which is seldom the case, it has been referred to as the "subsistence/adaptation" model (Usher and Weinstein 1991). The paradigm has two core elements. First, it rejects the modernist assumption that Aboriginal culture is in a process of being replaced by that of the modern consumer society; rather, it supports the view advanced by Berger that Aboriginal people "are now trying to adapt to the modern world in ways that will not destroy their culture and that will not lead only to their assimilation into white society" (1977:110). Second, the paradigm rejects the modernist assumption of a traditional

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economy being replaced by a modern industrial one; rather it advances a view of a dynamic subsistence-based economic and social system that has adapted to and incorporated modern influences.

This view points to an alternative conception of development. The path of development should not be geared toward replacing the "traditional" with the "modern". Development should allow Aboriginal people to adapt to change in a way that reflects Aboriginal values. Furthermore, it should be built on the foundation of a strong land-based economy to which these values are inherently tied.

The competing paradigms and their associated assumptions about social change in the north have profoundly affected the assessment of the impacts of resource projects on Aboriginal people. In general, the assumptions of the modernization paradigm have been most influential in guiding impact assessment in Aboriginal communities. In the following section, we examine how this and other factors have combined to create significant limitations to our understanding of impacts.

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On Aboriginal Communities: A Review of the Literature.**

LIMITATIONS TO THE LITERATURE ON SOCIO-ECONOMIC IMPACTS

Our understanding of the impacts of resource projects on Aboriginal communities is constrained by a number of factors. To begin with, there has been relatively little attention paid to the recording of socio-economic impacts of projects. Although the number of pre-impact assessments where the impacts of a project are *predicted* is vast, there are far fewer cases where these have been followed by post-impact studies where actual impacts are observed and recorded (Bowles 1981:84; Usher 1993:118).

Furthermore, for many years, socio-economic impacts on Aboriginal communities were not considered in the design, implementation or evaluation of resource projects. Justus and Simonetta (1982) note that

in the assessment of socio-economic and community impacts of industrial projects on or near Indian reserve lands, it is often assumed that the regional economic and participation benefits of such projects accrue more or less "automatically" and far outweigh any localized social, cultural, political or economic burdens and costs (Justus and Simonetta 1982:238).

Indeed, government and industry's homage to the creed of modernization after World War II acted as blinders which kept their focus fixed on a path connecting industrial development to the greater social and economic well-being of aboriginal people. The negative socio-economic impacts of development projects were either ignored completely or treated as bumps along the path - unfortunate, but only temporary disruptions (Usher 1993, 1982).

The optimism of the modernization paradigm therefore created a bias toward focusing on positive impacts. This tendency has been reinforced by the fact that many of the socio-economic studies of projects are conducted by the project proponents, who have a vested interest in downplaying negative impacts. The IGWG investigation of aboriginal participation in mining noted that the majority of the projects they reviewed had conducted socio-economic impact studies of the area to be affected by their operations, and that most of the impacts identified in these reports were positive in nature (IGWG 1991:107).

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Where impacts were predicted, or recorded, they were usually limited to conventional economic indicators such as per capita income, employment, taxation levels, cost-of-living, job training and investment in infrastructure (Weaver and Cunningham 1984:3; Usher and Weinstein 1991:6). The lack of attention to impacts other than economic ones is reflected in the literature; Hobart, for instance, notes that

despite the high visibility of megaprojects..., and the fact that virtually all are located in northern areas where Native people predominate, ...there appear to be no published studies of the effects of these development projects on the health of affected Native people (Hobart 1984c:264).

Blishen et al. point out that it was not realized until the late 1960s that these economic indicators were not reliable measures of social change (1979:13). The range of the indicators considered was subsequently expanded to include various social indicators such as demographic characteristics, education levels and drop-out rates, health statistics, availability of public services, housing conditions and occupancy rates, family stability, criminal convictions, and alcohol consumption rates (Weaver and Cunningham 1984:5; Usher 1993:101). There remained an assumption, however, that change was taking place within modern structures, and that the impact of northern development could be assessed by recording modifications and growth within that system.

In developing the inventories of socio-economic indicators, there was a reliance on quantifiable or statistical measures and a scepticism of qualitative ones. The impact on the family, for instance, might be assessed solely by the incidence of matrimonial breakup and child respiratory illnesses (the latter as an indicator of child neglect). As Elias notes, the paradigm of modernization promotes "a rational quest for knowledge of causes and effects, [and] the use of scientific knowledge rather than traditional thought" (1991:10). This has promoted a positivist or technical approach to SIA where information and linkages unsupported by "hard data" and unvalidated by science have been considered suspect (Berger 1977:143; Lang and Armour 1980:113-115; Shapcott 1989; Usher 1993:102).

Shapcott argues that the technical approach to SIA has "dismally failed" to integrate the different

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values, culture and spirituality of Aboriginal people. In Aboriginal communities, the social system is inherently tied to the economic system and both, in turn, are rooted in the land and its resources. Elias explains that

to aboriginal people, all parts of culture form an integrated, indivisible whole, and any part of the whole may transmit change in the social and natural environment throughout the system (1991:224) .

In light of this, it is not surprising that a number of contributors to the literature have noted that the cause and effect relationships that conventional SIA seeks to identify are difficult to establish with any certainty (Mann 1975; Owen 1976; Deines et al. 1979; Brody 1981; Weaver and Cunningham 1984). The more thorough reports of social change in Aboriginal communities (see Shkilnyk 1985; Brody 1975, 1981; Waldram 1980, 1983) identify many inter-related and mutually reinforcing change-agents; cause and effect relationships are not linear, but exist within a complex web of factors.

The difficulties in establishing direct cause and effect relationships can be illustrated by considering substance abuse in a community. Some studies have documented a link between resource projects and increased alcohol consumption/abuse in affected Aboriginal communities. The cause and effect relationship, however, is complicated by a number of possible intervening variables. Some have postulated that the changes may be related to increases in disposable income brought on by the community's participation in the project. Others may point to an increased availability of alcohol in the community - perhaps due to a new road associated with the project. Still others have treated increased alcohol abuse as a response to stress caused by other social and economic impacts of a project. In all cases, it is considered as an 'effect' or an impact of the development. Alcohol abuse, however, can also be a cause of change. It has been linked in the literature to the abuse of women, children and elders, child neglect, crime, community violence, vandalism, accidents, loss of self-esteem, cultural decay, ill-health, fetal alcohol syndrome, suicide, etc.. One can understand, therefore, how one 'effect' of a resource project can clearly cause reverberations throughout the socio-economic system.

Moreover, defining and predicting cause and effect relationships is further hampered because the response to a given project-related impact can vary significantly. The biases of the modernist

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perspective has caused researchers to ignore the adaptive capacities of a community (Bowles 1981:69). The community is seen as passive objects of the socio-economic and historical forces of change, "helpless victims who have neither the wit nor the freedom to influence events" (Brody 1981:247). It has been pointed out, however, that communities differ in their capacity to cope with change (Armour et. al 1993:1). The capacity of a community to buffer the impact and adapt successfully to the changed circumstances depends on its social, economic and political capacities and circumstances (Blishen, et al. 1979; Bowles 1981; Weaver and Cunningham 1984). Although the Aboriginal subsistence economy and culture has shown itself to be remarkably flexible and resilient in the face of significant external pressures, sometimes these pressures have been too great for the community to cope:

Northern development initiatives all too often represent not a shift in circumstances at the established social and/or economic margin, but rather a hammer-like blow on the whole community that far exceeds the adaptive tolerance limits of the original population (Blishen et al. 1979:2).

Defining the links between projects and their social impacts is made even more difficult when the impacts of more encompassing forces of change are considered. Aboriginal communities are by no means static; they have undergone enormous changes since major resource development projects first appeared on the scene. These changes have often produced social conditions similar to those that have been ascribed to the impact of a project. It is often difficult, therefore, to disentangle the influence of a project from that of other change agents. In fact, many of the arguments that resource development projects have negative socio-cultural impacts are based not on the effects of the projects *per se*, but on their association with a modern industrial system, complete with all its ideological and institutional concomitants, that is perceived as a very powerful and disruptive intruding force. Usher and Weinstein argue that the use of a control group or community with similar background and circumstances is required to help isolate the effects of the change agent under study, but that this requirement is seldom met (1991:10).

The difficulties that conventional SIA has had in grappling with the obvious complexity of understanding project impacts has been compounded by the distancing of the impacted

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communities from the assessment process. Community involvement was limited to providing data for indicators obtained through simple survey methods. Often, however, this information could be acquired from pre-existing sources -- government records, police reports, company files, etc. (Usher and Weinstein 1991:6).

At the Berger Inquiry, the implication of the challenge to the modernist paradigm of development was that in order to understand the Aboriginal experience of the impacts, the project "had to be evaluated not according to technical or value-free criteria, but rather in terms of the vision of the people whose communities it would affect" (Usher 1993:112). This vision could not be captured or understood through indicators research alone. The change advocated is for SIA to move from a purely technical component of a rational planning process, to a community development component of a political process (Lang and Armour 1980:116-121; Usher 1993:102). It is now more generally accepted that assessing the social impacts of a project on Aboriginal people must involve the direct participation of those affected by the project - not only consultation in hearings, but also involvement in the determination of the research agenda, and the design and implementation of the assessment process itself (Usher 1993:117). This is an important change in the nature of impact assessments in Aboriginal communities but, regrettably, not one from which the literature has had much time to benefit.

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THE ECONOMY OF THE RESOURCE HINTERLAND

Before we turn to an examination of the economic impacts of major resource development projects as described in the literature, it is important to consider the economic context in which these impacts have occurred.

Major resource development projects almost invariably are located in outlying or "hinterland" regions of Canada -- that is, areas outside of Canada's main population centres or corridors. After the Second World War, resource projects were increasingly seen by government as a means of stimulating economic growth in these areas. Although there is significant resource activity in outlying areas in the south of the country, much of the analysis of the economic impact of the projects has occurred within a more general debate over "northern development". "The North", as the term is used in the literature, sometimes refers to the territorial North, but is usually not delineated as a rigid geographic region and often encompasses what is loosely referred to as the "Provincial Norths." Although the following will provide a brief overview of the structure of the "northern" economy as it has been described in the literature, the description is representative of economic activity in resource hinterland areas in general.

THE STRUCTURE OF THE NORTHERN ECONOMY

The structure of the northern economy has been described in various ways in the literature. The simplest and most conventional way is to describe the economy according to the relative importance of its primary, secondary and tertiary sectors. The northern economy is dominated by the primary sector - mining, oil and gas, logging and trapping - and the tertiary or services sector. The tertiary sector is especially important in the territorial North, where there are four levels of government. The secondary sector, which is involved in value-added manufacturing or processing, is very weak.

While the primary sector dominates the productive output of the North, the tertiary sector is the largest employer. In the N.W.T, for instance, 17% of employees work in the resource industries, while 80% work in services (Bone 1992:115).

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This description of the northern economy is revealing, but incomplete, as it represents the functioning of the wage economy in the North but does not recognize the place of the Native subsistence economy.

The existence of both a wage and a subsistence economy in northern regions has led many to view the economy through the theoretical lens of 'economic dualism'. The theory of dual economies has grown primarily out of the study of the economies of developing countries, and carries with it a number of key assumptions. First, the economy consists of two sectors - a modern sector which is characterized by technological advances and productive growth, and a traditional sector, which is more labour intensive and is relatively stagnant. Second, the linkages between these two sectors are assumed to be minimal. Third, as jobs in the modern sector of the economy are limited and offer greater earnings potential than jobs in the traditional sector, there is a queue for entry (Stabler 1989a; Kruse 1991:317).

Accordingly, the dual economy thesis has often been associated with the modernization paradigm of development and its assumptions about the 'superiority' of the modern economy. It should be noted, however, that the use of the term "dual economy" does not always carry with it modernist assumptions. It has also been used simply to emphasize the presence of two very different economies in the North, sometimes in the context of emphasizing the destructive or 'intrusive' potential of the modern economy on the traditional one (see Dacks 1981; Brody 1977, 1988; Watkins 1977)

Although there are various criticisms of the dual economy thesis' characterization of the traditional economy as stagnant and non-adaptive to changing technology (see Coates and Morrison 1992:72; Berger 1988:175), the main criticisms focus on the links between the economies. An assumption of economic dualism is that the economies function independently, and thus households participate in one economy or the other, but not in both. There is evidence from many communities, however, that this is not the case.

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One way to investigate this question is through time-series analysis - an examination of the percentage of time spent in different economic activities. Based on this type of analysis, Berger explains that

the lives of many native families are based on an intricate economic mix. At certain times of the year they hunt and fish; at other times they work for wages, sometimes for the government, sometimes on highway construction, sometimes for the oil and gas industry (Berger 1988:176).

Other methods of inquiry include income analysis, which determines the source of cash income and income-in-kind. Such studies have determined that the incomes of Aboriginal households come from a number of sources which include a mix of any of hunting, trapping, gathering, domestic production (of clothes, etc), sale of bush commodities such as pelts and hand-crafts, industrial and local wage employment, entrepreneurial activity, transfer payments, income support programs and royalty distributions (see Myers 1982; Brody 1981).

As a result, many contend that, from the Aboriginal perspective, the economy of the North is best described as a "mixed economy". Yet, while the proponents of the framework of a mixed economy reject some of the assumptions associated with economic dualism, they do not spurn all of its tenets. They recognize, for instance, that there are distinct economies operating at a regional level. In his analysis of the territorial North, Whittington (1985b) identifies three economies - traditional, wage, and welfare - but argues that "these interact in such a way that the total economy of either territory can only be described as mixed" (1985b:65). In his pipeline report, Berger sub-divides the traditional and wage economies, arguing that "there are, in reality, four sectors in the northern economy: subsistence, trading of renewable resource produce, local wage employment, and industrial wage employment" (1988:175).

CHARACTERISTICS OF THE RESOURCE ECONOMY

One of the distinct economies in this mix, the industrial wage economy as Berger would label it, is dominated by major resource development projects.

In order to appreciate the impact that this economy has on Aboriginal people, it is important to

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understand its basic characteristics. These are determined primarily by its relationship with the national and international economies. This relationship is most often described as one between a resource hinterland and an industrial heartland (McCann 1987; Bone 1992) - whereby natural resources are exported from the region in order to meet the demands of markets in southern Canada, the U.S., and elsewhere.

According to Bone, resource hinterlands all over the world share a number of common characteristics. These are:

- (1) World demand for primary resources and energy determines the course of hinterland development.
 - (2) Multinational corporations, with their capital, management skills, and technical knowledge, are the leading force in resource development.
 - (3) The global demand for raw materials and energy is cyclical, following the global business cycle. These cycles are more pronounced in resource hinterlands, leading to a 'boom-and-bust' economy.
 - (4) Resource hinterlands in other countries often compete against each other, driving the price of primary products down.
 - (5) Primary resource exploitation in resource hinterlands is associated with severe economic leakage: most of the economic benefits generated by resource projects find their way to other, more developed regions.
 - (6) Most resource projects characteristically require a small but trained labour force. The oil and gas industry, for instance, tends to recruit experienced workers from other oil patches.
 - (7) Large construction projects employ large numbers of workers for short periods of time.
- (Bone 1992:103-104)

Many of these characteristics are apparent in the hinterland areas of Canada. Certainly the evidence of the industry's dependence on patterns of global demand and prices for its product can be found in the boom and bust existence of resource towns such as Dawson, Rankin Inlet, Schefferville, Uranium City, Pine Point, Faro, and others (see Dacks 1981:16; Bone 1992:104-105; Coates and Morrison 1988:85-97).

The implication for Aboriginal communities is that by participating in the resource economy, they are creating dependencies on an industry which is inherently unstable. For communities and households operating within a mixed economic system, the income earned through participation with resource development projects will, in most case, not provide a dependable,

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long-term component in their economic mix.

**PARTICIPATION IN THE RESOURCE ECONOMY: THE EXTENT TO
WHICH RESOURCE DEVELOPMENT PROJECTS LEAD TO
EMPLOYMENT OPPORTUNITIES FOR ABORIGINAL PEOPLE**

This section will examine the literature on Aboriginal participation in the resource economy through employment with resource development projects. This is taken to include direct employment with a project, and employment with a company contracted to provide services to a project.

Regrettably, levels of Aboriginal employment in resource development projects have proven to be difficult to measure. In 1989, a Sub-committee of the Intergovernmental Working Group on the Mineral Industry (IGWG) launched a study of Aboriginal participation in the mining industry. In their initial report, the IGWG noted that "the mining-native relationship has not been examined or discussed in any detail until this time and very little information is available" (IGWG 1990:35). Their review of existing studies showed that

the available data are not sufficient to permit definitive conclusions to be made on either the current level of native participation in mining or on the potential for increased participation. Much more statistical work would need to be undertaken to make conclusive statements on these issues, probably in the form of an extensive, direct survey of native communities and mining and exploration companies (IGWG 1990:7).

With this in mind, the IGWG undertook a survey of selected producing mines, exploration companies and Aboriginal communities. Despite the efforts, 'conclusive statements' were still not forthcoming. Results of the surveys were reported in the group's second and third reports (IGWG 1991, 1992). The survey of mining operations revealed that employment records often differentiate between northern and non-northern employees, but most do not make distinctions based on the racial origin of the worker (IGWG 1991:99; see also Canada 1987:14). Projects that do make this distinction tend to be those with special employment programs or preferential

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hire policies for Aboriginal people, and are not, therefore, useful as a basis for generalizations. Furthermore, company records may show the number of jobs which were filled by Aboriginal employees, but not show the total Aboriginal employment at any particular time. The problems were significant enough to lead the IGWG to believe that "quantitative measures of Aboriginal employment are impossible" (IGWG 1991:99).

Attempts to ascertain employment levels in the oil and gas industry have run into similar problems. The DPA Group Inc. and Intergroup Consulting Economists Ltd. (DPA and ICE) (1986) used Canada Benefits Submissions to provide estimates of northern employment for the five major oil companies operating in the Northwest Territories in 1982 and 1983. Of the five companies, only one clearly differentiated between Aboriginal and non-Aboriginal northerners. Furthermore, some company estimates are of average monthly employment while others are of peak employment; some estimates include contractors, some are only of direct employees, and others do not specify (DPA and ICE 1986:24).

Gathering meaningful information at the community level seems equally problematic. Employment records in predominantly Aboriginal communities around resource projects would be revealing, but according to Usher (1982) this information is not easily accessed, nor is it comprehensive:

since no agency, public or private, routinely generates income data by source at the community level, one can only make estimates, based on a variety of sources each of differing completeness and reliability (Usher 1982:6).

Doug Paget, in an interview with the author, revealed that the Department of Indian Affairs and Northern Development had attempted to compile the available data on Aboriginal employment in northern resource development projects, but in light of the difficulties mentioned, had been unable to do so in any meaningful way.

Despite the lack of reliable statistical information, however, there is enough information in the literature to allow for the following generalizations on Aboriginal employment levels in resource

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projects. First, resource projects have traditionally offered little in the way of employment benefits to Aboriginal people. Second, actual levels of participation are increasing as is the potential for greater benefits. Third, employment benefits still vary enormously from project to project.

These three generalizations can only be supported and understood by examining the many factors identified in the literature which play a determining role in levels of Aboriginal participation.

**PARTICIPATION IN THE RESOURCE ECONOMY: FACTORS AFFECTING
THE PROVISION OF EMPLOYMENT OPPORTUNITIES**

A variety of factors influence the extent of Aboriginal employment in resource projects and these are discussed here under six broad categories: factors related to the nature of the project itself; external pressures for Aboriginal employment brought to bear on a project; community factors such as its location, size and accessibility to resource project work sites; the education and training levels of prospective Aboriginal employees; the perceptions of them held by those in positions of power in resource industries; and Aboriginal people's interest in employment in these industries.

THE NATURE OF THE PROJECT

The number, duration, and permanence of employment opportunities, and the skills required to secure them, will depend on the employment needs of the particular resource development. These needs vary across industries, projects, and phases of the project cycle. Although the literature reviewed does not provide for a full definition of these needs, it is possible to make some comparisons and identify some trends.

In the oil and gas industry, pipeline projects may employ thousands during their construction phases, but their operations are highly automated so that long-term employment opportunities are few (Bone 1992:106; DPA and ICE 1986:60). For example, the labour force during construction of the Pointed Mountain Gas Field, including the gathering system, rehydration plant and pipeline, reached a peak of 465, while the staff required to run the operation amounted to a total of only eight (Scott 1973:16,28-29). Larger project proposals, such as the Alaska Highway and Dempster Lateral pipelines, were projected to require about 2,200 workers during construction, but only 200 once operations began (Page 1986:282). During exploration, job opportunities are typically more plentiful, but are usually seasonal, and only last as long as the program continues (Abele 1989:180; DPA and ICE 1986:60).

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With hydroelectric projects, employment needs during the construction and operations phases are equally disparate. Waldram (1985a) reported that the construction of the Limestone Generating Station in Manitoba would involve 6,000 person-year jobs directly, and as many as 11,000 indirectly; by contrast, the project would create only 40 permanent jobs in the province. According to an advisor to the Grand Council of the Crees of Quebec, the first phase of the James Bay development has resulted in only five permanent jobs for the Cree (Hamilton 1992).

In the mining sector, employment during the operations phase is more significant. Depending on the size and type of operation, there are usually between one and five hundred jobs available at a mine site. The exploration phase of mining projects, however, may not hold the same potential for Aboriginal participation. In a study of mineral exploration in the Baker Lake area of the NWT, McAllister (1982) notes that industry representatives have expressed doubt that smaller Aboriginal communities can gain much in the way of employment benefits from exploration work, as many of the activities require a mobile and technically skilled work-force. Furthermore, the IGWG survey of exploration companies makes it clear that most of the outfits are small - more than three quarters of the companies surveyed had less than twenty employees, and about half had fewer than ten. Some of these companies maintained that their small size limited the potential for significant Aboriginal participation (IGWG 1992).

EXTERNAL INFLUENCES ON PROJECT

The extent to which a company is pressured or obligated to facilitate the participation of Aboriginal people in its resource project has, understandably, influenced the number of Aboriginal people involved. In general, the cases in the literature reveal that resource companies face increasing but clearly variable pressure to involve Aboriginal people in their projects. The literature, however, does not include any comprehensive analysis of why this is the case.

The Metis Association of Alberta (1982) observes that the least amount of Aboriginal

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participation occurs when there is little or no external pressure on companies. When this is the case, companies generally are reluctant to incur the increased costs of training local people when experienced workers are available on the open market. There is more participation when government plays an active role and intervenes to ensure Native participation through the establishment of employment targets or quotas. Aboriginal participation in projects is at its highest when the projects are developed on lands under claim or covered by claim agreements. In these cases, Aboriginal groups usually have the bargaining power to press for inclusion.

Both Cassidy and Dale (1988) and IGWG (1990) have substantiated that an Aboriginal group's employment prospects are better when they have something that gives them bargaining 'leverage'. They show that the agreement and cooperation of a local Aboriginal group is often essential to a project's success. This gives the group in question leverage in negotiations for project benefits.

The IGWG (1990) points out that other parties to negotiations - namely, industry and government - also provide a share of the elements necessary for a successful project. As such, the outcome of negotiations is influenced by the bargaining positions of each of the parties. It is important, therefore, to understand what each of the parties' interests are with respect to Aboriginal participation, and the factors that give them leverage to assert those interests.

The positions of the federal, provincial and territorial governments are neither static nor uniform. On a policy level, government bodies have traditionally seen resource development projects as a means to increase Aboriginal employment opportunities; on a practical level, however, little was done to ensure that Aboriginal people could take advantage of those opportunities.

McCutcheon (1991), Goddard (1991), Waldram (1988a), Macpherson (1978a), Dosman (1975), and Usher (1971) are among those who have presented cases where project planning involved government and industry exclusively, but did not involve preparing Aboriginal people for employment. In some cases, however, the federal and some provincial governments have intervened to ensure that steps were taken to employ and train northern or Aboriginal people, although the outcome has sometimes not been as successful as hoped (Baffin Region Inuit

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Association 1980) and, in one case, been a complete failure (Macpherson 1978b). These projects include the Norman Wells Project, the Nanisivik mine, and the Pan Arctic exploration program, all in the Northwest Territories, the Cyprus-Anvil mine in Yukon, the uranium mines in northern Saskatchewan, and the construction of the Limestone Generating Station in Manitoba. The resolve of the various governments to ensure that companies offer training and employment benefits to local Aboriginal people is, however, clearly uneven.

The amount of government pressure on companies is not only a function of its resolve to see local Aboriginal people benefit from projects that impact their lives, but also of its bargaining leverage. In general, governments have leverage to assert their position to the extent that a project's viability or its success is dependent on government contributions or approval.

The capacity of governments to grant or withhold approval for a project is made more powerful by their role as landowners. Most of Canada's natural resources are found on or beneath Crown lands. To obtain access to these resources, companies must have permission to use the lands, have the rights to the resources on or beneath them, and agree to comply with various regulations when developing the resources.

In Saskatchewan, for example, mines operating on Crown land must sign a surface lease with the Provincial Government. In 1978, on the recommendation of the Cluff Lake Board of Inquiry (Bayda 1978), the government of Saskatchewan made legally binding the commitments of Amok-Cluff Mining (Cluff Mining) to northern hiring and training at the Cluff Lake uranium mine. They did this by including those commitments in the terms of the surface lease. The first lease issued to Cluff Mining committed the company to a specific target of 50% northern employees. Subsequent leases to Cluff Mining and to Cameco Corporation, the owner of other uranium mines in the province, have committed the companies to make their best efforts to maximize northern employment. These include preferential conditions for hiring, promotion, and training of northerners, as well as providing air commuting programs to Aboriginal communities (IGWG 1990:146; IGWG 1992:57).

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The process by which companies obtain approval, however, is not the same in every case - it not only varies according to the context, but has also changed over time. The control over and regulation of resource projects on Crown lands is a complex puzzle of different, overlapping and often competing jurisdictions. Resource projects occur on federal and provincial Crown lands, in offshore and onshore areas, on lands covered by comprehensive land claim agreements, on lands that are still under claim, and lands covered by Treaty, and on Indian Reserves. The location of the project and the jurisdictions under which it falls therefore both play a critical role in determining the regulatory environment in which it operates. As well, within each of these jurisdictions, the particular industry, the nature of the activity, and the size and scope of the project will determine which Ministries become involved and what regulatory or approval processes are activated. In general, the approval process has become more complex and more rigorous over the years (see Canada 1986:12-15; Cassidy and Dale 1988:132-141; Dombroski 1985:168-170).

Another source of governmental influence on resource projects is an outgrowth of their role as financial supporters. Many resource developments are dependent on public funds for their viability. These might come in the form of equity participation, exploration incentives, investments in regional infrastructure such as roads or railways, or the development of a nearby hydroelectric facility when low-cost power is required.

Nanisivik Mines Ltd. (NML), managers of the lead/zinc mine on Baffin Island, NWT, was initially 18% owned by the Government of Canada, and about 60% owned by Mineral Resources International (MRI). Nanisivik, which was developed during the mid-1970s, would not have been an economically viable project without substantial assistance from the Federal Government and the Government of the Northwest Territories (GNWT), who together initially contributed \$16.7 million to cover the costs of roads, an airport, wharf facilities, and a town site. The Inuit of Baffin Island had little leverage to assert any claim for training and employment benefits, and were not involved in negotiations with MRI. The Federal Government, however, had leverage from their financial contributions to the project, and were able to use this to gain commitments from NML to run training programs, and to establish an Inuit employment target of 60% by year

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3 of operations. Although Inuit employment has never approached the target level, the initial commitment put pressure on the company to maximize local participation.

While Aboriginal groups do not always support resource development projects because of their potentially negative impacts, it seems that, in general, employment and training opportunities are considered to be a benefit of development.

The extent of the leverage that Aboriginal groups have to press for these benefits derives from their ownership or control of land. When a project is in the settlement region of a comprehensive land claim, developers are usually required to negotiate agreements regarding benefits and negative impacts of the project. For instance, before a company can obtain the necessary permits and leases to start a project in the Inuvialuit Settlement Region, it must first negotiate a "Participation Agreement." In the Nunavut Settlement Area, the contract is called an "Inuit Impact and Benefit Agreement." In both cases, hiring and contracting policies for local Aboriginal people and businesses are considered appropriate provisions for these agreements (Canada and TFN 1993:205-210; Canada 1984:15).

With the benefit of this leverage, the Inuvialuit negotiated a concession agreement with Esso Resources Canada Ltd. (Esso) which allows Esso to explore and produce oil and gas on lands south of Tuktoyaktuk and secures Inuvialuit direct involvement in both exploration and production through the Inuvialuit Petroleum Corporation (see Cassidy and Dale 1988:162).

On reserves, Aboriginal people have some control over resource developments in that reserve lands, or the minerals and mining rights to the surface and sub-surface, cannot be sold or leased until they are surrendered to the Crown by the First Nation. Once surrendered, the Minister of Indian and Northern Affairs or, more practically, a representative within the Department of Indian Affairs and Northern Development (DIAND), assumes responsibility for the disposal and management of the rights in accordance with the Indian Act and subject to the conditions of surrender (Bankes 1983:97). The rights can be disposed of through public tender or negotiated agreement. The second area of control occurs as the consent of the affected band is sought by

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DIAND before any disposition of rights, and the band Council retains the final right of approval to any negotiated agreement (see Dombroski 1985:168-170; Frideres 1984). Through this control, bands have some capacity to affect the employment and contractual arrangements with the developer.

The agreement between the Lax Kw'alaams (Port Simpson) Band in northwest British Columbia and Dome Petroleum Ltd (Dome) is a case in point (see Cassidy and Dale 1988:150). Dome wanted to build a liquified natural gas plant on land next to the reserve and run a gas pipeline and hydroelectric transmission line through it. Because of DIAND's obligation not to dispose of any land rights or to give the company permission to operate on reserve lands without band approval, the band had leverage in negotiations with the company. Although the project was never built, the agreement - which includes terms outlining training programs, employment opportunities for band members, and a commitment to maximize local business opportunities - stands as another example of the improved benefits available to an Aboriginal group when the success of the project depends on their consent.

Aboriginal groups can use a number of means to exert pressure on companies other than those stemming from their direct interest in the relevant lands. A group in the impact zone of a project might be able to use court injunctions, environmental assessments, and public inquiries as tools to delay a project, to have terms and conditions imposed upon its operations, or to stop it altogether. The availability of these tools differs depending on the nature and scale of the project and the jurisdictions in which it operates. When the tools are available, however, an Aboriginal group can use them as a bargaining chip in securing employment, training and contractual benefits from a project. For a company, the costs of providing these benefits are usually negligible when compared with the potential costs of a project delay, of having to mount a legal defence, or of having to prepare social or environmental impact statements.

The Lax Kw'alaams band had additional leverage with Dome because the company was worried that if they did not gain the community's support for the project, they might run into difficulties during the approval process of the project. As the plant was to be built on land under claim, the

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company feared that the claims issue would be advanced through public hearings as it had been at the Berger Inquiry and at the National Energy Board Hearings into the Norman Wells Project, and thus cause significant delays to, or even termination of the project.

In another case, the Osnaburgh band and other bands affiliated with the Windigo Tribal Council (WTC) lie in an area of northwestern Ontario which over the last 50 years has undergone extensive resource activity. Yet despite the proximity of much of the activity, the communities had almost no involvement with or control over the developments. As there was no Aboriginal claim to the lands in question, the communities had little leverage to pressure industry for greater participation.

In 1985, the communities became aware of exploration activity in the area and Placer Dome's intention to build the Dona Lake gold mine and mill complex. In order to gain some leverage, the Osnaburgh band and the WTC asked the Government of Ontario to designate the project for an Environmental Assessment (EA) under the Environmental Protection Act. According to the IGWG:

It was their belief that, in the absence of a specific policy addressing Native concerns about resources development, an EA designation was the most viable mechanism for the local Native communities to capture the attention of the non-Native community and to gain time before a resource development would go ahead (IGWG 1990:134).

Government and industry, concerned about the project delays and additional cost that an EA would create, entered into negotiations with the Aboriginal groups. The resulting agreement, which was the first of its kind in Ontario, was signed in 1987 and provides for preferential hiring to local bands, special work schedules, and training programs (IGWG 1990:134).

When the courts, environmental assessments or public inquiries do not provide sufficient leverage, some Aboriginal groups have resorted to devices such as road blockades to disrupt project operations and to attract media attention to their cause.

In 1965, the federal government allowed natural gas to flow from lands within the Fort Nelson

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Reserve in northeast B.C., despite objections from the band (see Cassidy and Dale 1988:144). The development was allowed to proceed because permits for development had already been issued by the provincial government before the reserve lands were selected in 1961. In addition, the band was only granted surface, not sub-surface, rights to the reserve. Without the usual leverage that reserve status gives to a band, the residents effectively did not participate in any way in the development. The band, however, used blockades on several occasions to demonstrate their opposition to the arrangements and to put pressure on the companies and the Province to address the situation. In 1971, after a blockade, the companies agreed to pay some of the royalties directly to the band, and nine years later there was a formal agreement with the Province on revenue sharing from all resource development on reserve. The band has used these funds, among other things, to set up Eh-Cho-Déné enterprises, a firm that specializes in oil field facilities and land development.

Although there is little to suggest that resource companies resist the participation of Aboriginal people *per se*, there is little doubt that companies will oppose any measures urged upon them which involve costs which they perceive to be unreasonable. The perception of what is 'unreasonable' will vary from case to case. For instance, for a larger and more financially secure operation, the costs involved in providing training and employment benefits to local Aboriginal people will be of less significance than for a more marginal operation. The literature also points out that certain companies resent government pressure to meet northern or Aboriginal employment targets/quotas, and their commitment to fulfilling these expectations suffers accordingly. Even when a company bows to the pressure and hires the expected number of Aboriginal people, it may not provide them with appropriate training or meaningful work, and the employees thus become the victim of tokenism (Abele 1989:154; Canada 1987:116). With other companies, the commitment to northern or Aboriginal hiring seems more genuine.

When government pressure is seen to be unreasonable, resource companies have various factors which provide them with leverage to resist. These factors relate to a project's contributions to economic development, general employment opportunities, and payment of royalties and taxes. The importance of even a single project to government is illustrated by the temporary closure of

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the lead-zinc mine at Faro in 1983 which "depressed the entire Yukon economy, reduced government revenues, and triggered an out-migration" (Bone 1992:105). In light of this influence, governments have been wary of imposing northern hiring or training requirements which a resource company might perceive as an unrealistic demand and a disincentive for development.

In a general way, this discussion has served to illustrate how the terms and conditions set for the operation of a resource development project are influenced by governments, Aboriginal groups and industry. More specifically, it has focused on how the relative leverage of these groups affects the participation of Aboriginal people in projects. It is apparent from the discussion that the relative influence of each of these parties varies depending on the project and the context in which it operates.

The literature also shows, however, that the relative weight of the governments', Aboriginal groups' and companies' influence has shifted over time. Until the 1970s, major resource development projects operated without much interference from government, Aboriginal groups or the general public (Bone 1992:231). As such, there was little pressure on them to facilitate local participation. In the last twenty years, the influence of Aboriginal groups and governments has increased while that of resource developers has decreased. In addition, Aboriginal groups have become more interested and (most) governments more supportive of Aboriginal or northern participation in the projects. The shift in perspectives and the stronger bargaining positions of Aboriginal groups and governments have played a significant role in allowing local Aboriginal groups to share in some of the benefits of resource developments.

COMMUNITY FACTORS

Some Aboriginal communities have participated in resource development projects while others have not; among those that have, the extent of involvement varies considerably. The explanation for this can, in part, be found by focusing on the different qualities and

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characteristics of the communities.

For instance, a common factor cited in the literature to explain the differing participation of communities is their relative proximity to resource projects. Coates and Morrison explain that

some communities have been fortunate enough - though it is a distinctly mixed blessing - to have a forestry operation, a mine, or a hydro project located nearby. If the project operators are well-disposed to Native employees, which is not always the case, or if some level of government compels them to employ natives as a condition of granting permission for the project, which happens increasingly often, then there is the prospect of steady work and economic advancement. But most Native communities - from Telegraph Creek, British Columbia, to Summer Beaver, Ontario, to Nain in Labrador - are too far from centres of economic activity to have much of a commercial future (Coates and Morrison 1992:108).

Their analysis reflects a basic assumption in the literature that there is a positive relationship between a community's proximity to a project and its participation in it: nearness is a facilitator of involvement while distance represents an often insurmountable barrier (see DPA and ICE 1986:35-44).

This assumption seems to be predicated on historical patterns and common sense rather than on any formal studies. Nearness is seen as a facilitator because it allows communities greater knowledge of and access to a project. Frequently the only communities that were even aware of a resource project, and thus in a position to seek employment, were those that were located nearby. From the company perspective, these communities often represented an available and cheap source of labour, especially when there was no town built to accommodate a non-local workforce.

In recent years, there have been some attempts by government and industry to ensure that training, employment and business opportunities are offered to residents of nearby Aboriginal communities. There is now a recognition that the people most affected by resource projects should have the opportunity to share in the rewards of development. Employment, opportunities, for instance, should be offered first to those communities that are within the

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impact zones of a large-scale project. The socio-economic agreements associated with the new Dona Lake and Golden Patricia gold mines in Northern Ontario provide an example: they give preferential hire to residents of nearby Aboriginal bands. In fact, the agreements require the company to hire according to a specific priority of bands, determined in large part by their proximity to the project (IGWG 1990:134-145).

This situation, however, has certainly not always been the case. The literature is replete with examples of resource projects proceeding with little or no participation of the residents of neighbouring Aboriginal communities (cf. Waldrum 1985a, 1987; Salisbury 1986:86; Goddard 1990; Goldstick 1987; Berger 1977:123; Macpherson 1978a).

Distance from a site is seen as a barrier to participation because distance has significantly affected the accessibility of projects for most Aboriginal communities. For many years, relocation was the only option to most Aboriginal workers seeking industrial employment. Unless an Aboriginal community happened to be located adjacent to a resource project (such as at Tuktoyaktuk, which served as a base to the Dome-Canmar exploration program in the Beaufort Sea) or close by and linked by road (such as at Arctic Bay, 27 kilometres west of the Nanisivik mine), then a worker would have to relocate to the project's town site.

In the late 1950s, many Inuit migrated to work in the Rankin Inlet Nickel Mine, in large part due to conditions of extreme deprivation in the domestic economy (Williamson 1974). When this mine closed in 1962, a government initiative culminated in some Inuit families moving to work in other mines at towns such as Yellowknife, NWT, Lynn Lake, Manitoba, and Asbestos Hill, Quebec (Stevenson 1968). There are also reports that many Aboriginal people from communities such as Fort Chipewyan migrated to find work in the oil sands boom-town at Fort McMurray (Deines et al. 1979; Justus and Simonetta 1979; Hobart 1989).

In general, however, it seems that relatively few Aboriginal people have chosen the resettlement option (Bone 1992:209). Usher (1987) uses 1981 Census data to show that Aboriginal people make up only 485 of the 3005 residents of resource towns in the Northwest Territories, a figure

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which represents less than 2% of the Aboriginal population of the region. This low proportion is not surprising given the problems that relocation presented to Aboriginal workers and their families. Assuming that an Aboriginal person in a distant community knew about the project, and had a reasonable expectation of finding work at the site, getting there still presented difficulties. In the absence of government assistance, transportation, especially when a family was involved, usually created barriers too significant to overcome (Stevenson 1968:13-14).

These barriers may be reinforced by a general reluctance of Aboriginal people to leave the home community and move to resource towns (Stevenson 1968:13; DPA and ICE 1986:57; Huskey 1983, cited in Lane and Thomas 1990; Usher as quoted in Whittington 1985:17; Deines et al. 1979: 58). This assumption, however, is challenged by Stabler (1990), who found that 66% of rural male Native people in the NWT indicated a willingness to move if they were guaranteed to find a job elsewhere. Stabler's study indicates that low expectations of finding a job in the resource sector or elsewhere may play a determining role in the migration decision.

Finally, studies of families who have relocated have found that the adjustment to a new living environment is often a difficult one (Stevenson 1968; Williamson and Foster 1975; Hobart 1982). Along with a general clash of cultures and values, the work schedule and urban environment have typically not allowed relocated Aboriginal workers and their families to engage in traditional activities. This has caused particular problems as these activities provided the foundation on which both family roles and the individual's sense of identity and worth were based. A more detailed examination of these problems is taken up later.

In the early 1970s, the introduction and popularization of long distance commuting (LDC) or "air-commuting" systems to remote area projects provided an option to relocation for some Aboriginal communities. This practice of flying employees back and forth from a pick-up point to a mine site represents a potentially substantial change in the accessibility of resource projects to isolated communities.

"Fly-in projects", as they are called in the industry, invariably work on a rotational work

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schedule. Workers at the Lupin mine in the NWT, for instance, work a two-weeks-in / two-weeks-out rotation - miners are flown in for 14 consecutive days of work, after which they have 14 days off, during which they can fly home (or to the drop-off point closest to it) at company expense. This sort of work schedule along with the provision of transportation allows residents of Aboriginal communities the opportunity for employment in resource projects on terms that eliminate the need to relocate, and allow for continued participation in traditional activities on home grounds.

LDC has affected a significant number of Aboriginal communities, mostly in Saskatchewan and the Northwest Territories. In 1987, uranium mines in Saskatchewan provided a charter service to 320 Native residents of 16 northern communities; the Nanisivik and Polaris mines use commercial airlines and draw workers from over 20 Arctic communities; and the Lupin mine transports Inuit workers from Coppermine and Cambridge Bay, as well as a few Dene employees from Yellowknife (Bone 1992:210; Shrimpton and Storey 1990:142).

While the mining industry is the largest user of the system, the oil and gas industry has used it extensively in exploration and construction phases of projects (Shrimpton and Storey 1990:138). Pan Arctic drew labour from Arctic Bay and Pond Inlet for its exploration in the high Arctic. Gulf, Esso Resources, and Dome/Canmar exploration programs in the Beaufort have involved workers from all of the Mackenzie Delta/ Beaufort communities, especially Tuktoyaktuk, Aklavik, Inuvik, Fort McPherson and Coppermine (Schmeichel 1990; GNWT 1988; DPA and ICE 1986; Hobart 1979a, 1979b). The Norman Wells expansion project drew workers from 15 northern communities during construction, and, according to Bone, "there were 538 Native project workers using an air-commuting system to reach the construction site" (1992:210).

There is also evidence that the use of LDC is increasing. Shrimpton and Storey note that "fly in mines comprise 9% of all the new metal mines which opened in 1975-79, 15% of those which opened in 1980-84, and 36% of those which opened in 1985-87" (1990:138).

While some authors are more cautious about the advantages of LDC than others, there seems to

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be a consensus that it has "shown considerable potential as a source of native employment" (Shrimpton and Storey 1990:148). There are, however, limits to this potential.

Where LDC has provided significant employment opportunities for residents of Aboriginal communities, namely in Saskatchewan and the Northwest Territories, governments have actively encouraged companies to adapt their LDC system to local and Aboriginal needs. That they have done so is not surprising considering LDC mines in these regions are remote - away from established resource towns and non-Native regional centres, in areas where the majority of the population is Aboriginal.

Where this is not the case, the potential for Aboriginal employment is less. The Detour Lake mine in northeastern Ontario uses an LDC system, but has almost no Aboriginal participation (Bone 1992:211). Detour Lake is located in an established mining area, and as such can find almost all of its employment needs in the regional mining communities at Cochrane and Timmins (Shrimpton and Storey 1990). In this case, it would be difficult for the Government of Ontario to pressure the companies to establish pick-up points in more distant Aboriginal communities as it would cost the company more to do so, and would cut into local area jobs.

There is evidence, therefore, that while the availability of LDC can significantly affect a community's employment opportunities in a project, the chances of there being a local pick-up point established are less when one or more non-Aboriginal population centres are more proximate to the project. In this context, the *IGWG Report on Native Participation in Mining* found that "it is much more likely that those mines located in remote areas..will be able to attain a relatively higher level of Aboriginal participation than those mines located in or near townsites" (IGWG 1991:135).

The proliferation of LDC systems is also limited by their cost. Bone (1992) argues that the choice to use an LDC system instead of establishing a town site depends in part on the expected life of the mine:

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From a company's perspective, an air-commuting system has high annual costs (transportation costs) and low site costs (accommodations for employees), while a single-industry town has a high start-up cost (construction of apartments, houses and a variety of amenities now expected in urban places) and low annual operating costs. The cost trade-off between building a resource town and using an air-commuting system seems to be around 15 to 20 years for a conventional mining operation (Bone 1992:131).

If the choice is made to use an LDC system, the main routing almost always connects with one or more southern cities. The cost of establishing a northern network to smaller communities may impose additional limits. Whether establishing a northern system indeed represents a significant financial burden to companies is open to debate. Bone (1992) points out that there would not have been a northern LDC system for the Norman Wells expansion project if the decision was determined by market forces alone. He implies that there is a cost, and that it is usually accepted by larger companies as a cost of doing business in the North. Conversely, he contends that a northern network can sometimes offer a cost saving to companies. If, for example, the demand for labour exceeds the seating capacity of the aircraft used from a southern city, then making up the difference with smaller aircraft from northern communities may be the most cost effective way of meeting the demand (1992:131). The mixed reports are understandable, however, in light of the significant cost differences in LDC systems. These cost differences hinge on factors such as the distance of the mine from the target settlements, whether commercial or charter aircraft are used, and the length of rotation.

In general, longer rotations represent a cost saving to companies, but are not as compatible with the time requirements of the traditional economy and involve considerably more stress on workers and their families. Hobart (1989 and 1979a) compared LDC rotations of various durations and found that rotations of 7 days on/ 7 days off or 14 on/14 off were most successful with Aboriginal employees, while rotations in excess of 21 days were not as successful. Saskatchewan uranium mines, with their 7 on/7off rotations, have had higher levels of Aboriginal employment than the lead/zinc mines in the high Arctic with rotations of 63/21 and 98/21. The more significant indicator, however, is the huge difference in turnover rates: rates at

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the Nanisivik mine have averaged 100% per annum for Inuit employees, roughly two and one half times the rate for southern hires (IGWG 1990:126); at the Saskatchewan mines, turnover rates have been below 30% (Schmeichel 1990:200), with rates for northern hires only marginally higher than southern workers (Beveridge 1979:132). Hobart (1989) notes that long rotations are particularly unattractive to married workers who are reluctant to spend extended periods away from their wives and families. Unfortunately, longer rotations at very remote projects are to a certain extent inevitable as it is not feasible to shuttle workers huge distances every week or two. As longer rotations can act as a disincentive to participation, they represent another limit to the potential of LDC systems to increase Aboriginal employment.

The size of a community may also affect its prospect of having access to an LDC system, and thus to employment opportunities. DPA and ICE (1986) have observed employment trends in the NWT oil and gas industry, and found a correlation between the size of communities, their accessibility to projects (usually as a result of LDC arrangements), and community employment. Bone found similar patterns with respect to employment at the Norman Wells Expansion Project:

The distribution of native rotational workers by NWT communities reveals a pattern controlled by the size of the workforce in each community and accessibility to Norman Wells by scheduled aircraft (DPA and ICE 1992:155).

In northern Saskatchewan, the extensive LDC routes to the uranium mines reach only two communities with populations of less than 500 (Bone 1992:130). It seems that, even with an LDC system in the region, accessibility remains a significant obstacle for residents of smaller communities.

Usher (1982), however, suggests that the difference in rates of industrial employment between small and large communities can not be explained entirely by differences in accessibility. The implication is that factors such as differences in education levels, or attitudes toward industrial employment may play a role.

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EDUCATION AND TRAINING

Formal education and training are important selection criteria for industrial sector employment. When compared with the rest of the national labour force, Aboriginal people have traditionally been at a competitive disadvantage in both of these categories. It is a common theme in the literature that this has influenced not only the number of Aboriginal people employed, but also the type of jobs for which they have been hired.

When formal education is cited as a barrier to Aboriginal employment (Bone 1992; IGWG 1991; Boothroyd and Knight 1990; DPA and ICE 1986; Hull 1984; Metis Association of Alberta 1982; Deines et al. 1979; Owen 1976) the argument generally involves two parts: first, there is often a minimum level of formal education required for jobs in the modern or resource sectors; and second, a high proportion of Aboriginal people do not meet this requirement.

The data to support the latter part of the argument are usually drawn from census results or labour force surveys. According to the 1986 Census of Canada, percentages of Aboriginal people 15 years and older with less than a Grade 9 education - considered a proxy for measuring functional illiteracy - are 9% higher than for the country's general population. Rates for status Indians and Inuit are, at 37% and 53% respectively, about double and triple the national figures (Hagey et al. 1989). In the NWT, the differential in Aboriginal and non-Aboriginal functional illiteracy is most pronounced: rates for Inuit (62%), Dene (55%), Inuvialuit (48%), and Métis (25%), compare with the non-Aboriginal rate of only 4% (Bone 1992:198).

Rates of high school completion, as might be expected are no more encouraging. The percent of Aboriginal groups' populations 15 years and over who have completed high school is 28% for all status Indians, 22% for those living on-reserve, and the same for Inuit people. The national rate is 56% (Hagey et al. 1989).

Aboriginal enrolment in post-secondary programs has been increasing dramatically. In 1960, there were 60 status Indians enrolled; in 1981, there were 5,464; and by 1988, the figure was

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15,084 (Hagey et al. 1989). Nonetheless, participation rates, at 6.2%, are still only one third those of non-Indians (George and Kuhn 1993:2). There is also some anecdotal evidence that few Aboriginal people are choosing studies relevant to employment in resource industries.

Doug Willy, Personnel Officer with Echo Bay Mines, speaking at a seminar on Native participation in mining in 1987, explained his difficulties in recruiting Aboriginal people:

"Two years ago (1985), I attempted to locate any native northerners who were enrolled in post-secondary education institutes in the mining related discipline. I received the names of three people; one from Pine Point, one from Hay River and Arnold Enge sitting right back there. We hired all three of them. But of everybody enrolled in post-secondary education, there were only three enrolled in a mining related discipline" (DIAND 1987:86).

Accounts vary on the extent to which education is used as a screening criteria for jobs with resource projects. DPA and ICE (1986) report that most petroleum industry jobs require a functional education level of grade 9 or higher. A Canadian Institute for Research study (1980) reveals that both the Suncor and Syncrude oil sand operations in Alberta used grade 10 as a minimum level for entry. The Metis Association of Alberta studied the impacts of megaprojects in Alberta, and determined that grade 12 was the minimum for employment in the operations of petrochemical and large utility projects (1982:38). At Norman Wells, Abele (1989) reports that during the construction phase of the project, Esso Resources accepted work experience in lieu of formal academic qualifications, but during the operations phase, all employees were required to have completed secondary school.

In the mining sector, a survey of companies undertaken as part of the IGWG (1991) study showed a range of policies varying from no minimum educational requirement to Grade 12. For the Northeast Coal Project in British Columbia, which started mining activities in the early 1980s, a rigid adherence to a minimum Grade 12 standard was a major obstacle to the employment of Aboriginal residents of the south Peace River area. Despite pre-development promises of jobs, it appears that only 10-20 Aboriginal people found work at the mine (Boothroyd and Knight 1990:21).

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Other mining companies used basic requirements such as an ability to read, write and communicate in English. This policy was used, for instance, by Gulf Resources in recruiting for their uranium mine at Collins Bay. The company hired on the assumption that if a candidate had some English language proficiency, then formal education was not considered important. Among the initial recruits, none had completed grade 4, and only a few had more than grade 1 (Hobart 1979a:7). There is also some evidence that at least some of the companies with minimum educational requirements are not rigid in their adherence to the standards, as company records reveal many employees without the required education (DPA and ICE 1986 and Canadian Institute for Research 1980).

A brief review of various resource projects and their minimum educational requirements reveals that, in general, in situations where there is pressure to hire Aboriginal people (e.g. the Saskatchewan uranium mines, the Nanisivik mine, the construction phase of the Norman Wells expansion), employers tend to have more accommodating educational standards than when the pressure is less. This relationship, however, is based on observations from a small sample of cases, and is neither proposed nor tested in the literature reviewed.

Levels of formal education not only affect Aboriginal people's eligibility for employment in resource industries, but also have an impact on the types of jobs available to them and on their prospects for advancement. DPA and ICE (1986:52) explain that in the oil industry, communication and computation skills learned through formal education become more critical in higher level jobs. Abele (1989:95) points out that there is no path of promotion from positions of lowest responsibility and salary to positions in management, as management requires a specialized set of skills more often gained at the post-secondary level.

The extent to which training has affected Aboriginal employment in the resource sector is not well documented. According to Abele (1989), few of the many training programs available to Aboriginal people have been evaluated by disinterested parties. Where evaluations have been conducted, they are often confidential. The situation, she argues, "amounts to a kind of mass amnesia about what has been learned" (1989:121).

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The lack of available information, however, has not prevented the existing studies from identifying a number of problems with the system of employment training. There is some concern, for instance with the availability of training. A survey of mining companies (IGWG 1991) found that less than half of the respondents had training or skills development programs for Aboriginal people.

There seems to be less concern with the number of training programs as there is with the effectiveness of the programs and Aboriginal people's access to them. DPA and ICE (1986) hold that financial considerations have prevented training delivery in Aboriginal communities where they would be most accessible and effective. Deines et al. (1979) indicate that there is some evidence that pre-employment training is more effective when conducted locally. When the work requires living away from the community, however, camp-style programs that imitate the routines and regulations of the employment situation may be advantageous (Abele 1989:103; Deines et al. 1979:60). The literature contains many factors considered to be constraints to the effectiveness of programs. While it is not possible to mention all of them, it is noteworthy that many are related to Aboriginal and community control of, and involvement in, training decisions (see Abele 1989:130).

Other problems mentioned relate to the planning and timing of training programs. Abele (1989) is concerned that in the NWT, agencies in charge of the funding and delivery of employment training operate in a separate, uncoordinated manner. Planning for native employment training has been reactive rather than pro-active in that it has been dictated by the short-term opportunities created by mega-project development, rather than by any clear or consensual goals. This kind of planning has meant that training programs have been organized too late to prepare Aboriginal people for anything but low-level, short-term positions. Elias (1991:173) explains that the time between a project's announcement and the start of construction is typically insufficient to train a local labour force adequately.

Abele's (1989) examination of the training systems developed in response to the Norman Wells

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Project provides evidence that even when there is a delay before the start of construction, this problem has persisted. The Norman Wells Project was delayed two-years to allow northern residents to prepare for the project, and \$10.5 million of federal funding was earmarked for employment training. The committee struck to plan for the expenditure of these funds, however, was formed too late and had little time to address a very broad mandate. Training for Norman Wells, therefore, suffered from a lack of an overall plan. Some programs, such as that of the Labourers' Union, were effective in preparing trainees for seasonal construction work, but none provided training in skills that could provide more lasting benefits.

A related theme is that the current approach to training not only prepares Aboriginal people for non-status positions, but it also gives them skills that can only secure sporadic employment. Abele (1989:128), Berger (1977:136) and DPA and ICE (1986:81), have pointed out that skills specific to one job in industry are often not transferable to the next. As a result, an Aboriginal person who has gained skills through training and secured short-term employment with a project has no guarantee of sustained employment. The individual must not only get another opportunity for employment (ie. must live in an area where there is a steady presence of development activity), but he or she may also have to be trained in a new set of skills to be eligible for the job.

Another concern is brought up by DPA and ICE (1986), who note that much of the pre-employment training specific to the oil industry was on-going when the companies involved in the exploratory work had established workforces and were only hiring at the margin. The implication is that sometimes pre-employment training programs are preparing Aboriginal people for jobs that are not available.

Both DPA and ICE (1986) and Abele (1989) recommend a reorientation of training toward skills that will provide for more lasting benefits. DPA and ICE note that many of the opportunities for employment with resource projects are through small companies providing various services on contract. They recommend that more training be given to develop essential skills for small-business development.

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INDUSTRY'S PERCEPTIONS OF THE NATIVE WORKER

Another factor used to explain lower Aboriginal employment levels is discriminatory hiring practices. There is little doubt that, in past, prospective employers had a lower perception of the capabilities and work habits of Aboriginal northern workers, and that this perception has, over the years, been a barrier to Aboriginal employment. The extent to which these attitudes persist, however, is a matter of debate.

Studies of labour force behaviour in the NWT and Alaska have tried to test for discriminatory hiring practices by comparing the labour force status of Aboriginal and non-Aboriginal residents. Lane and Thomas (1987) studied the situation in Alaska and concluded that relatively low Native labour force participation rates can in large part be explained by demographic and educational factors. They note that, compared with the White population, there are relatively higher proportions of Native people in the very young and very old age brackets of the working population. Typically, these brackets have lower participation rates. They also maintain that "a large part of the Native/non-Native participation rate differential disappears when the two populations are normalized for educational attainment" (1987:75).

In investigations of NWT labour force data, Stabler (1985 and 1990b) argues that claims of discriminatory hiring practices ignore substantial differences in Aboriginal and non-Aboriginal educational attainment, migration patterns and geographic distribution. Stabler, however, notes that when normalized for educational attainment, there remains significant differences in primary sector participation rates. Stabler concludes that for these primary jobs - those characterized by high wages, favourable working conditions and opportunities for advancement - employers discriminate against Native people. The degree of discrimination is reduced with increased education (1990b:34-37).

There is also significant evidence of discriminatory attitudes that can be garnered from various surveys and personal observations. At the 1987 Seminar on Native Participation in Mining held in Yellowknife, Doug Willy, personnel Officer with Echo Bay Mines at the Lupin property,

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expressed his belief that discrimination has historically been "the most significant factor of why minorities such as the natives did not join and advance in the mining industry" (DIAND 1987:85). Union representatives, in interviews with the Metis Association of Alberta (1982), conveyed their impression that negative attitudes toward Aboriginal employees are a significant constraint to Aboriginal participation in megaprojects. DPA and ICE report a "widespread belief that the (oil) companies have preconceived ideas of which jobs can be filled by northerners" (1986:58).

Hess' (1984) study of Nascapi workers' involvement with the Iron Ore Company of Canada (IOCC) indicates that these impressions of discrimination are not unfounded. Hess asserts that

The Nascapi at IOCC were seen as "unpromotable" by every management level representative that was interviewed at the Company.... company officials claimed that the Nascapi were too shy to be promoted and could not function effectively in predominantly white work crews. This problem was the unfortunate result of the racial tension that took place widely between individual Indian and white workers....One foreman at IOCC named a Nascapi as his best worker and admitted that the only reason he would never promote this worker to a position of authority was that the whites on the crew would never take orders from him because he was Indian (Hess 1984:103).

On the other hand, Hobart (1984a) documents the surprisingly positive attitudes displayed by non-Aboriginal co-workers toward Aboriginal trainees in the Nortran Training Program, a petroleum industry apprenticeship program for northern residents set up in 1974. Hobart, however, reasons that this may have been due to factors such as the favourable economic conditions in the oil and gas industry at the time, and the nature of the work and training procedures. Abele (1989:139) presents survey results of participants in NWT training programs which indicate that, in most cases, respondents encountered little or no racist behaviour. There were, however, some reports of racism by co-workers and supervisors on pipeline work and in the Esso Resources training system for the production phase of the Norman Wells Project.

Abele (1989:113) also reports that there is a perception among those working at Shetah drilling, an aboriginally controlled venture, that they would likely encounter racist attitudes if they

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worked for non-Aboriginal companies. This perception may be a significant deterrent to their seeking employment in the industry.

While there are some reports of discriminatory practices and behaviour impeding Aboriginal employment in the resource sector, there are also instances where Aboriginal people are given preferential status in hiring decisions. There are many cases where a particular Aboriginal group is given priority in securing employment or contracts. The agreement between Chevron and the Fort Good Hope band is a case in point: it stipulates that all seismic-related contracts are to go to a company based in the community, and all other contracts are to be issued on a competitive basis, with a community, northern and then Canadian order of preference (Cassidy and Dale 1988:148).

While various projects have negotiated similar agreements with nearby Aboriginal communities, some employers are generally reluctant to give preferential status on specifically racial grounds. There is less resistance, however, to giving preference to residents of the regions in which the project is operating. Many companies operating in the North have formal commitments to hire residents from their provincial North or Territory, or simply to hire "northerners", before equally qualified residents of other regions (see Dacks 1981:23, note #50; Abele 1989:117; Shrimpton and Storey 1990:142).

In addition, the companies may institute special measures such as recruitment or training programs in Aboriginal communities, or special allowances in rotation schedules to encourage Aboriginal participation.

In general, therefore, the literature is unclear on the way in which an Aboriginal person's ancestry affects the hiring decision. While some people and companies may still have a negative perception of Aboriginal workers, the "official" policies of companies, if anything, tend to make Aboriginal ancestry an advantage in securing employment or contracts.

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ABORIGINAL PEOPLE'S INTEREST IN PARTICIPATION

The relevance of the factors considered so far to explain Aboriginal participation in resource projects is predicated on the assumption that Aboriginal people have a strong demand for employment and contractual opportunities with resource projects. Factors such as proximity to projects, discrimination, preferential hiring, levels of education and training, and long-distance commuting programs are only relevant if Aboriginal people in fact would choose to work with resource projects when jobs were available and accessible.

The few indications of demand specific to jobs in resource development have been inconclusive. Deines et al. (1979), in a study of native employment patterns in Alberta's Athabasca Oil Sands Region, reports that Aboriginal employees of resource companies overwhelmingly indicated a preference for industrial work over jobs in construction, services, or government. Among those Aboriginal people seeking employment, however, there was very little interest in work in the resource industry, the stated preferences being construction and services. As well, there is some indication that industry believes that low rates of Aboriginal employment can be explained, in part, by a 'lack of interest' (IGWG 1991:100; Mougeot 1979:105).

Most of the relevant literature, however, has tended to focus not on the demand for employment with resource projects *per se*, but on the more general demand for wage-earning jobs. In general, studies have shown that there is a significant demand for wage employment among Aboriginal people. Hobart points to surveys conducted at the time in various Inuit settlements that indicated that between 60 and 80 per cent of both male and female respondents wanted wage employment (1984b:52). The GNWT 1984 Labour Force Survey found that 82% of the participants who were not working wanted jobs; even among those engaged full time in the land-based economy, those wanting jobs outnumbered those who did not by 3.7 to 1 (Stabler 1990b:18-19).

Although there has been little debate in the literature about the extent of Aboriginal demand for jobs in the industrial sector, the same cannot be said for the interpretation of the figures. Do the

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figures reflect a preference for wage employment, or are traditional activities preferred and wage employment desired only as a means to finance them? Accordingly, do the figures indicate an unqualified demand for wage-employment, or is the demand conditional on a lack of opportunities in the traditional sector or on work schedules that allow time for traditional pursuits?

The answers to these questions are important to our analysis for a number of reasons. If demand is conditional, then low participation rates in some areas may be explained by a relatively healthy land-based economy - Aboriginal people simply choose work on the land over work in industry. If work for wages is only taken on to finance foraging activities, then relatively high rates of turnover among Aboriginal workers, and involvement in a relatively high proportion of part-time, seasonal, and low-status jobs can be explained to a great extent by personal preference.

These debates surfaced at the Mackenzie Valley Pipeline Inquiry. Hobart (1976) argues that the traditional economy's increasingly low and unpredictable economic returns as well as its relatively harsh, comfortless and dangerous lifestyle have made wage employment the more attractive option. He cites a number of studies, most from the early 1960s, to back-up his claim that

almost every researcher who has seriously studied the situation of native people in the North during this period has described their increasing disinterest in trapping, and their increasingly expressed preference for wage employment (Hobart 1976:30).

In a response to Hobart's testimony, Asch (1976) admits that there was a movement away from land-based activities in the 1960s, but argues that this was not welcomed by the Dene, was not a voluntary choice, and does not reflect any preference for wage employment. Choices, he reasons, "are not made in a vacuum, but rather must be seen in the context of general social and economic conditions" (1976:3). Asch argues that the same studies from which Hobart quotes to back up his argument of a declining interest in trapping in fact, when read carefully, support his contention that the poor economic conditions in the fur industry were a determining factor in the

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Dene's interest in the wage economy.

In his report, Berger (1977) clearly favours Asch's perspective. Berger maintains that the decline in Aboriginal people's use of the land reflected a temporary response to the economic crisis in the fur trade, the availability of social assistance, and the effects of government schooling; the decline "was an involuntary, unforeseen and demoralized retreat, and there is abundant evidence now of a renewed determination to maintain the native economy" (1977:110).

Since the Inquiry, the debates have continued in the literature. Stabler (1989) tries to test the different perspectives using the 1984 GNWT Labour Force Data. He defines three perspectives: "modernists" believe Aboriginal people prefer wage employment and use the traditional sector as an employer of last resort; "traditionalists" believe that Aboriginal people prefer foraging activities to jobs in the modern sector and only take on wage jobs to finance necessary equipment and supplies; "culturalists" do not focus on economic motivations or preference and instead attribute continued Aboriginal participation in the traditional sector to a motivation to preserve their cultural heritage. As Stabler points out, these hypotheses assume that Aboriginal people have a common set of motivations, and so it is not entirely surprising that the data do not unequivocally support any of the three hypotheses.

To overcome this problem, Stabler (1990a) uses a utility maximization analysis to interpret activity patterns of Aboriginal males in the NWT. This technique assumes that individuals attempt to maximize their well-being given their personal skills and abilities and the various options for earning income. He concludes that choices between jobs in the modern sector, traditional activities and leisure is consistent with utility maximization, and that this pattern reflects the treatment of traditional activities as inferior to modern sector jobs as a method of earning income.

Many have argued, however, that the motivation behind participation in land-based activities cannot be fully understood in economic terms. These authors emphasize the non-monetary aspects of participation - the "spiritual benefit" (Dacks 1981:13), "intrinsic importance" (Berger

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1977:104), "intrinsic process benefit" (Kruse 1991:324), or "psychic income" (Bone 1992:206) derived from land-based activities. Petterson explains that land-based activities "are the nexus of a complex range of social, cultural, and personal factors, and are not just, or even primarily, economic activities" (1987:92). As well, these and other authors have argued that most Aboriginal people have a preference for country food over the alternative processed foods, and foraging is the most direct way of satisfying this preference.

Stabler and these authors emphasize, respectively, economic rationality and non-economic considerations as determinants of activity choices. Kruse (1991), like Asch before him, emphasizes that choices are affected by the contexts in which they are made. While Asch sought to explain the collective behaviour of northern Aboriginal people, Kruse is more concerned with how contextual differences affect individual choice.

Kruse bases his study on two surveys of Inupiat subsistence and wage employment patterns conducted in Alaska's North Slope Borough in 1977 and 1988. One contextual difference considered is the size of the community in which the individual resides. He notes that residents of Barrow, by far the largest North Slope community, participated less in land-based activities, and more in the wage economy than residents of the smaller villages.

Another factor considered is the age of the individual. Kruse found that men between 25 and 44 years of age engaged in more land-based activities on average than either older or younger men. Participation was lowest for those 18-24. Hull (1984), in a study of Census Division 22 in Northeastern Manitoba, and Stabler (1990a), using NWT Labour Force data, present similar findings. Stabler attributes this to different role models for the two groups. Those older were substantially more likely to have role models who were full-time hunters and trappers. Kruse, however, points out that young married men engage in substantially more subsistence activities than those who are not married, and only 6% of those surveyed who were 18-24 were married. The implication is that the lesser participation of younger Inupiat does not reflect any permanent leanings away from the land toward the wage economy, but rather is a function of the stage they are at in their life-cycle. As they grow older their patterns will change.

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Kruse also considers the effect of the level of formal education and the employment status of the individual. While Stabler (1990a) indicates that NWT data reveals inverse relationships between participation in land-based activities and both education and employment, Kruse finds the relationship to be positive in both cases. Kruse found that more educated men, as well as those working full-time, reported participating in more subsistence activities. Similarly, households in the highest income bracket reported that they consume more country food as a percentage of their diet than those less moneyed.

This section asked the question of whether or not Aboriginal people have an interest in obtaining jobs with resource projects. If there can be any resolution to the various arguments presented, it is that the question does not beg a "yes" or "no" answer. It is apparent that Aboriginal people differ in their aspirations, preferences and motivations and that these, and the consequent employment choices are shaped by a long list of contextual factors. With this in mind, the answer to the question becomes an emphatic "it depends". In turn, the answer to the question of whether factors such as education levels, training opportunities, long-distance commuting programs, preferential hiring provisions, discrimination, etc. are relevant factors in levels of Aboriginal participation is an emphatic "yes", because these factors are part of the context in which aspirations are developed and choices are made.

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**THE EXTENT TO WHICH RESOURCE ACTIVITIES LEAD TO
NON-DIRECT, 'SPIN-OFF' EMPLOYMENT OPPORTUNITIES**

Major resource development projects can contribute to spin-off employment opportunities in Aboriginal communities if wages earned by community members employed with resource projects are spent within the community. Those wages can contribute to existing local businesses or can provide opportunities for new ones to form. There is little in the literature to indicate the extent to which this occurs, but based on the relatively small number of retail businesses in Aboriginal communities, it would appear that this 'multiplier' effect is minimal.

Another way in which resource projects can contribute to 'spin-off' employment opportunities is through payments made to communities, or to Aboriginal representative organizations, for the use of land and resources to which the group has some claim. Some Aboriginal groups with surface and sub-surface rights to lands containing valuable resources have collected substantial sums through royalties, rentals (permits and leases) and bonuses (for mineral surrenders or agreement signings) (Frideres 1984:55).

Principal among these groups are the 'oil producing bands' in Alberta. Many oil wells were drilled on reserve lands during the surge in oil and gas activity in the mid-1970s. For some bands, this ushered in a period of massive royalty payments: according to Joe Dion, chairman of the Canadian Indian Energy Corp., payments to oil-producing bands totalled about \$300-million annually for many years until revenues plummeted in 1986. In 1991, the revenues were \$50-million (Hutchinson 1992). Despite the decline, in a fifteen year period more than \$3-billion in royalties was paid to the federal government in trust for the bands. By mid-1991, about \$2.2 billion had been released to the bands (Cernetig 1991). These distributions, however, are not divided evenly among bands in the province. In fact, most have gone to a handful of bands - the Samson, Ermineskin, Louis Bull, and Montana bands at Hobbema, the Sawridge band at Lesser Slave Lake, the Enoch band near Edmonton, and the Stoney and Sarnce bands near Calgary (York 1990).

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At Hobbema, at the peak of the oil boom, the four bands were entitled to \$185 million in annual royalties, with the average family receiving about \$3,000 or more per month (York 1990:90).

All band members are entitled to a portion of annual royalties. In the case of children, some of their share is paid to their parents in the form of 'maintenance payments', but most of it is held in trust until their eighteenth birthday, whereupon they receive lump-sum payments which may vary between \$40,000 and \$70,000 (Maynard 1992).

Although, as yet, few Aboriginal groups other than the Alberta bands have benefited from significant royalty, rent, or bonus payments, Frideres (1984) points out that there is considerable, albeit variable, potential for resource development on many reserves. Tanguay (1993) acknowledges the same for the settlement regions of land claim areas. As these claims are settled and Aboriginal rights more clearly defined, Elias (1991) predicts that rent and royalty payments will become an increasingly important source of income for many Aboriginal groups.

Aboriginal groups may also receive compensation payments as a result of resource development projects. When the lands and land-based economies of Aboriginal groups have been destroyed, damaged or otherwise adversely affected by a major resource development project, they have sometimes received compensation payments from government and/or industry. Aboriginal groups who have received compensation include: the Sekani of Ingeneka in British Columbia, who received \$13 million for their lost lands as a result of the W.A.C. Bennett dam and the creation of Williston Lake; James Bay Cree communities (mainly Chisasibi) to whom Hydro Quebec recently agreed to pay \$125 million over 50 years for damages associated with the Laforce addition to the La Grande complex; the Grassy Narrows and White Dog reserves in northwestern Ontario who received \$18.17 million in compensation for mercury poisoning of the English-Wabigoon river system from the effluent of a pulp-mill, and flooding from hydro dams; and the Easterville and Moose Lake bands in Manitoba who agreed to compensation packages of \$13.7 million and \$7.35 million respectively for flooding caused by the Grand Rapids dam.

Also, the five Manitoba bands affected by the Churchill River Diversion Project (the Nelson House, Split Lake, Norway House, Cross Lake and York Landing bands) signed the Northern

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Flood Agreement (NFA) in 1977. Rather than providing an upfront settlement for damages, the agreement was to pay compensation based on claims as they arose. By 1992, about \$200-million had been paid pursuant to that settlement (Roberts 1992). Procuring compensation monies, however, came only after protracted negotiations, disputes, and legal challenges - a situation which served the financial purposes of outside consultants and lawyers, rather than the signatories of the agreement (Roberts 1992; Russell 1992). In 1986, the parties entered into negotiations to abandon the NFA in favour of a one-time settlement. This process culminated in separate settlements with the bands. In June of 1992, the Split Lake Cree First Nation accepted a \$47.5 million settlement and in March 1993, the Nelson House band agreed to a \$53 million package.

Many projects have gone forward in the face of protests by the Aboriginal groups whose lives were adversely affected by the development, and the compensation payments have often been paid many years after the damages were incurred. It should be noted, therefore, that while such payments may be viewed for analytical purposes as a 'financial benefit' resulting from a resource project, the 'benefit' is in fact being paid to a people whose relationship to the land has been forever changed, with enormous adverse economic and social consequences. As has so often been articulated by Aboriginal people, money can never provide adequate compensation for that kind of loss.

The payment of royalties, rents, bonuses or compensation does not in itself provide spin-off economic impacts. The extent of and the nature of the spin-off will depend on how the money is used. The management of the money may be the responsibility of the band, or increasingly, especially in land claim settlement regions, that of a native development corporation. The issue of how best to manage the funds of Aboriginal groups has been discussed in the literature, mostly in the context of development corporations. The literature points out that the bodies commissioned to manage the collective funds of Aboriginal groups can have dual roles - that of a private corporation entrusted with protecting the capital of others and earning a good return on investment; and that of a public body, committed to using the money to promote the social and economic development of its constituents. In many cases, investment decisions that support

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one role may come at the expense of the other (see Whittington 1986; Robinson, Pretes, and Wuttunee 1989; Elias 1991:172). These decisions will not only affect the extent of spin-off benefits from the monies, but also the nature of these spin-offs.

Sometimes the money, or a significant portion of it, is distributed to members of the Aboriginal group. In Alberta, as mentioned, huge sums - as much as \$3,000 per month per family - were distributed to members of wealthy bands. Families belonging to bands where royalty payments were less, such as the Saddle Lake band, might still have received as much as \$1,000 per month at the peak in 1984 (York 1990). Elsewhere, the amounts have been more modest: the Easterville, Moose Lake and Split Lake band members, for instance, received one-time payments ranging from \$500 to \$2000 (Campbell 1990; Roberts 1992).

It is obvious that these short-term payments will do little or nothing to stimulate long-term economic benefits to the communities. York (1990) points out that the lesser payments to bands such as Saddle Lake, although they were sustained over a few years, were not enough to stimulate economic development. It seems, however, that when payments to band members are both substantial and sustained, they can foster economic spin-offs. Dion Resource Consulting Services (1984) indicates that royalty distributions to members of certain bands in Alberta led to a home construction boom in which an increasing number of Indian-owned companies and contractors participated. They also contend that the royalties have contributed to a general increase in Native businesses. The extent of this contribution, however, is not entirely clear.

Decisions are often made to use a portion of the resource monies for public works - improvements to housing, roads, sanitation systems, recreational facilities, schools, public buildings, administrative offices, etc. Among the groups receiving resource monies, the Sekani at Ingeneka, the Cree at Chisasibi, Easterville and Nelson House, and the Hobbema bands, have all used, or expressed their intention to use, monies for public works. Investments of that kind are apt to supply local employment opportunities in construction, but do so only as long as the need and the money for continued expansion remains. When, for instance, oil royalties for the Enoch band fell from a peak of \$15 million a year to \$1.2 million in 1985, the band was forced to

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cut back its public works program and lay off about one hundred band members (York 1990:101). Knapp and Morehouse (1991) have reported similar happenings in Alaska's North Slope Borough. The long-term spin-offs from investment in housing and infrastructure, however, may arise from the better environment for economic and social development created by the improvements.

Some groups have invested in local or regional businesses. In the case of Alberta's 'oil bands', York (1990) reports that the Louis Bull band owns several shopping malls and apartment buildings in Edmonton and Red Deer. The Enoch band now owns a racetrack, stable, 2,000-hectare cattle ranch, a 2,400-hectare grain farm, an industrial building where trailers are manufactured, a construction company, two golf courses, a marina, a daycare centre, and an arena. The Samson band has established a trust company and an insurance company, and has a minority interest in a western bank and an Edmonton computer company. While many of these investments do not provide significant employment benefits to the bands, others like the Louis Bull band's investment in a twenty-four-hour truck stop and grocery store, have provided new employment opportunities.

Further north, the Inuvialuit Development Corporation, in partnership with the Inuit of the Eastern Arctic, are owners of Norterra Inc, a company that transports supplies and equipment into the North, and also manufactures pipeline valves and mobile homes. In addition to transportation and manufacturing, the Inuvialuit are also active in real estate, wholesale food supply, surveying retailing, construction and environmental services (Gruben 1993).

Whittington (1986) provides a list of the early investments of a number of development corporations.

Spin-offs can also result from a decision to use resource monies to create, expand and improve local political and administrative institutions. The most obvious spin-offs come from the employment created by expanded government. McCutcheon (1991) reports that the creation and growth of an Aboriginal bureaucracy after the James Bay Agreement has reached the point where it now provides most of the region's permanent employment opportunities. Although Dion Resources Consulting Services (1984) reported that 'some' employment had been

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generated by the expansion of Band administrative responsibilities from the oil boom, the results would appear to be less dramatic.

Resource projects have not only supplied a source of cash from royalties, rents and compensation payments, but they have also provided an opportunity for investment and a market for aboriginally owned service companies.

Resource payments can be one source of financing for such investments and ventures, but they are not the only ones. DPA (1982) enumerates the various sources of financing used for a number of cases of Aboriginal equity participation in resource projects including: government grants and loans, payment from land claim agreements, the Native Venture Capital Corp., funds from other Native businesses, and funds secured on the expectation of future cash flows (usually guaranteed by the resource company). IGWG (1990) provides a comprehensive list of relevant federal and provincial financial assistance programs available to Aboriginal groups.

Aboriginal communities around the Dona Lake and Golden Patricia mines in northwestern Ontario have used existing government programs to develop a number of businesses to supply services to the mines. For instance, the Golden Patricia mine has provided a market for a laundromat service started in the community of Cat Lake, a sawmill at Savant Lake, and a local airline which is providing air services from the mine to communities of Slate Falls and Cat Lake (IGWG 1992).

The uranium mines in northern Saskatchewan have provided many business opportunities for Aboriginal communities. The Cluff Lake mine, for instance, gave Buffalo Narrows Airways a boost when it awarded it the contract to shuttle rotation workers from communities in the northwest side of the province to the connecting flight in Saskatoon. The Prince Albert District Chiefs Development Corporation, which is owned by 12 Indian bands in the northeast of the province, has the contract for site security and janitorial services. In all, in 1989, the mine spent \$3 million for the supplies and services of 48 northern businesses (IGWG 1990:149).

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In British Columbia, the Tahltan Nation Development Corporation (TNDC) received a \$1.8 million grant from the Federal Government to increase its construction capabilities and open a heavy construction division, Spatsizi Construction. This division was subsequently awarded a contract for the construction of a portion of the access road to the Golden Bear gold mine, and a longer-term contract, still in effect, for general maintenance and upgrading of the roadway. Spatsizi was also awarded a joint contract with a non-Native firm to build a settling pond dam for the mill, and another joint, five year contract for mining and ore hauling. Initially, the provincial Department of Highways' assurance of the availability of \$1.5 million worth of business over a three year period for the division was essential to obtaining the federal funds. In its fiscal year 1990, the TNDC employed 82 people, 90 per cent of whom were Tahltan, and paid out \$2.1 million in wages (IGWG 1990:155-161).

While resource development projects may have catalyzed the formation or the growth of these ventures by providing a market for their services and by facilitating their access to financing, and while they in turn have created employment for Aboriginal people, the long-term spin-offs will depend on the enterprises' abilities to find new markets and secure other contracts.

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IMPACT ON THE LAND-BASED ECONOMY

The land-based economy is at the foundation of the aboriginal social and cultural heritage, and its significance and its value to aboriginal people far outweighs its economic worth (Brody 1975 and 1988; Berger 1977a:93-110; Dacks 1981:168-173; Freeman 1986; Salisbury 1986; Shkilnyk 1985). Whittington notes that

All aspects of the culture of a traditional hunting and gathering society - the social values, political culture, art, legends, religion, social structure - are reflective of the central problem of their lives, which is hunting and fishing in order to survive (Whittington 1985b:68).

The concern over the impact of major resource development projects on the aboriginal land-based economy, therefore, goes beyond the economic consequences of such an impact:

If this central fact of their lives is removed and replaced with either a wage or welfare economy, the most significant determinant of their culture will disappear, and with it ultimately the culture itself (Whittington 1985b:68)

In light of this, although the impact of one or more major resource development projects on a community's land-based economy can clearly have profound consequences for that community's overall economic situation, much of the literature has tended to focus on the socio-cultural implications of such impacts. The belief of many that major resource projects have already damaged the traditional economy and will continue to do so in the future makes the issue both an emotional and an important one.

THE IMPACT OF WAGE EMPLOYMENT

Opportunities for wage employment are thought to have both the potential to hinder and help the land based economy. The principle argument that major resource projects contribute positively to the traditional economy is that wage employment brings in the cash needed to buy and maintain better harvesting equipment such as skidoos and boat engines. For this argument to hold, it is necessary to establish the following: first, that the wages earned from resource projects are in fact used to purchase and maintain this sort of equipment; and second, that the use of the

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equipment strengthens, or at least helps to maintain the traditional economy.

There is evidence from several arctic communities to suggest that wage earnings from industrial projects were used to buy harvesting equipment. Hobart (1979b, 1981, 1982, 1984a) notes that Inuit residents of Coppermine, Arctic Bay and Pond Inlet who worked with Gulf Oil's exploration program in the Mackenzie Delta, the Pan Arctic Oil drilling program in the High Arctic, or the Nanisivik mine on Baffin Island, spent a substantial amount of their wage earnings on resource harvesting equipment.³ Similar results were observed for Aboriginal residents of Fort Liard, NWT, who worked on the construction of the Pointed Mountain Gas Field (Scott 1973). More recently, some aboriginal participants in NWT training programs noted in interviews that they viewed wage employment "as a means to improve their family's equipment for being in the bush" and intended to use their cash income from training and subsequent employment to make such purchases (Abele 1989:137).

Others, however, question the universality of this positive relationship between wage earnings and the purchase of harvesting equipment. Michael Asch (1977), for instance, notes that seasonal jobs in oil and gas exploration typically attract young, unmarried men who use a substantial portion of their income on "personal luxury items or on socially useless activities" (1977:56). Usher agrees:

my own discussions with individuals in the Beaufort Sea area...indicated that most equipment purchases are made by older men with steady employment, or by people who have a good income from harvesting activities or guiding, not by young men who work on the rigs seasonally. They suggested that much of the income earned by young men in industry employment was spent on non-productive travel and activity in Inuvik (Usher 1982:42).

Usher does admit, however, that there is some indication that the spending patterns of these young men become more responsible if and when they assume family responsibilities. In sum, however, Usher contends that the hypothesis that wage income from industrial employment

³ The exact figures can be found in Hobart's "Impacts of Industrial Employment..." , 1981, p.214

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finances the traditional economy has yet to be tested adequately.

Hobart (1988) shares Asch and Usher's concerns about the spending patterns of young and unmarried men, but argues that it is only commuting programs with long work rotations that tend to attract these workers, principally because those with families are unwilling to incur the necessary extended absences from their family. There is not the same disincentive, however, with commuting rotations of shorter duration and the majority of commuting programs in the territorial and provincial North's use rotations involving only one or two week absences from home (Shrimpton and Storey 1988:10).

The contention that such equipment is an asset to the traditional economy seems, in general, to be accepted. The belief that predominates is that the change to permanent settlements and population increases have caused a shortage of game and fish stocks near communities, and lengthened the journey to adequate foraging areas. As such, according to Berger,

without modern equipment, including rifles and snowmobiles, the native people would find it virtually impossible to continue their traditional land-based subsistence activities in the contemporary situation (Berger 1977:110).

Usher (1982), however, argues that the capitalization of the traditional sector, may give it a short-term boost, but it also may undermine its long-term viability. Usher notes that capitalization creates a dependence on factors like continued wage employment opportunities and the stability of prices for inputs such as fuel. As such, capitalization has the potential to create temporary barriers to participation in the traditional economy.

A classic theoretical expression of the problems associated with capitalization of a land-based economy and with increasing dependence on externally controlled factors can be found in Pelto (1973 and 1978). Pelto believes that the circumpolar North has been going through a process of "delocalization", which he defines as

the tendency for any territorially-defined population to become increasingly dependent on resources, information flow and socioeconomic linkages with the systems of energy and resources outside their particular area (Pelto 1978:31).

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The growth of major resource development projects, and the conversion of local transportation and other energy systems to dependence on imported energy sources, results in "overwhelming de-localization" (1978:33). Energy de-localization, for instance, predictably results in increases in the costs of per-unit production, which creates pressure to expand the scale of operations. Those who cannot afford the increased costs of production are driven out of the business.

Some evidence of this phenomenon is provided by Feit (1982) who documents increased capitalization and dependence on cash among the James Bay Cree in the years prior to the James Bay and Northern Quebec Agreement (JBNQA). Feit notes that between 1970 and 1976, the average replacement value of hunting equipment owned by Waswanipi hunters rose from \$848 to \$2,685. Yearly expenses for inputs related to food, travel and equipment also increased markedly. During the same period, fur income rose from \$619 to only \$671. As a result:

...the Cree were trying to maintain a subsistence economy in the midst of an increasing interaction and dependence on cash, goods, services and employment in the regional economy. The results were mixed, and a significant number of people were being driven out of intensive subsistence production in the process (Feit 1982:393).

For the Cree, these dependencies were addressed in the Income Security Program (ISP) of the JBNQA. It is beyond the scope of this paper to review the terms and evaluate the success of the ISP, but it is noted that the ISP provides an example of a way to finance the land-based economy other than through wage employment. Other alternatives are examined in Berger (1977, vol. II), Usher (1982:43-46) and Pretes and Robinson (1989).

Usher (1982) also argues that considering the time constraints imposed by wage employment (earned on a rotation basis or otherwise), and the financial dependencies and increased opportunities that accompany the use of modern equipment, it will become easier and more worthwhile to harvest those species that are particularly valuable, or are concentrated at predictable locations. Usher fears that increased capitalization will result in

a significant decline in diversity and flexibility of action - traditionally the hallmarks of the northern hunter...and an overdependence on a steady and predictable supply of one or a few resources, which is unfortunately an

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exceptional rather than a common characteristic of northern species (Usher 1982:55).

Usher noted, however, that at the time of writing, the use of modern equipment had not significantly reduced flexibility. More recently, Kruse (1991:320) uses evidence from Alaska which suggests that Inupiat men, who use modern harvesting equipment, are still hunting a diverse mix of fish and game and not focusing more narrowly on a few preferred species.

A second issue relates to the restrictions that employment in resource projects place on participation in the land-based economy. Brody (1977) argues that large-scale developments will subsume the work-force of small aboriginal communities, luring people off the land and into high-paying industrial jobs. In light of the chronic cash shortages experienced by full-time hunters and trappers, it is, paradoxically, those most firmly tied to the land who face the greatest pressures to take on short-term wage-earning jobs - thus producing a "total intrusion" of the extractive industries on the small communities. Furthermore, Dacks (1981:20) points out that jobs with many resource projects do not last very long, and once an aboriginal person takes on an industrial job, he may find it hard to resume work in the traditional sector.

Waldram (1987) presents evidence of the employment impacts of the construction of the Churchill-Nelson River Hydroelectric Project on a northern Manitoba aboriginal community and argues that the case provides a clear example of the "total intrusion effect". The effect of hydro construction employment between 1973 and 1975 was pervasive, especially in the commercial fishing and trapping industries. Waldram estimates that 40 percent of the male workforce was involved with the project during these years (1987:68). The commercial fishery suffered declines in 1973 and 1975 and closed completely for the 1974 season. The community- owned fish plant and co-operative, which depended on a sustained volume of fish, collapsed in 1975. The trapping industry suffered a similar collapse during the 1974/75 season, as total production of furs declined to one eighth of the previous year's yield. The following season, however, volumes were at previous levels.

Other evidence of the total intrusion effect comes from Scott (1973) who notes that in 1969-70,

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75% of the male labour force of Fort Liard were classified as full-time hunters and trappers; during the construction of the Pointed Mountain Gas Field, however, 62% were working for wages and salaries. As well, a more recent study by Pedro van Meurs, President of the Inuvialuit Petroleum Corporation, addressed the impacts of the clean-up operation of the massive Exxon Valdez oil-spill on communities along the southern coast of Alberta. The study determined that the high wages offered by Exxon caused disruptions to communities along the southern coast of Alaska. It seemed that although fishermen were compensated for loss of income, fish processing firms faced bankruptcy as their workers left to seek the higher Exxon wages (Canadian Press 1990).

Berger, in his analysis of the probable impacts of the proposed northern pipeline, shared the concern that the availability of industrial jobs would undermine the land-based economy (1977:133). Berger believed, however, that the inability of the land-based economy to compete successfully with the industrial economy for labour could be remedied if the land-based economy was "strengthened" - if it could generate enough capital to support its own renewal, and enough income, in cash and in-kind, to offer a viable alternative to wage employment.

The 'total intrusion effect' is predicated on the assumption that participation in the industrial economy and participation in the land-based economy are mutually exclusive endeavours.

According to Berger:

absorption into the industrial economy can only mean displacement of the native economy: migrant workers cannot also be hunters and trappers (Berger 1977:122).

Some, however, contend that conditions can be created which allow aboriginal employees of resource projects to continue to participate in the land-based economy.

Hobart (1979a, 1981, 1982, 1984b, 1988) compares the impact of different industrial work situations on aboriginal people, focusing primarily on the relative merits of relocation to a resource town versus commuting to a project on a rotation schedule. Hobart argues that workers who relocate to resource towns encounter two difficulties which interfere with their capacity to hunt and trap: first, they have to work 'regular' hours, and thus do not have

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sufficiently long blocks of time to participate meaningfully in the land-based economy; and second, they face terrain and animal movement patterns with which they are unfamiliar. Workers who commute on a rotation work schedule, on the other hand, avoid both of these difficulties (1982:59).

In support of his argument, Hobart cites his research into the community of Coppermine's involvement in rotation work with Gulf Oil, and the Baffin Region Inuit Association (1979) study (of which Hobart was principal researcher) into the impacts of the Nanisivik mine on a number of Inuit communities. In both cases, there was no evidence of an overall decline in community harvesting levels (see Hobart 1979b, BRIA 1979:296-297). The BRIA, however, did relate that there were some indications of diminished harvesting among individual workers and their families (1979:329).

Kruse (1991) provides support for Hobart's thesis that under the right circumstances, aboriginal people can participate meaningfully in both the industrial and the traditional sectors. Kruse found that in 1988, among Inupiat men in Alaska's North Slope Borough, those working 12 months a year in the wage sector reported slightly more subsistence activities than other men. Those involved full-time in the traditional sector did produce higher harvests, but those involved part-time also produced substantial harvests. Kruse also found that women who work in the wage sector appear to be just as likely to pursue subsistence activities as those who do not. The implication is that the North Slope Inupiat do not have to choose between wage employment and land-based activities; a wage-earning job does not preclude, and may even reinforce participation in foraging. Kruse attempts to explain this by noting that

wage employment opportunities have been deliberately structured by both major employers like the North Slope Borough and the Native corporations to offer opportunities to hunt and fish. These jobs have also been located in villages which themselves are located strategically to take advantage of migrating marine mammals (Kruse 1991:323-324).

THE IMPACT OF ENVIRONMENTAL DAMAGE

In many cases, resource development projects have had a profound impact on the environment,

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which in turn has had a devastating effect on the renewable resource base on which the land-based economy depends.

The environmental effects of hydroelectric megaprojects, for example, have been enormously disruptive to the land-based economy of a number of aboriginal communities. These disruptions have been precipitated primarily by the loss of animal habitat and the release of methyl mercury into the water - two seemingly unavoidable consequences of large-scale hydroelectric developments.

The scale of terrestrial habitat loss is often enormous. Hydroelectric dams create reservoirs behind them which flood huge areas of land. The James Bay Development, in its entirety, would flood an area larger than the surface of Lake Ontario (Gorrie 1990:23); the W.A.C. Bennett Dam in British Columbia created Williston Lake, one of the world's largest artificial lakes, covering an area of 1600 square kilometres (Waldram 1988a:16); Alcan's Kemano I project at Kitimat, B.C., reversed the flow of a river and flooded seven lakes to create the 890 square kilometre Nechako Reservoir (Waldram 1988a:15); the Grand Rapids Hydroelectric Development in Northern Manitoba flooded over 2200 square kilometres of delta land considered to be one of the last extensive unspoiled areas of wetland wildlife habitat in North America (York 1990:109; Loney 1986:57); and the Churchill-Nelson River Hydro Project diverted most of the water from the Churchill River south into the Nelson and flooded over 1,500 square kilometres of boreal forest (Waldram 1985b:41).

Habitat loss has been especially severe along the banks of lakes, rivers and streams. The diversity of plant life that grows along shores provides a home for various mammals and birds (Gorrie 1990:24; McCutcheon 1991:97; Charest 1982:421). Whether submerged by flooding, eroded by increased water flows, or desiccated by reduced flows, many of these biologically productive areas have been destroyed. The flooding from the La Grande complex at James Bay "drowned in total some 83,000 kilometres of such natural shorelines, and in doing so inflicted what is probably the most severe of its impacts on nature" (McCutcheon 1991:97-98). It is difficult for the new shorelines to replace lost habitat because of the fluctuations in water

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levels and flows.

Flooding land also damages the renewable resource base as decomposing vegetation catalyses the release of toxic methyl mercury into reservoir waters. The mercury then enters the food chain - accumulating in its highest concentrations in fish species who feed on smaller fish (Gorrie 1990:27). Recently, during environmental hearings into the Ste.Marguerite hydroelectric project in Quebec, a Hydro Quebec spokesperson admitted that despite years of research, the problem is still not solved (Hamilton 1993b).

The case of the Grand Rapids dam and its impacts on the Swampy Cree community of Chemawawin in Northern Manitoba has been well documented in the literature (see Waldram 1980, 1988a, 1988b; Loney 1986), and is illustrative of the potential of hydroelectric development to devastate an aboriginal community's land-based economy. Before the flooding of the reservoir in 1962, the area surrounding Chemawawin was enormously resource rich. The fertile land held great agricultural potential for cattle rearing, grains and vegetables, and supported a large cattle ranch. There was considerable trapping activity in the wetland marshes nearby which involved up to 70 residents a year. A commercial and subsistence fishery operated all year and, in the year prior to the flooding, brought in 103,000 lbs of fish. As well, the Cree hunted moose, deer and waterfowl, which was an essential part of the culture and the diet (Loney 1986:59-61).

By 1965, with the reservoir filled and the complex operational, the community of Chemawawin was completely submerged and the residents relocated to a new site about fifty kilometres away. A DIAND survey of harvesting statistics conducted in 1965 revealed that the land-based economy had been completely decimated: the 'before and after' picture revealed a reduction in harvests of over 90% for fish and moose, and over 95% for duck, geese and deer (Loney 1986:68). With the marshland flooded, most people completely gave up trapping of beaver and muskrat (Waldram 1988b:41). In 1971, the fishery was closed for two years because of mercury contamination in the lake.

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York (1990:109) describes similar problems experienced by the nearby Moose Lake band. Along with reductions in game and fish harvests, the community also lost lands which supported cattle and muskrat ranches, as well as grain and vegetable crops.

Waldram (1983;1985b;1987;1988a) has chronicled the story of the Churchill-Nelson River Project and its impacts on the Cree community of South Indian Lake. Since the flooding of Southern Indian Lake, the commercial fishery has been severely impaired as there has been a decline in both the quality and quantity of fish. Mercury contamination has periodically closed the fishery for some predatory species. The trapping industry was damaged as over half of the community's traplines were at least partially submerged, and transportation on the lake became dangerous and difficult because of unstable ice conditions. The loss of the natural shoreline around the lake curtailed the harvest of moose and caused, according to David Young of the University of Manitoba, a 98% reduction in the population of nesting waterfowl (Krotz 1991:43).

Krotz (1991) has documented some of the impacts of the project on the renewable resources of other aboriginal communities. These include: significant disruptions to the fishery at Nelson House and Cross Lake, where fisherman now have to travel to inland lakes to find suitable areas; disruptions to the spawning of sturgeon at Norway House and Split Lake; greatly reduced muskrat populations at Cross Lake, Nelson House and Norway House.

Waldram (1988a) has also pulled together scattered evidence from across the country of damages inflicted by other hydro projects. In British Columbia, the Cheslatta band, which was forced to relocate as a result of the flooding from the Kemano I project, filed a claim with the federal government which detailed grievances of lost "land, resources, burial grounds, gathering areas, fishing stations, trapping cabins, trails, etc." (cited in Waldram 1988a:15). Upstream of the W.A.C. Bennett dam, Williston Lake flooded the principal foraging territories of a number of Sekani Indian bands; 1,100 kilometres downstream, reduced flows have dried up foraging territories used previously by the aboriginal residents of Fort Chipewyan, Alberta. The foraging activities of the Metis and Swampy Cree community of Cumberland House, which lies 97 kilometres downstream of Saskatchewan's Squaw Rapids Dam, have been similarly affected by

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reduced water levels and fluctuating flow rates in the Saskatchewan River.

The most publicised hydroelectric development is, of course, the massive James Bay Project in Quebec. The first phase of the James Bay development, involving a series of dams, diversions, and generating stations along the LaGrande River, has primarily affected the Cree community of Chisasibi situated at the mouth of the river. Within months of the project's completion, mercury levels in fish were found to be six times their normal levels. Although the high concentrations were initially predicted to last six years, it is now expected that they will remain high for ten to twenty years (Gorrie 1990:27-28).

The most infamous case of mercury contamination in Canada, however, involved a pulp mill, not a hydroelectric development. In the early 1970s, the northern Ontario Ojibwa communities of Grassy Narrows and White Dog were devastated when a mill dumped 9000 kilograms of mercury into the English-Wabigoon river system, poisoning the fish and crippling what had become the mainstay of the land-based economy. Shkilnyk (1985:200) estimates that in the late 1960s, about fourteen Grassy Narrows band members worked for the full open-water season in the commercial fishery, twenty-three others worked as guides and took up fishing when the tourist season was over, and a number of youth helped out on an intermittent basis. In May of 1970, the commercial fishery was shut down as a result of the mercury contamination. There was also some loss of jobs in guiding as the largest lodge in the area, which employed between 120 and 130 Grassy Narrows people annually, shut down, and other lodges were affected by widespread and sensational media coverage of the contamination (Shkilnyk 1985:204; Royal Commission on the Northern Environment 1978:156). The loss of opportunities in the fishery and in guiding added to the problems of a land-based economy that had already experienced a decline in hunting activity, and undergone a complete collapse of the winter trapping industry seven years before.

The literature concerning the environmental consequences of oil and gas developments and their impacts on the aboriginal land-based economy is more detailed in its treatment of potential impacts than it is in its reporting of actual ones. The report of the Mackenzie Valley Pipeline

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Inquiry (Berger 1977), for instance, provides a detailed overview of the potential impacts of northern oil and gas development on the northern ecosystem. Berger concluded that any pipeline route across the Northern Yukon or the Mackenzie Delta would likely have devastating impacts on a range of northern wildlife which act as the foundation of the native land-based economy. Berger also expressed concern about continued exploration in the Beaufort Sea. He noted that a major spill could have enormous ecological consequences and that, in his opinion, existing techniques were not capable of controlling and cleaning up such a spill. Berger was less concerned, however, with a pipeline route along the Mackenzie Valley. He concluded that if certain terms and conditions were respected, there would be no significant losses to wildlife populations.

Justus Simonetta Development Consultants (1979) investigated the impacts of the oil sands operations at Fort McMurray, Alberta, on the communities of Fort MacKay, and to a lesser extent, Gregoire Lake and Fort Chipewyan. In Fort MacKay, the consultants interviewed 34 households of employees and former employees. All respondents indicated that the plants had an effect on the wildlife in the area. With respect to waterfowl and game:

respondents reported that moose were much more scarce and the deer had all but disappeared. Many made reference to some 400 ducks that have been killed as a result of landing on the Syncrude tailings pond (Justus and Simonetta 1979:26).

As well, the community members indicated that the water quality had been significantly affected:

respondents reported seeing oil on the Athabasca River, tar build up on the water line of their boats and finding oil in the fish they cut open (Justus and Simonetta 1979:28).

Three quarters of the respondents indicated that, before the plants were built, wildlife stocks in the area were sufficient to provide for their families for the year; almost all (95%) of the respondents indicated that, with the plants in operation, the stocks were no longer sufficient.

The Albertan oil industry has also made its impressions on the communities of the Lubicon Lake Nation. Before the winter of 1979-1980, there had been only negligible oil and gas activity in traditional Lubicon territory. With the jump in world oil prices in 1979, however, and the

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completion of all-weather roads into the Lesser Slave interior, the boom began. By 1980, oil companies were moving into the area in droves to conduct exploratory work. By 1984, more than 400 oil wells had been drilled within a fifteen-mile radius of the Lubicon community of Little Buffalo Lake (Goddard 1991:76). Goddard (1991) reports that hunting and trapping trails became all-weather roads; traps were pillaged by dogs kept by workers, run over or covered up by bulldozers, or looted when pelts were valuable. A probation officer in Peace River acknowledged that workers under his supervision had admitted to destroying traps on orders from employers.

According to statistics gathered by Kenneth Bodden, a wildlife specialist with the University of Alberta, average family incomes from trapping in the 1979-80 season were more than \$5,000, but declined on an annual basis thereafter: first gradually, to \$4,000, and \$3,200; then drastically, to \$800, \$400, and almost nil (Goddard 1991:77). Ferreira (1992:22) reports somewhat different figures taken from band records which show average trapping incomes of approximately \$6,000 in 1982, and \$2,000 in 1984. Bodden also reported that the number of moose taken declined from over 200 in 1979 to only 19 by 1983. At a court hearing seeking a temporary injunction on further exploration, Ben Hubert, a Yellowknife zoologist, estimated that each active oil well destroys two to four acres of moose habitat (Goddard 1991:110).

The examples provided of projects which have had a severe impact on the land-based economy of Aboriginal communities are not an accurate representation of the impact of all projects. The Norman Wells pipeline, for instance, built between 1982 and 1985 along the southern Mackenzie Valley to connect the Norman Wells oil fields to existing pipelines at Zama in Northern Alberta, passes close by the aboriginal communities of Fort Norman, Wrigley and Fort Simpson. According to Bone (1989), data on the consumption of country food in these communities indicates that the pipeline and its construction has had no perceptible deleterious impact on the renewable resources and land-based economy of these communities.

Not only have there been significant differences in the impacts of past projects, but the projected impacts of future projects must be seen within the context of changing technologies, more

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stringent environmental standards, the establishment of various regulatory agencies, and growing public awareness of environmental issues. Bone (1992:167) notes that, in light of these considerations, most resource development projects built twenty years ago would not be acceptable today.

It is nonetheless clear from the literature that some major resource development projects have had a profound negative impact on the environment and on the land-based economy of aboriginal communities. In this section, the impact has been presented in terms of numerical declines in community hunting, fishing and trapping harvests. Brody (1981) reminds us, however, that an injury to the environment, and a decline in these numbers, touch all aspects of Aboriginal life:

Environmental effects, good or bad, are inseparable from the social and individual well-being of a people whose domestic economy, historical experience, and sense of identity are focused on the land and its resources. Even though the precise links in the causal chain from environment to society are not easily spelled out, the effects upon individuals of divorce from their traditional activities are clear to see (Brody 1981:249).

In the following sections, the various social impacts identified in the literature are articulated. Many of these are rooted in the alienation of Aboriginal people from the land and its resources. While, as Brody suggests, the "links in the causal chain" may not always be clear, it is important to keep in mind this most fundamental, socially pervasive impact of development projects.

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IMPACT ON TRADITIONAL VALUES

A common concern expressed in the literature is that major resource development projects and the industrial system of which they are a part, present a threat to traditional Aboriginal values.

This concern is central to Berger's (1977) report; indeed, its title "Northern Frontier, Northern Homeland," reflects his interpretation of the pipeline project as a conflict between two disparate and incompatible perspectives of the North. For southerners, and for the project proponents, the North was a frontier - a treasure chest of resources to be exploited for financial gain. To its Aboriginal people, the North was a homeland, and the project an intruder which threatened the lands and resources which had sustained them for generations.

Whittington (1985b) has articulated the differences in values associated with these divergent perspectives (see also Berger 1977:93-100; Dacks 1983). The fundamental difference is that the values of Aboriginal northerners are oriented more toward the collectivity than the individual:

This collectivism is rooted in the precarious nature of life in traditional hunting and gathering societies, where the survival of the tribe, clan, extended family or community is more important than the fate of any one individual. Individualism in traditional societies is simply a luxury they cannot afford...(Whittington 1985b:65).

As such, private property, individual possession and initiative, which are at the foundation of liberal society are eschewed in favour of the sharing of wealth and effort. Surpluses are not accumulated by the individual producer, but distributed among the group.

In hunting and gathering societies, the land and its resources are indeed life sources. As such, the people feel a spiritual link with, and a reverence for, their natural environment. They are only one part of a balanced whole, to which they must integrate and adapt in order to survive.

Whittington explains that

this starkly contrasts with the liberal notion of the frontier, which sees the environment as essentially alien and hostile. Within this view the northern environment must itself be adapted to human use: it must be conquered or

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domesticated in order to be useful to human society (Whittington 1985b:66).

Because of the differences between these perspectives, there is some debate and some uncertainty in the literature with respect to the role of capitalism in aboriginal economies. Does participation of aboriginal people in capitalism - in an economic system that embraces the values of private ownership, individual accumulation of goods, and individual economic responsibility - necessarily indicate an erosion of traditional values?

Berger (1977) argued that northern Aboriginal people had managed to retain their traditional values based on their ties to the land, but that these would be threatened if the construction of a northern pipeline and the continued advance of the industrial economy were allowed to proceed unchecked. Although Berger thought that employment in the industrial capitalist economy was incompatible with, and a threat to, Aboriginal values, he nonetheless advocated an alternative, a strengthened land-based economy, which was to be achieved in part through the expansion of capitalist enterprises designed to exploit northern renewable resources.

The distinction between mercantile and industrial capitalism can shed some light on this apparent contradiction. As Usher (1982) explains, the production of many goods in a capitalist system is performed by individuals or any small productive unit such as a household. When the commodity is not a complex one requiring multiple inputs, there is no need to develop elaborate corporate structures to produce it. The production process is organized and controlled by the producer, who typically sells the good to a merchant who will distribute it for a profit.

Asch (1982b) points out that with the exchange of primary products and furs, aboriginal people participated in mercantile capitalism. Trapping for trade, essentially provided an extension of the basic subsistence economy, where the organization and control of work still resided essentially within a kin group or household unit. Participation in mercantile capitalism, therefore, did not necessitate a change in the 'social relations of production' - the social organization of the productive activity, and the framework of values and institutions which serve to perpetuate it.

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Large-scale resource developments, however, operate within the institutional framework of industrial capitalism. Compared to mercantile relations, Usher explains that

a fully industrialized system of production and markets is quite different. Industrial employment involves selling one's own labour power at a price to a firm or a bureaucracy which then directs and supervises that labour. This productive unit... owns the means of production, purchases the raw materials and the labour power, and directs the production process which combines these elements (Usher 1982:25).

Since industrial capitalism depends on the assembly of land (including its resources), labour and capital, there are certain conditions that are essential to its development:

A market for labour must be established, and labour must become mobile. A market for land must also be established, and so pre-existing systems of land tenure that impede the free exchange of land must be terminated. People, as the embodiment of labour, must become separable from their ties to the land, and from their ties to kin and community... (Usher 1982:27).

Asch (1982b) argues that since World War II, the Dene, although they have not participated to any great extent as wage labourers in resource projects, have nonetheless come under the influence of the institutions and values of industrial capitalism. Consistent with the paradigm of modernization, the Canadian government, after World War II reacted to the poor economic conditions of the fur trade by instituting policies designed to expedite the transition of the aboriginal person from hunter-gatherer to proletarian in the industrial economy. This included mandatory southern-style education for children, which could inculcate them with modern industrial values while denying them access to the learning of subsistence ones. The involvement of aboriginal people (Asch's argument is based around the experience of the Dene) with welfare, wage labour and western education have created "the context in which erosion can take place" (1982b:364).

For Asch, therefore, the threat to traditional values does not come from large-scale industrial projects *per se*, but from the intrusions of the institutional framework of which they are a part. Asch, however, does not believe that these intrusions are inevitable. While Whittington argues that "the basic problem...is that entering the wage economy necessitates the abandonment of

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collectivist values, and ultimately a loss of the sense of community that is so essential to the native way of life" (1985b:67), Asch maintains that the mere contact of the industrial mode of production with the subsistence mode is not sufficient to induce an erosion of values. The key factor is the extent to which the industrial system interferes with the ability of a subsistence-based community to reproduce its traditional skills and social relationships.

Indeed, some case studies have shown that increased opportunities for wage employment in aboriginal communities have not led to the atrophy of egalitarian, collectivist values. Scott (1982), for example, has noted that among the Wemindji Cree of Quebec, domestic producers have maintained reciprocal relationships with Cree wage-earners by exchanging surplus bush product for consumer items, help with the purchase of harvesting equipment, or token donations of cash. According to Scott, despite the contact of the subsistence with the industrial systems, and the participation of some Cree in the latter, "the importance and scope of ideology and ritual for reproducing egalitarian relations have increased" (1982:60).

There are some reports, however, which point to the loss of sharing networks, especially where resource projects, through wage-earning opportunities, environmental damage, the presence of outsiders, or otherwise, have interfered with the land-based economy. Hess (1984) reports a decrease in the sharing of country food among Nascapis who had worked as wage earners in the iron-ore operations at Schefferville, and an increase in the selling of such food for profit. Justus Simonetta Development Consultants (1979) indicate that interview respondents in Fort MacKay believed that "kin support" (as indicated by the likelihood of approaching extended family members for food, shelter, money, etc. when in need) was substantially greater before the arrival of the oil sands plants twelve years before than it was at the time of study. McCutcheon (1991:121) observed a loss of "the sharing ethic" among the youth of the community of Chisasibi affected by the La Grande development at James Bay. A 1978 government report on social conditions in the community of Easterville, which was relocated due to the flooding caused by the Grand Rapids dam, states that:

the former system of sharing and looking out for one's neighbours and friends seems to have disappeared, replaced by a cash oriented community

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whose members expect to pay even for wild foods and be paid for the smallest service (Loney 1987:70).

Shkilnyk (1985:199,205) and McCutcheon (1991:120) remind us that challenges to traditional values can also come from the pollution of the natural environment. In the cases of the mercury contamination of the waters around the communities of Grassy Narrows and Whitedog in Ontario, and Chisasibi in Quebec, the contamination was reported to have had psychological effects on residents related to the loss of confidence in the quality and safety of nature's produce.

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IMPACT ON THE FAMILY

The aboriginal family - whether one is considering the nuclear or extended unit - has been under enormous pressure since the end of the Second World War. The sources of these pressures are many, and are beyond the scope of this paper to review in detail. In much of the literature, however, these pressures have been associated with the intrusions of the institutions and values of industrial capitalism on those of the land based economy. The literature specific to major resource development projects has clearly shown that in some cases, these projects have played a significant contributing role to these pressures - either as a factor which compounded them and accelerated their impact, or as a factor which acted as a catalyst to their emergence.

In general, the literature has focused on the impact of these pressures on family roles and responsibilities - that is to say the function that family members have in ensuring the on-going survival and well-being of the group. In the land-based economy, the primary unit of productive activity was the family. As such, family roles and responsibilities were formed around foraging activities.

Shkilnyk (1985), in her case study of the Ojibwa community of Grassy Narrows, provides a detailed account of how both resource development projects and the intrusions of the institutional framework of industrial capitalism have combined to dramatically change family roles and responsibilities. In 1963, the community was relocated as part of DIAND's policy of "community development", which attempted through various means to 'upgrade' aboriginal communities. Some isolated communities such as Grassy Narrows were moved to more modern, southern style town-sites, which could be accessed by road.

Prior to the relocation, the year had been filled with a regular routine of foraging activities: most of the winter was spent on the trapline; spring was dominated by trapping for muskrat; summer involved the planting and harvesting of gardens, the gathering of berries, and the harvesting of wild rice; and autumn brought a number of activities including moose and deer hunting, drying of meat and fish for winter, and general preparations for the trapline.

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With all of these activities, the division of labour between family members was well defined. The successful functioning of the unit depended on each member fulfilling his or her role. These roles extended beyond the productive process: parents also assumed the responsibility of teaching productive skills to the young; grandparents and the extended family, as well as parents, played key roles in the socialization of youth, the transition of important social and cultural values. The bonds between family members were based on these mutual responsibilities.

The relocation of the community set off a period of rapid social change. A major part of the DIAND "community development" initiative was educational reform, where federal schools were created on reserves and education became mandatory. Failure of parents to comply resulted in the denial of family allowance payments. The requirement that children remain in the village over the winter essentially confined their mothers to the community, thereby preventing them from joining their husbands on the trapline. Without their family, with poor economic returns because of low prices for furs, and with new government funded work programs and the availability of social assistance in the community, most men abandoned the winter trapline completely.

The sedenterization of the community also affected other aspects of the land-based economy. Game hunting declined as animal populations decreased in the surrounding area, and the decline in other foraging pursuits eliminated the likelihood of opportunistic hunting. With the move to the town-style community, garden plots were not replaced. The commercial fishery declined, but remained in operation until 1970. There were, however, continued opportunities to work as guides in nearby lodges.

Before the mercury contamination of the river system in 1970, the community and the family structures within it were already undergoing massive changes. The breakdown in the productive subsistence economy and the settlement into a planned community with spatial arrangements oriented toward the nuclear, not the extended family, changed the relationships between family members.

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Both gender and inter-generational relationships were affected. Whereas before the extended family was a functional unit tied to the traditional economic system, neither its function nor its structure could be maintained outside of this arena. Both parents and grandparents experienced a loss of function as government schools and welfare replaced their roles as educators, socializers, and providers. With this, the meaningful ties between them and the younger generation were broken. The bond between husband and wife changed as the anchor of their relationship, the mutual respect for the role that the other played in the family's survival, was jarred loose.

The changed conditions made it difficult for men and women to determine what their roles should be. Men suffered from a loss of self-esteem as they were unable to fulfil their traditional role of provider of fish and meat. Many men, however, were involved in the new economic system based on wage labour; women were not. Without any involvement in productive activities, women could no longer participate as equal partners in the survival and well-being of the family. According to Shkilnyk, it was the women between thirty and fifty who were impacted most profoundly by the changes. They experienced "a loss of capacity, a marginalization in terms of meaningful activity" (1985:160).

By the time the community was faced with the disaster of the mercury poisoning, it was already experiencing massive strains on its social fabric - a fabric which was weaved around the bonds between family and kin. Shkilnyk describes the mercury as a contributor to, not the sole cause of the problems in the community. In testimony given at the Royal Commission on the Northern Environment, Simon Fobister, then Chief of the Grassy Narrows band, described the mercury as one of many factors which had "caused the total physical, mental, and spiritual breakdown of our people" (1985:224); it is something that community residents call "the last nail in the coffin" (1985:237).

The damage done by the mercury to the commercial fishery and guiding industries has already been documented. The significance to the family is two-fold: first, men suffered a further loss

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of function as the mercury disabled the only remaining activities - fishing and guiding - whereby a man could earn a living independently of government; second, the erosion of the bonds between family members was compounded as the mercury closed one of the few remaining activities - the commercial fishery - which allowed families to work together.

Because sons worked alongside fathers, and wives tended nets while husbands were guiding, commercial fishing had provided some continuity with the traditional ways of organizing work within a family group (Shkilnyk 1985:199-200).

The causes and patterns of change illustrated in Grassy Narrows are not unique. Waldram's (1980) study of social change in the Cree and Metis community of Chemawawin after it was relocated, for instance, demonstrates a similar breakdown in family relationships. In this case, however, it was a resource project - the Grand Rapids Hydroelectric Project - which precipitated the relocation and, as such, this project is identified as the catalyst, and the primary cause of the changes.

The pressure that the industrial economy puts on family roles and relationships was also addressed at the Berger Inquiry. Berger cites the testimony of Renée Lamothe, a Metis resident of Fort Simpson, who explained the impact that the building of the Mackenzie Highway had on aboriginal families in the community:

...the hunting economy permitted a man to support an extended family; whereas the wage economy does not adequately support an immediate family within the expectations that the industrial economy raises.... Young women are raised among the Dene people to expect specific benefits from a husband. However, these benefits are found in a hunting economy, not in a wage-earning economy. Young men are raised to believe that to be a man one must provide these benefits, and again these benefits are not found in a wage-earning economy.... The expectations women have of their men and the men of the women are not being realized in everyday life which results in frustrations, confusions, misunderstandings and anger (Berger 1977:150).

The cases described by Shkilnyk and Waldram involve situations where, in the matter of a few years, the land-based economy of isolated aboriginal communities practically ceased to function. Accordingly, the social relations of production, which were at the root of the relations within the

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family unit, were severely disrupted. It is apparent, however, that among aboriginal communities affected by major resource projects, there are many whose land-based economy remains a vital part of an economic mix of activities. In such cases, it would appear that when the relationship does not seriously jeopardize the land-based component of this mix, disruptions to families have been less profound.

Hobart's studies have involved residents of communities with a mixed economy (see Myers 1982). Hobart reports that when rotation employment is involved, spouses worry about each others' well being, husbands worry about their children, some wives have difficulty in handling their children while their husbands are away, and some experience unwanted attention from men (1982:57). A study of the Rabbit Lake uranium mine's rotation employment program indicates that these conditions were apparent, but appear less significant than with the longer rotation programs in the Arctic (Beveridge 1979). Hobart reports no evidence of increases in child neglect (as indicated by respiratory infections) in any of the cases studied, but does report increases in wife abuse in the two years following the institution of the rotation program at Coppermine (1979b). The increase, he hypothesizes, may be related to male workers' apprehensions about the fidelity of their wives while they are away. The incidence of abuse returned to pre-project levels after the second year of the program.

Hobart (1982) argues, however, that both workers and their families experience greater dissatisfaction and maladjustment if they relocate. The problems experienced by women are most disruptive, and often relate to a loss of function and to the absence of friends, relatives, and neighbours who acted as support groups (see Stevenson 1968).

In some cases, the construction of large resource projects in or near Aboriginal (or mixed European/Aboriginal) communities can result in a massive in-migration of white workers. Berger (1977) feared this eventuality if a northern pipeline were built, believing that it would have significant impacts on both Aboriginal men and women, and on the relationship between them. With an influx of male workers, the balanced proportions of males and females is upset. A Yellowknife doctor testified at the Commission that relationships between white workers and

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Aboriginal women in Frobisher Bay tended to be sexually exploitive in nature. While this left Aboriginal men feeling jealous and rejected, the longer term damage fell on the Aboriginal women: "they tended to be alienated from their people and were left alone to attend to their venereal disease, illegitimate children, and incipient alcoholism" (1977:157). Macpherson (1978b) reports that there were similar problems in the town of Ross River, Yukon, after the development of the Cyprus Anvil Mine and the influx of white workers into the community.

With this in mind, some northern Canadian megaprojects have sought to limit contact between nearby Aboriginal communities and the non-resident work force. Workers at construction sites on the lower LaGrande River were forbidden to visit the Cree community at Chisasibi (McCutcheon 1991:120), and similar restrictions were issued for workers at the construction camps for the Norman Wells pipeline (Bone 1989:237).

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IMPACT ON THE WORKER

This section will review the literature that addresses the experiences of Aboriginal people working with resource development projects. There are a number of themes presented in the literature. The first concerns the Aboriginal person's adaption to, and performance in, the industrial workplace. Another concerns stresses associated with relocation to a resource town or time spent away from family during a work rotation. A third theme does not concern the impact on the worker *per se*, but rather reflects changes to the status and position of the Aboriginal work-force within the larger northern economy.

There is evidence from a number of sources that most Aboriginal workers, even those without previous industrial experience, have performed well on the job. Favourable evaluations for Aboriginal workers were reported at the gold mines in Yellowknife (Stevenson 1968); the Rankin Inlet nickel mine (Williams 1974, cited in Hobart 1982); the Gulf Oil exploration program in the Mackenzie Delta (Hobart 1979b); the Rabbit Lake uranium mine in Saskatchewan (Beveridge 1979); and the Nanisivik lead/zinc mine on Baffin Island (BRIA 1979).

Very few studies seem to measure the Aboriginal employees' job satisfaction. In one study, however, the Canadian Institute for Research (1980:80) found that among ninety Aboriginal people in Fort McMurray, most of whom were employed with the Suncor or Syncrude oil sands plants, 85 percent of respondents indicated that they were satisfied with their work situation.

Although little of the literature reviewed has addressed the experiences of Aboriginal employees at the work place, there has been somewhat more attention paid to documenting the stresses of their work experience as whole. It was noted in the previous section that workers on a rotation work schedule often report missing or worrying about the health and safety of their wives, girlfriends, children, other relatives and friends (Hobart 1979a, 1982; BRIA 1979), and that in the early stages of rotation programs they have worried about the fidelity of their wives or girlfriends. (Hobart 1979b). Hobart (1979, 1988) argues that these kinds of social strains are considerably more apparent with longer rotation schedules.

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Workers who have relocated to resource towns have had some trouble adjusting to the predominantly white communities, and have experienced a decrease in self-esteem associated with an inability to hunt and provide fresh game meat for the family (Hobart 1982; BRIA 1980).

The experience of Aboriginal workers in the industrial economy has also been analyzed at the macro level; in particular, the analysis has focused on the place of Aboriginal workers within industrial capitalist structures. From this perspective it is argued that, with the expansion of industrial capitalism into the North, the Aboriginal work force is becoming "proletarianized" - in other words, it is becoming a reserve of labour which can be called upon to fill the marginal positions in the industrial economy when needed, and discarded easily when not.

A number of studies from Quebec have reported that the confluence of the Aboriginal land-based economy and industrial capitalism, in the form of forestry, hydroelectric, and mining projects, has produced this effect. LaRusic (1970) documents the transformation "from hunter to proletarian" among the Cree of central Quebec. Charest (1982) and Hess (1984) describe a similar process for, respectively, the Montagnais of eastern Quebec and the Nascapi involved with the iron ore operations at Schefferville.

It is clear, however, that not all major resource projects lead to the creation of a marginalized, dependent and underpaid class of Aboriginal workers. Waldram (1987) contends that while Aboriginal people were used during the construction of the Churchill-Nelson River Hydroelectric Project for low-status, marginal jobs such as bush and shoreline clearing, they were not "proletarianized" because they, in effect, never became a part of the industrial economy. In fact, after the project was complete, those involved went back to their land-based activities.

It would seem that one key difference between the Manitoba and the Quebec cases relates to the relative health of the land-based economies. In the Quebec cases, the land-based economy had faced considerable pressure from forestry, mining, hydro-electric, and transportation projects over a prolonged period (Charest 1982). This meant that the Aboriginal groups, since World

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War II, had come to rely on a fairly regular supply of wage-earning jobs. In northern Manitoba, although there has also been a long history of resource activity (Usher and Weinstein 1991:8), the employment opportunities provided appear to have been more sporadic than was the case in Quebec (Waldram 1987). It would seem that under such conditions, the impact of a single project, especially one where work is only available on a short-term basis, is not sufficient to induce a proletarianizing effect.

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IMPACT ON THE COMMUNITY

Major resource development projects have had a diverse set of impacts on the characteristics of, and the relations within, Aboriginal communities.

In many Aboriginal communities there has been a general change in the roles, responsibilities and authority of the political leadership. As contact with, and dependence on, the national political and economic systems increased, the qualities suited to leadership became increasingly oriented toward those who were well versed in the language and ways of the dominant society.

Shkilnyk (1985) explains that prior to the relocation of Grassy Narrows, leadership was assumed by those whose power and respect in the community was based on their spiritual strength, their prowess as hunters and providers, and their position as leaders of important kinship groups. Their role included ensuring that internally held sanctions on behaviour were respected, and that those who were in need were provided for through traditional systems of sharing and self-help. As these systems were replaced with outside controls and social assistance, the community leader, the band Chief, in effect became the last link in the federal bureaucracy - a position whose primary function was to parcel out the rewards of government. Salisbury (1986) confirms this role in his description of local politics in Cree villages in 1971, prior to the James Bay and Northern Quebec Agreement. While the Chief thus gained, and indeed embodied the paternalistic economic power of government, the gains came at the expense of the moral authority and respect of the people.

There has been, however, a general political resurgence in many Aboriginal communities fuelled by a resolve to reclaim their self-determination. The role of major resource development projects in this process has been mixed. In many cases these projects have presented a threat to the future well-being of communities, and as such have sparked a political mobilization to defend their interests. Whittington argues that in the North,

the catalyst that transformed the native political movement was the Berger inquiry. While the recommendations contained in the report itself may have had some positive effects on federal policy in the North, the most

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important changes were as a result of the process of the inquiry. The Berger hearings in the Mackenzie Valley mobilized the native political organizations, raised the consciousness of the people in the communities, and even sensitized many non-native northerners to the plight of their fellow northerners (Whittington 1985b:102).

There is also evidence that the James Bay Hydroelectric Project has had the same kind of impact on the Cree of northern Quebec (McCutcheon 1991; Salisbury 1986; Feit 1986). While Salisbury (1986) is reluctant to identify the James Bay Project as the 'cause' of the political development among the Cree of northern Quebec, it is nonetheless clear from his "before and after" description of Cree society, that there has been a shift to internally controlled government bodies, active and integrated at both a village and a regional level.

In the process of having to defend their lands, resources, and rights, Aboriginal people have had to discuss and define their goals for the future. Asch, for instance, notes that "the Dene position on national self-determination has been developed primarily through a series of struggles with the Canadian state and multi-national corporate interests" (1982b:348).

In some cases, therefore, resource developments have been the issue around which communities, or regional associations of communities, have initiated processes to discuss and define collective interests, and developed capacities to communicate and defend those interests. Blisshen et al. (1979) associate these processes with the "political efficacy" of a community (see 1979:36,64) - a term which we will borrow for the purposes of this analysis.

The political efficacy of a community can also be impacted when some of its residents work outside the community on resource developments. According to Hobart, industrial employment can have an adverse impact on at least three aspects of community life:

participation in community activities; recruitment to and performance of leadership responsibilities in the community; and perhaps most basic of all, levels of interpersonal interaction among community residents, which leads to the crystallization of issues in community life, identification, and discussion of strategies and of alternative solutions (Hobart 1982:58)

Hobart argues that each of these would be damaged by widespread employment that required

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relocation because of the general population loss of potential participants and leaders. The nature of rotation employment, however, is such that workers have more leisure time to participate in community discussion and activities. As well, it enables men to establish themselves as respected providers, which is likely to increase their status and leadership potential in the community. In this respect, rotation employment schemes can contribute positively to the political efficacy of a community.

Hobart, however, does not identify an emerging trend which suggests that rotation employment schemes can also contribute to a permanent loss of human capital in communities. Schmeichel (1990:208) reports that during phase I of operations at the Cluff Lake mine, 26 of 96 Aboriginal northerners who were involved with the air-commuting program had relocated to Saskatoon. Shrimpton and Storey (1990) report that Aboriginal miners on rotation schedules have moved south for many of the same reasons as non-Aboriginal northerners - that is to minimize travel time by living near the main pick-up point, especially when the rotation schedule is of short duration; better climate; leisure opportunities; and educational and other options for family members. The authors also indicate that some Aboriginal miners "expressed concerns about resentment of their income in their original community, and the limited scope that it provided for consumption activities" (1990:145).

Roberts (1990) suggests that moving away from the home community could be considered a way to avoid sharing the wages with extended family:

In the smaller communities, it is well known when the plane lands that the crew is back from the mine and that they have money. In some cases these employees become the minority in the community; they are now employed. The extended family sees no problem with sharing this new-found wealth and may literally move in for extended time periods. Unfortunately, this results in some of these employees choosing to leave the community so that they can have their own life; they feel they've earned it because they have the necessary education, they completed the training and above all, they go out and do the work. They want to keep some of the results for themselves (Roberts 1990:183).

To the extent that this trend continues, Aboriginal communities are threatened with losing some of their best educated young residents.

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Although resource development projects can cause a depletion of a community's human capital, some resource companies have made attempts to contribute to human capital development in the form of education grants and scholarships. Uranium mining companies in Saskatchewan, for example, have established scholarship programs for northern students (Bone 1992:145):

Amoko Ltd.'s Cluff Lake mine awards six university scholarships and three institute scholarships amounting to \$34,000 annually (IGWG 1990:150); Cameco Corporation, principal owners of the Key Lake and Rabbit Lake mines, has instituted a similar scholarship program for post-secondary studies, and co-sponsored an awards program to provide incentives for students to stay in and complete high-school (Canada 1992). As well, Nanisivik Mines Ltd. awards \$2000 scholarships to Baffin Island residents who wish to pursue post-secondary education, particularly in fields that are seen to contribute to economic development of the region (IGWG 1990:127).

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IMPACT ON HEALTH

We will consider three ways in which resource projects can influence the health of Aboriginal people: by inducing dietary change; by emitting pollutants; and by contributing to social problems such as violence, suicide and the abuse of alcohol, drugs and solvents. Potential health impacts associated with participation in industrial employment - hearing impairment, industrial accidents, and the ailments (such as respiratory infections and cancers) associated with the inhalation or exposure to industrial contaminants or radiation - will not be reviewed.⁴

DIETARY CHANGE

A resource project can have a negative impact on the health of residents of an Aboriginal community if the project leads to changes in the diet of residents, and if, in turn, the dietary change leads to nutrition related illness. This potential impact has received only cursory attention in project impact assessments (Waldram 1985b).

Resource projects can influence the Aboriginal diet in two related ways: by affecting the amount of country food harvested by families and communities, and by contributing to the availability and consumption of store-bought food. Logically, if a project results in less hunting, trapping and fishing, then it will also result in a decrease in the consumption of country food and an increase in the availability and consumption of store-bought substitutes. The impact of a project on dietary change, therefore, is directly related to its impact on the land-based economy.

Even if a project primarily affects the commercial sector of the land-based economy - commercial fishing or trapping - there will be an impact on the availability of country food because of the inter-relations between the commercial and domestic sectors (Waldram 1985b). Usually, a portion of the catch of the commercial fishery is used for domestic consumption, and

⁴ There seems to be little relevant material on this issue in the literature (Hobart 1984c:264). A general discussion can be found in Smith (1982), and a discussion of the health risks

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the meat of fur-bearing mammals is sometimes eaten; as well, both trapping and fishing can provide occasion for opportunistic hunting.

In the discussion of impacts on the land-based economy, a number of projects which have had a severe impact, and a number which have not, were identified. Considering those projects for which information on the impact on diet is available, the extent of dietary change was consistent with the extent of damage to the land-based economy. As such, Bone (1989) reports no significant change in the consumption of country food in those Aboriginal communities affected by the Norman Wells Project. Hobart (1981, 1984c) reports the same in communities involved in the Gulf Oil and Pan Arctic rotation work programs in the Arctic.

Shkilnyk (1985:203), however, cites a 1973 study on dietary problems at Grassy Narrows and Whitedog, that found that after mercury was found in the river system, the consumption of fish by people in both communities was drastically reduced, and the diet became heavily reliant on starches. In the James Bay community of Chisasibi, consumption of fish decreased and store-bought and "junk foods" became more popular following the discovery of mercury contaminated fish in the river system (McCutcheon 1991:121). Similarly, Waldram (1985b) and Krotz (1991) report that the diet of South Indian Lake community members was dominated by country foods before the construction of the Churchill-Nelson River Project, and dominated by store-bought foods after. According to Krotz, "in the early 1970s, wildlife provided 75% of their food...by 1989, it was only 25% of their diet" (1991:43).

Waldram (1985b) argues that the dietary change in the community is the result of both "producer-impairing factors" such as damage to the resource base and to the land-based economy caused by the flooding, and of "consumer-enhancing factors" such as the establishment of a new store in the community, the construction of a road to a nearby mining community, and an increase in social assistance payments in the form of vouchers exchangeable for food (and some clothing) at the local store. These factors have resulted in a process of "dietary delocalization" whereby the community increasingly depends on outside sources of food for sustenance.

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Waldram considers this process as part of a more general process of increasing dependence associated with underdevelopment.

Waldram points out that the process of "delocalization" is not inherently beneficial or detrimental; rather, its utility depends on the availability and adequacy of the resources which replace the locally available ones. The Churchill-Nelson River Project induced a process of "negative dietary delocalization" because the foods available to community members after the project were nutritionally inferior replacements:

Some research has recently been undertaken to compare the nutrient values of bush foods and store-bought equivalents, and although much more work needs to be done, the general indication is that the traditional diet of the northern Native people was far superior to the diet presently available to them. For instance, Farmer and Neilson (1967), Usher (1976), Berger (1977), Schaefer (1977), and Berkes and Farkas (1978) have all discussed the relative merits of wild game and store meats, and have concluded that the wild game is generally higher in protein, ascorbic acid, and iron, and lower in fat content (Waldram 1985b:45).

The links between dietary change and illness were also discussed at the Mackenzie Valley Pipeline Inquiry. Berger summarized the testimony of various doctors in his report:

Dr. Elizabeth Cass said the shift from country food to southern food has resulted in wide-spread myopia; Dr. Schaefer associated the change in diet with extremely high rates of child sickness in general and with middle-ear disease in particular. Dr. Mayhall described an epidemic of dental disease and the very high rates of tooth decay and gum disease in the North. We understand that a change in diet may cause such problems when we realize that local meat has a higher food value than meats imported to the North (Berger 1977:153).

Waldram, however, explains that the links between dietary change and illness are hard to establish with certainty:

While the relationship between culture change, dietary change, and declining health status has been recognized for many years, the problem of accurately determining the etiology of a nutrition-related illness has proven more difficult, and less common (Waldram 1985b:46).

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INDUSTRIAL POLLUTANTS

A resource development project can also affect the health of Aboriginal people if it releases pollutants into the environment. In order to establish a cause and effect relationship between a particular project and illness due to pollutants, it is necessary to establish that the project released pollutants which were subsequently absorbed, inhaled, or ingested by an Aboriginal person or people, and that this, in turn, caused or contributed to an illness. For various reasons, it is extremely difficult to verify each link in such a causal chain, and as a result the extent to which industrial contaminants from resource development projects have affected the health of Aboriginal people is little known.

There is no doubt that resource projects pollute. Tailings from mining operations contain various toxins, or in the case of uranium mining, radioactive matter, which have escaped into streams or groundwater through spills or runoff, or have dispersed as winds scatter tailings dust. The effluent of pulp and paper operations, released into water bodies, contain various chlorinated organic substances including dioxins and furans. Copper and nickel smelters are among those operations which release sulphur dioxide into the atmosphere and contribute to acidic precipitation. Oil tanker shipping and oil and gas developments have led to oil spills, well blowouts, and pipeline leakages. Finally, hydroelectric projects cause flooding which results in the production of methyl mercury in waterbodies.

Certainly Canadian resource development projects were worse polluters twenty years ago than they are today. Environmental standards have become much more rigorous so that now the use of some toxic substances (such as PCBs) in industrial processes are banned altogether and the release of others into the environment (such as dioxins and furans) are significantly restricted. For example, Alberta-Pacific Forest Industries recently announced that it would use hydrogen peroxide instead of chlorine at its new pulp and paper mill, and thereby reduce emissions of dioxins and furans substantially - it did so in response to the recommendation of an environmental review board that the development of the new operation be halted until more studies were undertaken to determine the potential downstream impacts of its effluent (Bone

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1992:173).

Environmental regulations, however, are not always heeded. In 1982, for instance, Suncor was fined \$38,000 for polluting the Athabasca River and in 1991, the company was fined \$70,000 for four air-pollution violations (Kubish 1992). Keith, Kerr and Vles report that in Yukon,

studies of the United Keno Hill mine watershed area, of Clinton Creek (Cassiar Asbestos), and of Rose Creek (Cyprus Anvil)...all indicate ecological disruption. The Rose Creek study states "the discharge from the Cyprus Anvil tailings pond was periodically toxic to fish and results show chronic non-compliance with the Water Licence regulations (1981:3).

Macpherson (1978b) details Cyprus Anvil's history of repeated contraventions of its license agreement, the Northern Inland Waters Act, and the Fisheries Act. In 1975, two tailing ponds dikes at the mine ruptured releasing 54,000 gallons of tailings water into Rose Creek. Despite the successful prosecution of the company, the fine imposed amounted to a paltry \$4,500, \$500 less than the maximum. A year later, substantial levels of sodium cyanide were discharged into the mine's tailings pond. Despite knowledge that the levels of cyanide in the tailings decant and seepage contravened the regulations, and that the levels downstream had been classified as "highly toxic" to the point of killing any fish living in the affected waters, the mine continued to operate the mill and discharge the tailings until threatened with legal action (1978b:135-136).

As well, the legacy of years of relatively unregulated operation remains. In August of 1992, DIAND announced a clean-up of the toxic tailings ponds left over from the Rankin Inlet nickel mine which operated between 1957 and 1962. Two hundred and ninety-seven thousand tonnes of tailings, containing high levels of nickel, arsenic, copper and sulphur, had been deposited in low-lying areas which had to be protected from the sea by dykes. The dykes, however, were damaged over the years, so that surface runoff and tidal water carried tailings into the sea. As well there were concerns that wind was dispersing tailings dust onto the sea ice and surrounding land. The possible effects of the tailings on the marine environment and on local residents is unknown (News/North 1992).

When the Rayrock uranium mine, 60 km from the Dogrib community at Rae-Edzo, was

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abandoned in 1959, it left behind two piles and 71,000 tonnes of radioactive tailings. Various studies have shown that uranium and other heavy metals are leaching from the tailings, contaminating lakes and finding their way into the local food chain. Radiation levels in the area are high, both from the tailings and from leakage from the mine opening and ventilation shafts. In 1992, a government study recommended sealing off the mine and covering the waste piles in order to turn them into permafrost (Foot 1992).

In addition, spills and accidents continue to contribute to pollution. In 1989, there was a two-million litre spill of radio-active waste water at Cameco's Collins Bay (Rabbit Lake) uranium mine in northern Saskatchewan. The mine is near Wollaston Lake and the Aboriginal community of Wollaston Post (Bone 1992:159). The following year, Suncor reported a spill of a petroleum based mix from a section of a pipeline on the House River (Kubish 1992). Also in 1992, a barge carrying 830,000 litres of diesel oil spilled 12,000 litres of its load into the Mackenzie River. In the days after the spill, a sheen of oil collected along the river banks and in marshy areas which serve as bird habitat (Campbell 1992; Devine 1992). In 1993, water which contained arsenic and cyanide overflowed from a tailings pond at the Giant gold mine onto a nearby road (Thompson 1993).

While these accidents were causes for concern for local Aboriginal groups, the greater concern is the potential for a large-scale environmental accident. In 1989, the Exxon Valdez tanker spilled about 250,000 barrels of oil into Alaska's Prince William Sound, severely damaging the local environment and wildlife. In April 1990, Gulf Canada Resources Ltd. revealed what it considers its "worst-case scenario" if an oil-well were to blow-out in the Beaufort Sea: a spill of 2.4 million barrels of oil, equivalent to one spill of the magnitude of the Exxon Valdez' every six days for two months (Donville 1990a). In July of the same year, the joint federal-Inuvialuit Environmental Impact Review Board released its report on Gulf's proposed exploration program. The report was strongly critical of Ottawa's capacity to handle a major spill in Arctic waters, and concluded that any clean-up operation would be subject to delay, confusion and inefficiency (Donville 1990b). At the time of the report, 41 offshore wells had been drilled in the Beaufort: three of these, all natural gas wells, had blown out.

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The only studies in the literature reviewed which establish a reasonably clear relationship between pollutants from resource projects and the health of Aboriginal people are those involving projects which have caused high levels of methyl mercury in waters relied on by Aboriginal communities for sustenance. The ingestion of methyl mercury by humans is considered "safe" up to a certain point; blood levels of mercury over 100 parts per billion (ppb), however, are considered "unacceptable" or a health risk. High concentrations of methyl mercury in humans can lead to what is commonly referred to as "Minimata disease", named after the tragic mercury poisoning of residents around Minimata Bay, Japan. Robert Hecky describes Minimata disease as the

neurotoxicological syndrome of methylmercury poisoning which can damage the brain and nervous system, causing palsy, convulsions, mental retardation, and death (Hecky 1987:8).

Tests of mercury levels were conducted at Grassy Narrows between 1971 and 1978. Mercury levels over 100 ppb were recorded in eighty-seven cases: sixty-one of these were between 100 and 199 ppb, seventeen were in the 200-299 ppb range, and nine were over 300 ppb (Shkilnyk 1985:194). Although mercury levels have declined significantly since then, the problem has not entirely disappeared. In 1990, a hair sample taken from a 3-year-old resident of Whitedog indicated an unacceptably high level of methyl mercury in the girl's system. The child had been on a steady diet of fish (Fisher 1990).

The flooding of Southern Indian Lake as part of the Churchill-Nelson River Project has also led to unacceptably high concentrations of mercury in Aboriginal residents living on and downstream of the lake. Between 1976 and 1986, 4,668 tests were administered to affected residents: 833 people were found to be at potential risk and eight people at higher risk of mercury poisoning (Krotz 1991:42).

Downstream of the huge reservoirs on LaGrande River, one third of residents of Chisasibi tested in 1977 had unacceptable levels of mercury in their system. By 1984, two-thirds of tests revealed unacceptable levels. These levels have been dropping since 1986, when an

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information program was instituted to educate the Cree as to which patterns of consumption (which species, sizes of fish, locations, and seasons) were considered unsafe (McCutcheon 1992).

Although resource projects have led to mercury levels considered "unacceptable" by authorities, whether or not the presence of mercury has in turn manifested itself in health problems has been a topic of much debate. According to Shkilnyk:

At these relatively low levels, the history of attempts to correlate individual neurological disturbances with exposure to mercury has left a legacy of inconclusive results, contradictory opinions, and unanswered questions (1985:194).

Between 1974 and 1978 a series of medical experts in mercury poisoning performed tests and clinical examinations of Grassy Narrows and Whitedog residents. While many found symptoms of mercury poisoning (such as tunnel vision, impaired hearing, sensory disturbance, and tremors), it was generally acknowledged that these symptoms might also be caused by other factors such as prolonged and heavy consumption of alcohol.

The fact is that scientists and doctors know a lot more about the consequences of large concentrations of mercury in the human body than about the effects of chronic, low-level, and seasonal exposure. Thus, we may not be noticing organic effects that are subclinical and possibly cumulative. There may be subtle neurological and behavioural changes in the Indian people that are not detectable at the present time (Shkilnyk 1985:198).

SOCIAL PROBLEMS

Alcohol and solvent abuse, violence, sexual abuse, child neglect, and suicide are problems in many Aboriginal communities. Their presence can have a devastating effect on the health and well-being of the community residents. In the literature, the relationship between resource projects and these social problems has been a controversial topic. Many argue that resource development projects promote social pathology or disfunction. In his final report, Berger indicates that he is "persuaded that the incidence of these disorders is closely bound up with the

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rapid expansion of the industrial system and with its persistent intrusion into every part of the native people's lives" (1977a:152). Others, however, see chronic unemployment as part of the problem, and see resource projects and the associated potential for employment, training, business development, and community income, as part of the solution.

Berger (1977:155-156) argued that the construction of a northern pipeline would aggravate and spread an already serious problem with alcohol abuse in the North. In support of his position, Berger cites the dramatic increases in alcohol consumption in the communities of Pond Inlet in the first year of the employment program with Pan Arctic Oil, in Fort McPherson after the residents' involvement with the construction of the Dempster highway, and the increases in alcohol related death among Alaskan and particularly North Slope Aboriginal people after the Prudhoe Bay discovery in 1968. Berger explained that although the affected Aboriginal communities were taking steps to deal with the alcohol problem, the initiatives were in their infancy, and any acceleration in the pace of industrial development could put their success at risk.

Berger also recognized the relationship between the abuse of alcohol and other social problems such as suicide, mental illness, crimes of violence, and sexual abuse (1977:155). He believed that with the pipeline these associated problems would also increase. He argued that

all of the evidence indicates that an increase in industrial wage employment and disposable income among the native people in the North brings with it a dramatic increase in violent death and injuries (Berger 1977:152).

Berger cites dramatic evidence that in one small community along the Alaska pipeline route, purposefully inflicted injuries treated in the local health clinic increased from 15 to 200 during the year in which local residents were employed on the pipeline. The following year, the number declined to 30 (1977:152).

Charles Hobart argued at the Berger Inquiry that the social problems were related in part to massive government intervention in the North which has undermined Aboriginal independence and self-esteem, and in part to the frustration of Aboriginal youth who had been educated to

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participate in an industrial system but did not have the opportunity to fulfil the expectations this has created. The employment opportunities which the pipeline project would create were necessary to alleviate these frustrations (Berger 1977:148).

Although Berger, with the support of the Aboriginal groups, rejected Hobart's argument and the underlying philosophy that Aboriginal people would be better off to join the industrial economy, the argument that employment with resource projects can help with social problems in a community has not disappeared. In fact, the leadership of many Aboriginal groups have, when certain conditions are met, welcomed resource projects and the employment and business opportunities they offer.

In August 1992, for example, the president of the Gwich'in Tribal Council explained that the impact of the end of the northern exploration boom and the ensuing layoffs had caused problems for the Gwich'in:

"Layoffs had a profound effect on the people....We paid the highest price, socially, as a people....This generation has suffered the ups and downs of the alcohol crisis, family breakups and suicides." During the oil boom "welfare was way down, employment was way up, arresting statistics were down, crime was way down, so the justice system wasn't being drained" (Holman 1992).

In a new round of development, however, the Gwich'in would seek a different kind of relationship with developers. If a pipeline were built in the North through Gwich'in lands, for example, the Gwich'in would propose to build, own and lease the pipeline back to the gas company.

A 1987 Tahltan Tribal Council policy statement on resource development and management establishes participation in resource projects as a development goal:

Our present tribal objective is to increase our participation in all business that develops within the borders of our tribal territory so that we can again enjoy a self-sustaining, healthy and enterprising economy. We wish to make it very clear that Tahltan people and the Tahltan Tribal Council are not inherently opposed to any specific type of business or resource development within our country. However, we do feel strongly that any development

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within our tribal territory must adhere to some basic principles that the Tahltan Tribal Council has developed (IGWG 1990:160).

These principles include: assurance that development will not irreparably damage the environment, or compromise outstanding Aboriginal rights claims; assurance that the net social impact will be positive; provision for education and training opportunities, extensive employment and business opportunities, and opportunities for equity participation. Other groups, such as the Kaska Dena, have issued similar policy statements (Elias 1991:42). Elias notes that the Kaska Dena see participation in resource development, among other things, as a means for domestic producers to earn cash needed to participate in the land-based economy.

The evidence from case studies presented in the literature indicates that the association between resource projects and social problems in Aboriginal communities varies significantly. Hobart (1984c) stresses that available evidence is insufficient to draw any conclusions about the relationship between projects and social problems, but observes that in some cases short-term increases in problems can be expected.

Hobart reports that there was no significant increase in social problems in the community of Arctic Bay while some community residents were involved in oil exploration and mining employment (1984c:274; see also BRIA 1979). In other cases, however, some negative effects were observed. During the first few years of the construction of the Syncrude oil sands plant, for example, the nearby Aboriginal community of Fort MacKay experienced an increase of 29 percent in its personal injuries rate and an increase of 820 percent in the rate of patients hospitalized for mental disorders. Both rates declined, however, in subsequent years (1984c:271).

Hobart also presents data regarding the community of Coppermine's involvement with Gulf's rotation work program in the Mackenzie Delta:

During the first year of the exploration there was a 29 percent increase in liquor consumption. There was a parallel increase in liquor related violent woundings.... However, both the liquor consumption and the violent woundings declined thereafter so that by 1975-76 both were at levels below

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those found prior to the onset of the exploration employment program. With termination of Gulf employment in 1978, both rates tended to increase once more. The fact that this alcohol consumption curve is U-shaped is noteworthy, and suggests that in this community, at least, it may have been the transitional stresses associated with the onset and the termination of employment which helped induce increased liquor consumption, and accompanying violence (Hobart 1984c:267).

Hobart also reports that with the commencement of extensive northern exploration activity there was a substantial increase in per capita consumption of alcohol in Mackenzie Delta communities. Between 1967-68 and 1976-77, consumption levels more than doubled. They declined thereafter, but increased once again in 1980-81 during the offshore exploration boom (1984c: 272).

Strong notes that "one or two or perhaps several small interior villages had disastrous experiences with alcohol abuse" (1979:59) through their involvement in the construction of the trans-Alaska oil pipeline. Alcohol abuse and violence, however, increased markedly in only "a few", not in the majority of Alaska Native villages (1979:59).

York (1990) provides a number of examples from northern Manitoba Aboriginal communities which illustrate the link between the decline in traditional economies induced by hydro-electric flooding and the rise of social problems. Following construction of the Grand Rapids hydro dam and the collapse of the land-based economies of Chemawawin (renamed Easterville) and Moose Lake, there were reports of increases of alcohol abuse, vandalism, and child neglect in Easterville (see also Waldram 1980, Loney 1986), and of increased alcohol abuse, violence and gang warfare at Moose Lake (York 1990:107-114). A recent article in the *Opasquia Times* reveals that Moose Lake is still struggling with these problems (Hilliard 1992).

York also links suicide epidemics at Cross Lake and Norway House in the 1980s to the damage wrought by the Churchill-Nelson River Project on the land-based economies of the communities. York believes that these projects have caused crises in the social order of the communities and a loss of self-reliance and self-esteem in individuals. As such, other events which result in the

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same kind of stress on the social order can expect to produce the same results. Social problems increased significantly, for instance, when massive oil royalty payments started pouring into the four reserves at Hobbema:

Alcoholism increased, cocaine arrived on the four reserves, families broke apart, and the suicides mounted steadily. From 1985 to 1987, there was a violent death almost every week at Hobbema, and the suicide rate for its young men was eighty three times the national average. There were as many as three hundred suicide attempts by Hobbema Indians every year (York 1990:89).

At Hobbema, the crisis period lasted for two years. In 1987, the bands took steps to deal with the problem: an addiction treatment program was established; alcohol and drug counsellors set about talking to and educating band members about addiction; a twenty-four hour distress line was established; and workshops, seminars, and courses on suicide and suicide intervention were organized and well attended. A year later, the suicide rate had declined by 74 percent, and the alcoholism rate by at least one quarter (1990:105).

To help explain the suicide epidemics, York (1990) recalls Emile Durkheim's classic work on suicide in 1897 which focused on the connection between suicide and collective crises or "disturbances of the collective order". Durkheim wrote that "whenever serious readjustments take place in the social order, whether due to sudden growth or to an unexpected catastrophe, men are more inclined to self-destruction" (York 1990:94). Durkheim also noted the connection between suicide and the integration of a social group, arguing that suicides increase as collective values are weakened and social groups become less integrated and dependent on one another (York 1990:98).

More recent studies on suicide among Aboriginal people have confirmed Durkheim's ideas. May (1987) reports that the literature on suicide among American Indians indicates that

Tribes with loose social integration emphasizing a high degree of individuality generally have higher suicide rates than those with tight integration (which emphasize conformity). Tribes who are undergoing rapid change in their social and economic conditions have higher rates than those who are not (May 1987:22).

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With respect to the pace of social change, the literature reveals that

rapid social change is believed by many to have created increased levels of acculturation, stress, anxiety and disruption among particular families and individuals, which then resulted in higher rates of suicide (May 1987:23).

Others have noted the link between stress and other social problems. Mail (1989) investigated the causal relationship between stress and alcohol consumption among American Indians, and found that it is likely that in some cases alcohol abuse is a response to psycho-social stress associated primarily with the rapid erosion of local institutions and traditional culture. Mail also addresses the subsequent role of alcohol abuse as a creator of additional stress.

LaPrairie (1987) puts forward a model of female Aboriginal criminality which emphasizes the link between the victimization of Aboriginal women and their subsequent criminal behaviour. LaPrairie reviews some of the literature in the causal relationship between the sexual and physical abuse of women and children and the future criminality of the victims. The abuse itself is interpreted as a manifestation of the loss of traditional roles and status among Aboriginal men:

Role loss at the structural level has meant the breakdown of traditional values and practices and has resulted in social disorganization in many Indian communities. At the interactive level, it has contributed to the erosion of the family unit and has generated hostility and aggression among family members (LaPrairie 1987:123).

In particular, LaPrairie argues that role loss in males has engendered feelings of powerlessness and impotence. She quotes the chief of one reserve who explained that "The males have so little where they can exercise any control, so they sexually aggress against someone who can't defend herself" (1987:133).

The theoretical literature relevant to understanding social dysfunction in Aboriginal communities is vast and cannot be adequately reviewed here. The sources consulted, however, would seem to indicate that increases in social problems in Aboriginal communities are more likely to occur in the following circumstances: when there is a significant change to the social order of those communities; when the change creates considerable stress and disruption at the family and the

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individual level; when the pace of change is rapid; when change results in, or occurs in, communities which are less integrated, less interdependent, and without a strong collective set of values; and when residents experience a loss of roles, and concomitant feelings of powerlessness, loss of self-reliance, and loss of self-esteem. Accordingly, resource development projects which foster these conditions in Aboriginal communities would be more likely to contribute to increasing problems.

As such, it is not surprising that in the cases reviewed, most of those projects which are associated with inducing serious, lasting social pathologies are also those which have inflicted considerable damage to the land-based economy of communities. As discussed previously, the collapse of a land-based economy, and the associated breakdown in social relations of production based on the family unit, can lead to role loss among family members, to a deterioration of the bonds of interdependence between them, and to the loss of commonly held collectivist values. Similarly, the projects reviewed which are associated with less profound, or shorter-lived increases in social problems, tend to have initiated stress and disturbances of some sort in the community, but not to have significantly impacted the land-based economy.

The theoretical literature also helps to explain how some projects might be seen as an opportunity to improve social conditions within communities. It was noted that the loss of roles, self-reliance and self-esteem, and feelings of powerlessness among community members are conditions which foster social problems. In communities where unemployment and dependence on welfare is high, these conditions are more likely to be present. If a resource development offers opportunities for individuals to get off welfare - through direct employment, training programs, or business opportunities organized at the community or individual level - then the project would offer opportunities for individuals to fulfil a role as a producer and to regain economic self-reliance. This would, theoretically, reduce conditions which breed the problems.

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DISCUSSION

This paper has focused on reviewing the literature relevant to the impact of major resource development projects on Aboriginal communities. The literature reveals that the impact of any resource project on an Aboriginal community depends on the particular characteristics of the project, the community, and the context in which they interact. These parameters and their characteristics generally define what has been referred to as "the relationship" between project and community. Over the years, this relationship has been characterized by complexity, diversity, and change.

While resource projects affected the lives of Aboriginal people before World War II, the economic impacts were, in general, not significant, and the social impacts, while sometimes significant, were not widespread. This, however, changed after World War II with the increase in the number and size of resource projects, the decline of the fur trade, and movement of Aboriginal people into permanent settlements.

In the period after World War II, although relevant and reliable information is scarce, and the situation varied depending on the case, sources indicate that, in general, economic benefits were not substantial. The benefits consisted of direct employment opportunities of which there were not many. Where Aboriginal people were employed, jobs tended to be of the unskilled variety, and were often short-term and seasonal.

The reasons for the low levels of participation are many. Until recently, resource companies did not make any substantial efforts to train and employ Aboriginal people. Aboriginal people, in turn, often did not seek employment. Their access to projects was frequently limited, as a job would require relocation to a resource town, which was both difficult and generally undesirable. When employment was available and was sought, minimum requirements for educational attainment excluded many Aboriginal people as candidates for jobs. Discrimination likely excluded others. Furthermore, the perception of some Aboriginal people that they would encounter discrimination and racist attitudes if they worked in a non-Aboriginal environment

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was likely a further disincentive. Training programs, when available and accessible, often were not effective in providing skills suitable for anything but sporadic employment.

The social impacts of projects during this period, although they also varied considerably, were often profound. The literature makes it clear that it is often difficult to isolate and to identify the effects of a specific resource project on a community, as communities during this time were significantly influenced by increasing industrialization across the North and by government intervention in areas such as education, social assistance, and housing. In some cases, however, the links between resource projects and social change were reasonably clear.

The links are most clear when projects have had a significant adverse impact on a healthy land-based economy of a community. In such cases, not only is the productive base of the community disrupted causing a shift from self-reliance to dependence, but so to are the social relations of production, which can have far-reaching effects on the roles and relationships within the nuclear and extended families, and on the shared values of the family and the community.

The links are also clear when projects have caused - directly or indirectly - the sudden exposure of an Aboriginal community to non-Aboriginal society. This might result from the construction of a road linking the community with a non-Aboriginal town, and/or to a sudden influx of non-Aboriginal workers into a community.

In both cases, social disruptions seem to be linked with, or compounded by, stress associated with a period of very rapid social change over which the community has very little control.

Just as the relationship between Aboriginal communities and resource development projects underwent a significant period of change after World War II, it seems that we are now in the midst of another period in which the relationship is being redefined. This time, the watershed seems to have been the Mackenzie Valley Pipeline Inquiry.

One change in the relationship during this period is an increasing potential for Aboriginal

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communities to realize significant economic benefits from resource development projects. The reasons for this are many. The proliferation of air-commuting systems and rotation work schedules have made it possible for many residents of Aboriginal communities to work at a resource project without having to relocate to a resource town. As well, the increased access to, control of, and ownership of land, resources, and capital of some Aboriginal groups - often as a result of the settlement of a comprehensive land claim - has contributed to a change in the power relationships between Aboriginal groups, Government, and resource developers. Consequently, resource companies now feel more pressure, and are usually more willing to ensure that Aboriginal people have the opportunity to participate in the project.

Increasingly, resource developers are required, or sometimes volunteer, to enter into some form of agreement with affected Aboriginal groups, which outlines, among other things, the economic benefits the group will receive. Preferential hiring schemes favouring Aboriginal people are becoming more common. So too are benefits which involve more than low-status positions at the bottom of the industrial hierarchy - projects often present opportunities for business development and strategic alliances such as joint ventures. With the emergence and the strengthening of Aboriginal political and business organizations such as Native Development Corporations, Aboriginal people are increasingly in a position to take advantage of these opportunities.

A second change associated with the period is that, in general, the likelihood that a community will experience significant, adverse, social impacts from a development project is decreasing. Although the chances of serious environmental damage is not necessarily 'unlikely', it is certainly less likely than before. This has been influenced by: greater public awareness of environmental degradation and concern about the practices of resource development projects; the increasing involvement of Aboriginal people in resource co-management schemes, and on environmental impact review boards; and more stringent environmental standards, changing technologies, and more scientific knowledge relevant to understanding and predicting impacts.

It might also be argued that as Aboriginal communities have become more familiar with, and

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gained more experience with the industrial economy and with non-Aboriginal society, the stress associated with contact would now be less severe.

The most fundamental change in the relationship between projects and Aboriginal communities, however, is that whereas before the Inquiry the relationship was foisted on communities and controlled by the resource developers and by government, increasingly Aboriginal communities are in a position to determine what kind of relationship they wish to establish. They are increasingly able to choose to what extent, and in what capacity they wish to participate, and increasingly likely to receive, when necessary, some assistance from developers to help implement their choices. With more control over the relationship, Aboriginal communities can try to tailor it to fit their development goals.

Although these development goals may not in all cases be clearly articulated, Aboriginal communities do seem to share some basic objectives. They are commonly interested, for instance, in moving away from paternalistic political control toward self-determination, and in moving from economic dependence toward economic self-reliance - specifically, self-reliance attained in accordance with their distinct cultures and values.

As part of a development strategy to reach these goals, participation in resource development projects presents both opportunities and risks. Certainly, resource projects can contribute to achieving economic self-reliance. Jobs, training and business opportunities are important in the functioning of any healthy mixed economy. Income attained through the distribution of resource rents, royalties and bonuses, or through a return on an investment in a project, is another potential contributor to self-reliance. Income earned from resource projects can be used to support social and cultural development and the land-based economy. The latter, as well as the jobs, training and business opportunities, can help to combat role loss and the loss of self-esteem in individuals. Resource projects can contribute to political self-determination to the extent that achieving this goal is facilitated by achieving economic self-reliance.

There are potential drawbacks, however, to the use of resource projects as part of a development

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strategy. Some of these are related to concerns about the environment. Improved environmental standards and technologies cannot always prevent severe and irreparable environmental impacts. Many of the disruptions caused by hydroelectric flooding, for example, are inevitable. There are also inherent risks of environmental accidents which can be reduced, but not eliminated. Finally, there is concern about the unknown. Because of gaps in scientific knowledge, funding constraints to relevant research, and difficulties in measuring cumulative and long-term impacts, the full environmental impacts of resource projects are not, and will never be, fully understood. To what extent, therefore, is there a trade-off between economic gain and environmental degradation? And to what extent do resource projects compromise, or potentially compromise, the future for the sake of the present?

Other drawbacks are related to concerns about sustainability. How wise is it to base economic development strategies on involvement in industries which are volatile, unpredictable, and, in the case of non-renewable resource extraction, inherently unsustainable? What happens when the project, because of a drop in world prices for the resource, is closed down? What happens when the resource runs out? Will involvement with resource projects promote economic self-reliance in the short-term, but compromise it in the long-term?

Finally, there are potential drawbacks associated with concerns about the erosion or the compromising of traditional community values. Can Aboriginal people participate in industrial capitalism and do so in a way which respects and is in keeping with traditional values? Can values oriented more toward the collective than the individual survive in an industrial environment if participation in a project is organized at a collective level? To what extent are community values compromised if the environment and the well-being of future generations is put at risk?

Although the academic literature can debate the issues concerning the role that resource projects should play in the development of Aboriginal communities, it cannot, ultimately, resolve them. The role they should play will inevitably depend on the characteristics of each case. Informed decisions can only be made at a community level after weighing the opportunities and dangers a

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project presents to the realization of community development goals.

While the legacy of an era in which Aboriginal people had little say in these decisions remains, since the Berger Inquiry Aboriginal people have gained considerably more power to make their own choices. The extent to which this process continues, and extends to all Aboriginal communities affected by resource projects, will likely have much to do with what the future impacts of projects will be.

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