

THE UNIVERSITY OF MANITOBA

AN INVESTIGATION OF THE RELATIONSHIP
BETWEEN HEALTH AND DEVELOPMENT
IN NORTHERN MANITOBA

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by

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A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

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CHAPTER I

INTRODUCTION

I PURPOSE

The purpose of this paper is to investigate the relationship between health and development in northern Manitoba. The hypothesis is that health and development levels are positively associated because the same factors that sustain underdevelopment in northern Manitoba sustain poor health.

II EXPLANATION OF THE PROBLEM

Pipeline developments and the search for alternative energy sources have focussed the attention of governments and the general public on northern development problems. After a period of neglect, the North has come to figure prominently in decision-making at the federal and provincial levels.

The Berger Commission Inquiry into the impact of pipeline development and other studies, such as that completed in 1974 by Gemini North for Canadian Arctic Gas¹, have begun to highlight some of the potentially negative impacts of rapid large scale industrial development in the Arctic. Primarily, two negative impacts are cited. They are the destruction of the natural environment and an increase in social pathology as a land-based people with a traditional economy are forced to become more urban-based and a part of a wage economy.

Among the residents of northern Manitoba, similar kinds of concerns have and are still being raised. The existence of the Northern Flood Agreement, to which federal and provincial governments, Manitoba Hydro and the Northern Flood Committee (on behalf of the Cross Lake, Norway House, Nelson House, Split Lake and York Landing Indian Reserves) are signatories is one testimony to this. The Northern Flood Agreement developed from the concerns of the five Indian Bands that the Lake Winnipeg Regulation and Churchill River diversion project, proposed in 1971 by Manitoba Hydro, would have negative impacts on these reserves. The Flood Agreement, signed December 1977, was preceded by an Economic Development Agreement, signed in September 1977 which established a development corporation to promote resource and economic development while preserving the fundamental way of life for the natives.

Although the Berger Report and Gemini North Report suggest that certain forms of industrial activity, controlled by private southern capital, may have negative impacts on social development, this relationship has not yet been well researched for northern Manitoba. What is known is that government activity in the Manitoba North in the last ten years has not substantially improved the socio-economic circumstances of native northerners.² Despite this level of expenditure, a small percentage of native northerners is employed full time, their incomes are lower, and they have fewer educational opportunities with which to prepare themselves for the job market.

Their standard of living as measured by maternal and child health and nutrition levels and by amenities like sewage and water systems and quality of housing is lower than it is for most other Manitobans.

Yet financial investment over a span between 1969-1979 from just two of the major government departments, the Federal Department of Regional Economic Expansion and the Manitoba Department of Northern Affairs, who are partially responsible for northern development work, has exceeded 190 million dollars.³

In view of the substantial financial investment and the apparently poor response to it, an investigation of a possible relationship which may shed light on what are the real constraints to development and what financial investment may lead to more successful policy interventions is pertinent. As the role of health as a factor in regional development has been given insufficient attention up to this point, the purpose of this paper is to investigate that factor.

III DEFINITIONS

A. Health

The World Health Organization defines health as, ". . . . a state of complete physical, mental and social well-being and nor merely the absence of disease and infirmity". The WHO definition of health is not used in this paper since it would present the difficult research task of analyzing

the relationship between physical, mental and social factors. The analysis presented here for the most part is limited to physical aspects of well-being, though it is recognized that social and mental factors contribute to and benefit from improvements to health defined as freedom from disease and illness. No attitudinal data were gathered, for example, to measure the psychological benefits of improved health.

B. Development

Defining development is a particularly controversial matter for two reasons. Development theorists present theories with different degrees of precision and they also tend to use different concepts to account for development.

For example, the theorists who defined development in the most specific terms are Franck, Maegraith and Lewis.⁴

For Franck,

"Development and underdevelopment are products of one single but dialectically contradictory economic structure and process of capitalism."

Maegraith equates development with self-reliance and independence from direct outside assistance. Lewis thinks development is determined by natural resources and human behaviour and institutions. His definition gives equal weight to concrete factors, while also stressing the factors of energy of mind, and a willingness to save and invest productively. For poor countries, in Lewis' view, development also means transformation of beliefs, habits and institutions.

Theorists like Watkins offer definitions which in

themselves are simultaneously objective and procedural.⁵ For example, Watkins defines underdevelopment as marginality and says it "shows itself as poverty, unemployment and welfare". He also defines development as an internal process whereby men develop themselves "out of" rather than "by" something or someone.

Myrdal, Galbraith and Schumacher all define development as a process. Myrdal calls it a process of moving away from underdevelopment which is a constellation of numerous undesirable conditions for work and life. Development to Myrdal means movement upwards of the whole system. Galbraith says that "at each stage along a continuum, there is an appropriate policy for further advance". His stages include popular enlightenment, popular rewards, capital, etc. As countries become more developed, further development becomes dependent on complex forces - scientific and technical skills, imaginations, quality of work force, ability to use resources and clear national goals. Schumacher speaks of development as a process in which people and their education, organization and discipline figure highly. Getting the work of development done requires motivation, know-how, capital and a market. Singer and Revelle describe development in terms of structural change requiring a reorganization of society's division of labour. Their definition of development is a change for the better in living conditions.⁶

Göran Sterky defines development as being geared to

the satisfaction of man's needs, material and non-material. Malenbaum equates development with motivation.⁷

The definition of development that is going to be used in this paper is the definition that the natives themselves use. When native leaders today in Manitoba, both Metis and status Indians, speak of development, their meaning is very clear.⁸ Development means more jobs, new roads, good houses, and other aspects of infrastructure. They speak of these things with the expectation that they will maintain their spirituality and their traditionally harmonious relationship with nature.

One current example of the use of this definition where it has a positive connotation is the well-publicized recent sit-in of nine Norway House residents. Nine native residents of Norway House were protesting a poor response from government to their demands for more development activity. They refer to jobs, roads, community centres and other infrastructure in this context.⁹

In other context, development defined in this way is given negative connotations. For example, the Dene Indians in the Northwest Territories accuse the white-dominated oil and gas interests of wanting to 'develop' their homeland at the expense of their culture.¹⁰ D. P. Usher's study on the Banksland Inuit, who, prior to taking inferior jobs working for oil companies, had a per capita income close to the Canadian average, is another illustration of the negative

impact of development.¹¹

C. Northern Manitoba

Northern Manitoba is being defined in this paper as a region, the southern border of which is that used by the Manitoba Department of Northern Affairs (see Appendix I). The northern border is the 60th parallel. While covering 80 percent of the Province, northern Manitoba contains only about eight percent of the Province's entire population. Approximately five-eighths of northerners live and work in eight of the larger industrial resource centres (Thompson, Flin Flon, The Pas, Leaf Rapids, Gillam, Lynn Lake, Snow Lake, Churchill). The remaining three-eighths, treaty Indians and Metis, are scattered throughout the North in remote settlements and on reserves. These communities, because they do not conform to traditional municipal concepts of local government, are governed by the Manitoba Minister of Northern Affairs who has powers similar to those of a mayor in a municipality. The smallest communities appoint community committees to advise the Minister while the larger communities elect community councils. In practice, the community committees and councils manage many of their own affairs.¹²

IV PROCEDURES

This paper will examine the relationship between health and development through a review of relevant literature and through an examination of available data. A review of the

literature provides a theoretical perspective - a context or framework in which to examine the relationship. A review of relevant literature will assess what is already known about the relationship between health and development. For this purpose, literature on health and health economics, development in general and Third World development in particular, and Canadian regional policy will be reviewed. A discussion of the findings of this review is presented in Chapter II.

Chapter III follows with a description of the current socio-economic circumstances in the North, using information on the demographics, the economics, the physical infrastructure, and the social framework. These circumstances are then reviewed in the context of the findings in Chapter II to assess how well northern Manitoba may conform to the theories described in the literature review.

In Chapter IV some primary data are presented which bear on the relationship between health and development in northern Manitoba. They are analyzed in the context of the findings of Chapter II.

A complete discussion of the methodology employed in this study will be presented in Chapter IV, together with the data bearing on the relationship between health and economic development. For the purpose of familiarizing the reader in a general way with data sources and with analytical techniques, a brief summary of relevant methodology will be presented in the beginning of each chapter.

The paper will conclude with a statement on the dimensions of the relationship between health and development and will point out some implications for government development policy.

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Revelle, Roger, "The Balance Between Aid for Social and Economic Development and Aid for Population Control", International Journal of Health Services, Vol. 3, No. 4, 1973, p. 669.

7. Sterky, Goran, "Towards Another Development in Health", Development Dialogue, 1978-1, pp. 4-5.

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8. As could be expected from any fast-growing national movement, the views of native leadership in Canada today are far from homogeneous. However, for the purposes of this study, it is neither practical nor useful to reflect minority positions.

Native leaders are taken to be those representing the major native organizations, the Manitoba Indian Brotherhood, the Manitoba Metis Federation, and the Northern Association of Community Councils. The definition of development has often been articulated in their major organization papers.

For example, in 1977, the Manitoba Indian Brotherhood released another in a series of position papers on long-term native development since their original publication Wah bung was published in 1971. In this recent paper, circulated amongst federal government departments which concern themselves about native issues, the M.I.B. again states its views on what is development and on what role government and the Brotherhood should respectively take to achieve their development objectives. Development includes "security from want, shelter and a decent standard of living; to obtain real access to the widest range of opportunity options and freedom from exploitation". A community-based economic development strategy which the Brotherhood favours would mean that communities would have control over the delivery of services and over the development of community capital.

The Manitoba Metis Federation submitted to the Government of Canada on January 4, 1978, a major economic development proposal which called for the merging within M.M.F. jurisdiction many current federal/provincial agreements and programs (Canada Works, Special ARDA and Northlands were specifically mentioned). Within this master plan, the M.M.F. called for industrial development through

renewable resource enterprises, commercial development through business enterprises and multi-purpose business centres, and social development of Metis people through education and training programs, cultural awareness activities, gainful employment projects and information-communication systems.

9. Press coverage, Winnipeg Tribune, August 4, 1979, and Winnipeg Free Press, August 7, 1979, of the Norway House sit-in sets out what the Metis are seeking when they speak of development: recreation centres, internal roads, more jobs and less reliance on welfare. Subsequent press coverage emphasizes the same points:

(Tribune	August 17, 1979)
(Winnipeg Free Press	August 20, 1979)
(Winnipeg Free Press	August 23, 1979)
(Tribune	August 23, 1979)
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CHAPTER II

LITERATURE REVIEW

The initial step to an investigation of the relationships between health and development is a literature review. The purpose of such a review is to examine any research that has been conducted on health and development for regions whose situations closely parallel that of northern Manitoba. To carry out the review, a Medlars bibliographic search was conducted on the combined titles of "northern", "remote", "health", "development", and "economic development".

The literature review considered the causes of underdevelopment in northern Manitoba and the economies of regional development, and health. An attempt was made to generalize from other regions since very little literature which dealt directly with the specific situation in northern Manitoba could be found. The topics of health, Third World development and Canada regional economic development will be reviewed in that order, followed by a summary of the main findings.

I HEALTH LITERATURE

There is ample recognition of a connection between the health status of populations and development efforts in both the public health literature and the literature on the

economics of health care. A good example is the work of Dr. S. Mushkin. In her work "Health As An Investment", she argues that:

"The concept of human capital formation through both education and health services rests on the twin notions that people as productive agents are improved by investment in these services and that the outlays made yield a continuing return in the future. Health services, like education, become a part of the individual, a part of his effectiveness in field and factory."¹³

Mushkin goes on to discuss the inter-relations between health and education. Many of these inter-relations are obvious.

1. A child needs to be healthy to enjoy and profit from school.
2. Many health programs depend on education in hygiene and sanitation. Necessary health personnel are trained in the educational system. Lengthening life expectancy through better health increases the return on the investment in education.
3. Increasing productive efficiency through education increases the return on investment in health.
4. Increasing productive efficiency through health also increases the return on investment in education.

The most dramatic evidence for Mushkin's contention that health is an investment for development can be seen in the example of China where health policy has been a major objective since 1949. Research by Drs. J. H. de Haas and de Haas - Posthuma, Dr. Joshua Horn, S. B. Rifkin and others,

documents the enormous success China has enjoyed in the last thirty years in the reduction of venereal and other infectious diseases, elimination of vectors of parasitic diseases, mass vaccinations, and in the education of the masses towards shared responsibility for creating a healthier population which can labour more effectively for national objectives. The Chinese Ministry of Health has emphasized prevention, especially through services to rural areas, as one means of promoting national development objectives. As will be discussed later in the section of Third World literature, the socio-political context has been highly influential in the advancements made to date. Clearly, with labour as its major resource, China has had to invest in building up the health of its population in order to carry on with the building of other infrastructure, crucial to its development.¹⁴

Other health economists focus on the "cost" of poor health in developing or developed parts of the world. Weisbrod describes the following economic consequences of poor health which apply to developed or developing regions but with differing incidences:

1. premature death with consequent loss of production
2. sickness with a loss of production
3. illness may reduce individual's resistance to other diseases and, therefore, his/her productivity
4. illness causing temporary absence from work may mean costly adjustments to the production process

5. poor health affects size and composition of the population through differential effects on mortality
6. detection costs, treatment and rehabilitation
7. existence of disease may involve people in attempts to avoid disease.¹⁵

In estimating the loss of worker efficiency through debilitating diseases that represent the chief cause of low productivity, Winslow documents that before malaria control, 30 to 40 percent more workers than necessary were recruited in the Transvaal and in Natal in order to allow for absenteeism due to sickness. He further documents the 90 percent reduction in working days lost to malaria in the Copperbelt, the reduction by 40 to 50 percent of school absenteeism in the Phillipines associated with malaria control and the increase in productivity in the Ruhr when caloric intake was improved for workers in heavy industry.¹⁶

Some of the problems relating to health and development are simply not present in the Canadian context. There are no diseases in Canada whose debilitating effects on worker efficiency can be compared to those of malaria and similar diseases frequently found in the Third World. Effects between health and productivity in Canada are best measured by indicators such as productivity losses due to occupational injuries.

In 1977, in a submission to the Manitoba Government, the Manitoba Federation of Labour drew attention to mining

accidents as a major factor in worker efficiency losses.

The report states:

"In 1976, the mining industry in Manitoba experienced 932 lost time injuries; this translates into a loss of 17,347 production man days. On the basis of 15,785 man hours worked, the frequency of the number of lost time injuries per one million man hours is 59.04."

Further:

"forty members of Local 6166, United Steelworkers of America, have suffered fatal accidents between 1962 and November 1977. Four workers at the Thompson operation were killed in 1977 alone ... Accidents reported by Inco employees to the company and to the Workers Compensation Board exceed six hundred.¹⁷

The Federation report also touches on the likely implication of "speed-up" practices and fatigue caused by over-time as major contributors to accidents.

Freedom from illness and injury is, therefore, a contributing factor to sustained productivity. Some health economists have suggested that the contribution of good health goes beyond such obvious direct economic benefits to include indirect social benefits. For example, Campbell, an American public health physician with considerable experience in aid programs, argues that development can only be measured by a combination of economic and social indicators. He suggests the indicators of life expectancy, maturity (age pyramid of population) and literacy. His conceptualization of the development process assigns great importance to improved health:

"With enlightened public action, these indicators

will reflect the fact that children with improved health opportunity have more vigor. Because they are better developed physically they will have the sustaining capacity to learn and develop skills and they will have the energy and enthusiasm to pick up and use the tools of agriculture and industry. As they become increasingly positive-producing members of society, their mental attitude toward the family will change from one of desperation to one of hope engendered by the fact that they may have a healthy family."¹⁸

Dr. Brian Maegraith, formerly dean of medicine, Oxford University and dean and emeritus Professor at the Liverpool School of Tropical Medicine, agrees with Campbell that standard cost-benefit analyses of health spending are too narrow or limited in scope. Most analysts assume that health follows from development, that is, as the standard of living improves, improved health will follow. According to Maegraith, the relationship is more ambiguous because both "health" and "development" are multi-faceted and vulnerable to many influences. Unfortunately, he doesn't attempt to delineate or even speculate on the precise nature of the relationship.

Maegraith contends that, since most economists are interested in clear economic return for investment, they do not view health improvements as essential measures of "development" success. Some economists even fear that if the population becomes too healthy, economic return may be offset by high population growth.¹⁹ Too often, economists are content to leave the biological problems to medical planners and simply continue to assume that economic development and more education

will lead to better health.²⁰ Maegraith points out the shortcomings of such an approach:

"There is clearly some truth in all these propositions. The trouble is that they are seldom considered together in the planning and operation of any major development in which the community is involved. Some way or another, the medical profession must convince the economic planners and local governments that health is a vital factor in all major socio-economic development ...

To achieve this there must be some factual analysis of the medical situation and an estimate of the return in increased economic output for a given expenditure on health. This is a point which has only recently been seriously considered by the medical profession ...

The quantitative assessment of a medical situation in developing areas presupposes the collection and analysis of information which is accurate and reliable. It is not only the current or future medical situation in terms of purely medical problems of the individual and the community which has to be assessed. Some appreciation is also needed of the possible modifications of the situation, depressing or stimulating, induced by the proposed socio-economic developments themselves ...

This raises the problem of how to equate the biological improvements that medical aid can bring to an emergent country in terms of growth of GNP and rising income per head. Analysis of these economic factors, which can be measured in terms of imports, exports and total production, is a useful exercise in comparing the economic status of one country with that of another. However, such figures may have little social meaning when they are averaged for a given country."²¹

While Maegraith has identified the essence of the problem, he is not able to specify how and to what extent a particular policy intervention in the health field would contribute to economic development. In this respect, he is

like many of the writers on health issues who speak of the importance of understanding the connection between health and development but do not clarify specifically what it is.²²

Many health theorists have written about how better health facilitates increased production. With this emphasis, these theorists typify a Western capitalist perspective. A small portion of health literature directs itself to a discussion of health as a worthwhile goal in and of itself. The indirect benefits of improved health in the form of improved morale within a population, are less well-documented because it is more difficult to measure.

One study which has looked, at least peripherally, at the factor of motivation is one by Gladys Conley. The study analyzed the economic impact of health improvements among Paraguayan farmers. Three malarial and predominantly agricultural regions in Paraguay were selected and then improvements for the control of malaria were introduced in two regions in different degrees. Changes in farming patterns were recorded, and the changes were assumed to be related largely to improved health amongst the workers, climatic and market conditions being nearly equal. The data collected showed that malaria had the immediate effect of slowing down the expansion of cleared land and reducing the amount of land brought under crops. In highly malarious areas, the total amount of work done on farms was reduced despite the fact that extra family members were put to work.

The results of the study show that improved health has a positive effect on the individual farmer's farming practices as judged by preferential attention given to cash crops, resumption of land-clearing operations and clearing up arrears of field work.

Conley's research is an excellent example of the limitations of the theoretical tools developed to date by which the relationships between health and development can be assessed. After spending considerable time, effort and funds to add hard data to the available research on the topic, Conley admits that,

"tracing the influence of a single factor, even an important one, through all the intricacies of the real world is a complicated and detailed procedure. Illness does not affect people in one uniform way in all aspects of their daily lives; rather, it has different effects on their various activities and decisions."²³

Writing on health and development in poor lands and relying on studies like those of Gladys Conley, W. Malenbaum, economics professor at University of Pennsylvania argues that the two phenomena are related since,

"... intervention in the health area can be important in the creation of new attitudes and motivations on the part of people in poor areas."²⁴

For Malenbaum, motivational forces are central to the process of economic development and population growth. From this perspective, the benefits of improved health go beyond increased levels of productivity to include attitudinal changes which further assist the development process. He claims that,

"clearly there is a growing tendency for economists to emphasize the human change aspects of the economic development process with frequent reference to same role of health in the process."²⁵

The belief in health expenditure as a positive factor towards economic growth has not gone unchallenged. Whereas industrial productivity can be shown to be influenced, at least in part, by the vigor and lack of illness of the workforce, the same probably does not apply to northern Manitoba Indians because they are not closely tied to the wage economy in that region. Dr. P. Ruderman, a Canadian health economist who was formerly an economic advisor to the Pan-American Health Organization, argues that a linkage between health and development is unprovable or unimportant except in the context of full employment, that is, where people live in the kind of economy where one sign of their improved personal health is likely to be that they will hunt, trap or farm more. With near perpetual high rates of unemployment in northern Manitoba, one implication of Ruderman's view is that the treatment of poor health is not to be regarded with any kind of priority. Expenditures on job creation projects would be given precedence over health spending, according to this view. He has apparently based his opinion on his lengthy experience with the Gladys Conley study of Paraguayan farmers.²⁶ Ruderman fails to comment on whether improved mental well-being is worthwhile even if there is limited paid employment available.

II THIRD WORLD LITERATURE

There is a potential problem in looking to the literature of underdevelopment in Third World countries for a theoretical perspective for northern Manitoba. Some would argue that the dimensions of Third World problems make for inappropriate comparisons. If some of the symptoms are similar, it does not follow that similar policy conclusions can be drawn. Regions within countries have fewer policy instruments available than independent countries. They do not control money supply, the exchange rates or interregional flows of capital and labour. Many of the most important decisions for a region like northern Manitoba are taken by the national government or by private enterprises outside of the region. This may be less true in the case of developing countries. For these reasons, one must be cautious about drawing lessons from Third World experiences for application in northern Manitoba.

Myrdal, in his masterpiece Asian Drama, expresses briefly how complicated is the set of relationships between health and economic development in the world's most depressed regions and how development there is reliant on improved health and education:

"what we know about the timing and effectiveness of the mass campaigns which have decreased not only mortality but morbidity and about the improvement of health facilities suggests that the rank order of the countries in terms of health conditions would be somewhat similar to their rank order in terms of economic levels and levels of living, particularly standards of nutrition. It

is natural to assume this, because the more prosperous people are the better able they are to avoid deficiency diseases and to obtain adequate medical treatment ... In relating health to labour efficiency ... there is a complicated causal relationship between them. But practically no efforts have been made to measure this relationship. Some research has been made into the connection between poor nutrition and labour efficiency. These studies corroborate in a general way, the conclusion that suboptimal food intake has a very marked effect on people's ability to work."²⁷

Myrdal summarizes the scope of the set of inter-relationships by saying:

"the fact that improved health has an independent value for individuals implies that the health facilities available are an important item in a country's level of living; at the same time, the availability of almost every other item of consumption including foodstuffs, housing, clothing, sanitation and educational facilities is relevant to health conditions. Improved health conditions should increase labour input and efficiency ... The influence of the climate on labour utilization is closely related to the influence of the climate on health conditions. Health conditions are obviously a determinant of fertility and mortality and consequently, of quantitative population trends ... Insofar as a decrease in the number of children raises levels - directly because of a lower dependency burden and indirectly because of its effect on labour utilization - such a quantitative population development affects conditions of health generally."²⁸

Dr. J. Bryant, known for his research on the alleviation of health problems in developing countries, calls health essential to the development process - an instrument for and a product of development. Like Myrdal, Bryant speaks of a complex relationship between health and other socio-economic factors. He argues that health should be included in policy considerations involving broad development objectives

in spite of the fact that health changes, per se, are difficult to quantify.

"An intuitive approach is therefore needed through which a strategy can be developed that relates health to development in the broadest possible way. Within the framework of this strategy, individual sectors of the health problem can be subjected to analysis and program development. This entire process should be guided by sound planning and managerial methods, such as carefully identifying objectives, thinking in terms of alternative program possibilities, using cost-benefit concepts in choosing from among alternatives (even though costs and benefits may be based on informed estimates in the absence of reliable data), and of seeking means for evaluating program effectiveness. Close attention must also be directed toward institutional and policy reforms without which investments in health can not achieve their expected ends."²⁹

Dr. Roger Revelle, Director of the Harvard University Centre for Population Studies, in his work on economic development and population control says,

"Any process of development that will improve the conditions of life for these people will include one or more of the following changes: rational urbanization, rising incomes, a lower ratio of children to adults, introduction of modern agricultural practices, more education, improved health services, higher levels of employment, and education for women, better communications, greater opportunities for social and economic mobility and reduction in infant and child mortality."³⁰

Unfortunately, no indication is given of the related importance of the numerous potential policy responses implied in this statement.

Dr. Victor Sidel, an American physician who has written extensively on changes to health and development in

post-revolutionary China, argues that the health system in operation often tends to reflect the prevalent economic and political system. He identifies three models of health systems.

The first model, more in evidence years ago, he labels as that of "helping the victim". He claims both in poor pockets of the "have" countries and throughout the "have not" countries, various forms of health and educational assistance were given to people with very little thought as to the sociopolitical context in which they would be experienced. The beneficial results were shortlived and negligible, and perhaps even negative to the extent that they began to condition people to accept and expect improvements to come from outside.

The second model he labels "blaming the victim". This model was operationalized in poor countries and in poor pockets of wealthy countries by promoting the idea that the real problem behind poor health was low economic development and that those responsible for economic development were holding up progress.³¹

Dr. Sidel calls his third model "organizing the victim". The basic tenet is that only by nationally generated, locally administered, co-operative activity, such as the Chinese barefoot doctor scheme where indigenous agricultural workers are taught paraprofessional medical skills in order to keep the agriculture work force healthy, will either good

health or a solid economic base be achieved.³²

In arguing for the close connection between the health system and prevalent economic and political system, Sidel concludes that the benefits of improved health will be dissipated if they are not dispensed within the appropriate sociopolitical context. If Sidel's analysis is correct, 'improvements' to northern Manitoba health services, such as greater frequency of doctor and nurses' visits to remote communities, or better air and road ambulance service, would not alone improve the health of the residents of those communities.

John Kenneth Galbraith, writing of his perspective on Third World development problems, and particularly those of India, supports the points brought out by Sidel's discussion of health and development models.

"We have looked at the things which contribute to economic development; we have given too little attention to inquiring whether they are being employed in a context that is favourable to development. As a result we have probably wasted a good deal of time and effort doing things which were right in themselves but which made little or no contribution to progress because they were done in an environment which was inconsistent with advance. The environment has not been examined. It has somehow been assumed to be favourable to development."³³

Effective government, education and social justice are highest on Galbraith's list of critical components to development. He does emphasize that a particular diagnosis which fits a particular country at a particular stage is the most critical element for its successful development.

D. Schumacher, another contemporary development economist, best known for his work on appropriate technology, feels that one of the most destructive tendencies in underdeveloped countries is the apparent evaluation of a "dual economy" in which there are within one country at any given point in time two widely different patterns and standards of living. Schumacher claims,

"Nearly all the so-called developing countries have a modern sector where the patterns of living and working are similar to those of the developed countries but they also have a non-modern sector, accounting for the vast majority of the total population where the patterns of living and working are not only profoundly unsatisfactory but also in a process of accelerating decay."

To the extent that this dichotomy is made real and operational by government policy, development will be thwarted. For Schumacher, education, organization and discipline are the cornerstones of development.

"Here, then lies the central problem of development. If the primary causes of poverty are deficiencies in these three respects, then the alleviation of poverty depends primarily on the removal of these deficiencies. Here lies the reason why development cannot be an art of creation, why it cannot be ordered, bought, comprehensively planned; why it requires a process of evaluation. Education does not jump; it is a gradual process of great subtlety. Organization does not 'jump'; it must gradually evolve to fit changing circumstances. And much the same goes for discipline. All three must evolve step by step, and the foremost task of development policy must become the property not merely of a tiny minority, but of the whole society."³⁴

The general theorists quoted above all come down on the side of seeing successful development as closely associated

with simultaneous improvements in the standard of living of the population.

III CANADIAN REGIONAL DEVELOPMENT

The literature review revealed a wide variety of explanations of regional disparities within Canada, as well as elsewhere in the world. There is agreement that the emergence and perpetuation of regional disparities is a complicated multifaceted phenomena. There is disagreement over what the primary cause is of such disparities and over what the relative importance of other contributory factors might be.

Second, analysis has been conducted on different levels ranging from broad macro-economic interpretations of the origins of regional underdevelopment in the movement of factors within national economies down to micro-economic analysis of the decline of particular industries in specified regions. Third, much of the Canadian literature seeks to explain the relative lack of industrial activity in certain parts of Canada, usually within the provinces, a problem which to some extent raises different economic issues than the issues faced in the North. Finally, there is a school of thought which insists that regional disparities are inevitable; that development is naturally uneven and that government intervention will have a limited impact.³⁵

As an example of the divergence of views within

Canada alone, the Economic Council of Canada, in explaining interprovincial differences in per capita income, stressed differences in productivity, aggregate demand and the extent of urbanization.³⁶ Other writers have stressed different resource endowments among regions as the principal cause of regional disparities.³⁷ The existing literature cannot, of course, settle these theoretical and empirical debates, but the controversy reveals that the study of underdevelopment is itself underdeveloped. A. F. T. Walton noted in 1974:

"It would be most helpful to have a theory of regional economic development. We do not. A general theory of regional development capable of explaining different sorts of circumstances and of prescribing various suitable lines of policy to meet them would offer the most skilled theoretical economist a substantial challenge. That such a theory has not emerged to date is perhaps largely due to the greater preoccupation of regional practitioners, whether economists or not, with solving practical problems in this relatively new field of public policy."³⁸

It may, in fact, be more accurate to say that several contending theories exist, but none commands anything like unanimous or even overwhelming support.

There has been little explanation of the connection between health and development in the Canadian context, despite the recognition it has been given in the literature on health economics and Third World economics. Major writers on regional disparities do not deal with this factor, except occasionally when it is included in a more general discussion of interprovincial variations in the level of government services.

T. Brewis, Professor of economics and director of the School of Commerce at Carleton University and one of the leading writers on Canadian regional problems, lists a variety of factors contributing to the development process but health is not among them. Brewis acknowledges that government thinking about development issues in 1968 was fragmented and embryonic. He observes that one of the structures that sustained underdevelopment in the North was that southern workers who are temporarily employed in the North do not spend much of their earnings in the North. Thus,

"the local multiplier effect of incomes in the North is significantly less than that in the more developed areas of the south".³⁹

A. D. Scott, economics Professor at University of British Columbia, writing on the causes of regional disparity, ten years after Brewis, has very little to say about how these causes affect northern development. Scott argues that regions decline because their staple industries decline and this motivates emigration. Government has been interfering with this process and aggravating the local situation. He thinks government should promote migration and invest in the education and training of residents of declining areas so as to encourage them to move. He does recognize that mobility for some residents is not a real option (northern Indians are grouped here). For them, the holding of capital is essential and government grants and subsidies are to accomplish this.⁴⁰ A most desirable outcome, Scott feels,

would be the discovery of a new regional staple whose production could lead to the revival of sagging local economies.

Scott presumes that benefits will trickle down to lower income levels. He completely skirts the fact that in one region of the country, the Territories, where new staples (oil and gas) have been found and are being promoted, there is still an indigenous population whose standard of living is far below that of the population of migrant white workers who work in that same region in jobs related to the oil and gas industry and the indigenous population's standard of living is even farther below the national average. His work seems to disregard the factor of cultural differences. By placing an emphasis on education as an investment, he also disregards a substantial school of research which has found that equalizing educational opportunity alone may not equalize economic status.⁴¹

Mel Watkins, Professor, Department of Political Economy, the University of Toronto and a frequent consultant to the Northwest Territorial Indian Brotherhood, adopts a staples approach as well but he disagrees with Scott on the incidence of staples development benefits. Watkins maintains that the structure of the minerals and petroleum industry negates the native's claim to the land, encourages importation of skilled southern labour, and promotes the reinvestment of profits outside the northern region. This removes the availability of monetary and human capital for long term

development. If Watkin's view is correct, Scott's view will clearly be shown to be too optimistic.⁴²

Paul Phillips, an Associate Professor of economics at the University of Manitoba and the former research director for the Manitoba Economic Development Advisory Board, challenges another of the comfortable assumptions made by Scott: that benefits of development will spread relatively evenly throughout a regional economy. In his view, economic disparities are thoroughly ingrained in the structure of the Canadian economy. He claims that these structures have been created and sustained by government policy. Individual regions are economically isolated, contributing to a national pattern of inequality of income and opportunity. Investments in northern development may bypass the permanent indigenous population of northern regions, making the North a mere geographic extension of the more affluent southern regions.

Dr. Phillips claims the

"northern reaches of Canada have become the example without peer of inequality and disparity between the client economy of numerous native peoples and the affluent extension of the southern economy in the resources extraction industries and among government administration."

Health deficiencies are one symptom of the exploited and underdeveloped status of northern populations.

Phillips claims that:

"In 1964, Indian child mortality was 13 times the Canadian rate, life expectancy for Indian and Inuit were one-half and one-third respectively that for the nation, female mortality was five times the national average."⁴³

He cites the minimal native participation rate in the northern Manitoba economy as a "measure of the drain to the south of the value of production in the North".⁴⁴ While he uses health statistics to illustrate an aspect of northern underdevelopment, Phillips does not attempt to analyze the contribution of poor health to the economic problems of the area, but he does present an historical case for northern economic exploitation.

Phillips emphasizes that Canada benefitted from "the economic contribution of the native population". When the fur trade collapsed and left the natives destitute, the southern interests responded with the institutionalization of the Indian Reserve and of native dependence and poverty. He describes the recent oil and gas discoveries as presenting "a new challenge to the welfare of the indigenous northerners"

and predicts that

"when the oil and gas cartel has pulled out, Canada will be faced with the economic burden of supporting a greatly expended native population in the Arctic which would have no economic base and no possibilities of building one. Nor would a return to a subsistence hunting economy be possible. The welfare bill would be tremendous, the alienation, bitterness and hostility of the people of the North complete."⁴⁵

Using an approach similar to Phillips, Professor K. J. Rea's study of The Political Economy of Northern Development stresses wider economical and historical forces as leading to problems in the north.⁴⁶ Rea claims development has been a function of outside economic interests. He

suggests that three forces might weaken the factor of outside economic control. These are: first, growth in service industries in the North; second, decentralization of public administration to the North; and third, the emergence of native and other special interest groups. In the preface to his study Rea admits that, because of time and resource constraints, he deals only sketchily with some important Canadian social developments, especially health, education and the roles played by native organizations. In failing to incorporate these social developments into his analysis, he has missed factors important to an understanding of the North's underdevelopment. If he had been able to incorporate into his analysis the factors of health, education and the growth of the native organization, he may have concluded that the presence of health and education services in the North and the presence of some native organizations alone does not necessarily mean that they are controlled from within the northern region. Missing these important factors may have led to some misunderstanding and underestimation on his part as to the structure and strength of the outside economic interests to which he makes reference. His specific suggestions of forces that might weaken outside economic control do not seem practical given current evidence. In a time of restraint, the decentralized public service is a likely target. Rea is overly optimistic in his argument that native organizations, which depend almost exclusively on the goodwill and

conscience of government to fund them, can become any kind of an obstacle to the powers that be.

Rea's study does bring to the discussion of regional disparities one source of comparison ignored by most other writers, namely the development experiences of circumpolar countries. The development of these hinterlands he claims has been shaped by the same broad influences as our own, that is "the impact of western industrialism on a particular type of resource frontier".⁴⁷ More current evidence would suggest that, with the possible exception of Alaska, Scandinavian development objectives stress regional self-reliance. The social democratic view of development would seem to be that poor regions should be subsidized, not to operate as satellites to the rich regions, but to operate as self-reliantly as possible within broad national objectives.⁴⁸

Hugh Brody, an Associate of the Scott Polar Research Institute, offers another explanation for northern underdevelopment and for why it is difficult to assess thoroughly the impact that industrial development has on the indigenous population. Essentially Brody says that the Arctic does not easily conform to the conventional wisdom about cultural contacts and colonialism. He says that classic colonialism is motivated by the wish to profit by reserves of labour or by increased land. In the case of the Arctic, "colonialism" is motivated by resources under the land and shows a preference for southern imported labour. Brody speaks in terms

of a paradox;

"the smallest alongside the largest, the most traditional alongside the most modern, and the most remote becoming involved with national or even international economic interests."⁴⁹

Brody believes that for some period of time, it is possible for large scale resource-based industrial development to operate quite independently of the immediately adjacent small Arctic communities. He cites the case of the Nanisivik mine in north Baffin Island as an example. At some point in time, as yet undetermined, this independent relationship breaks down and the local population begins to abandon its traditional ways and some of the local population takes the first steps toward entering the wage economy. From here on, Brody argues, the local population is

"in danger of being engulfed by the social and economic modes of the extractive industries."⁵⁰

If there is any truth to Brody's views, one would expect that the effects of recent industrial development would perhaps not always be immediately reflected in other facets of community well-being such as its health status.

Finally, we come to a recent effort to explain underdevelopment in Manitoba's North. In an original and stimulating paper, Professor John Loxley has provided an "insider's" perspective on efforts to develop a coherent and comprehensive strategy for northern development through the DREE-Manitoba Northlands Subsidiary Agreement (1975).⁵¹ Previously employed in the Planning Secretariat of the government of Manitoba, Loxley argues that the development strategy

contained in the Agreement is doomed to failure because it is operating within the confines of the same economic and political system which produced the problems.

To sustain this thesis, Loxley examines three conventional explanations for the state of underdevelopment in northern Manitoba, none of which specifically discusses the role of health in underdevelopment.

The first theory, the dualist theory, asserts that there are really two Norths: an historic, traditional one, and a modern, industrial one. The theory is that until the beginning of industrialization in the North, natives lived in small communities, isolated from each other and from contact with their southern neighbours. Their needs were satisfied from within their immediate environment. With the advent of the mining companies and other industrial interests, and with compulsory education, a new kind of centre was created. The industrial centres emerged as wage economies with strong ties to the general provincial economy and culture. The remote communities, in contrast, were isolated from the mainstream of provincial life and their standard of living was lower. In order to improve the living conditions for these remote northern residents, to thwart the increasing out-migration from the North and to guarantee a labour force for industry, government intervened to create a sort of hybrid of these two societies, a new North.

The second theory used to explain northern under-

development is that of vicious circles. The principal point here is that the North is underdeveloped because it is poor and all the factors that contribute to its poverty are intrinsic to the structure of underdevelopment.

A third common theory, the subtraction theory, involves

"analyzing a society which has been transformed by industrial capitalism, listing its characteristics and comparing them with those to be found in preindustrial societies. Characteristics not found in the latter are said to be the cause of the failure to industrialize."⁵²

Dr. John Loxley, holds the conventional wisdom to be inadequate. The dualist theory, which was also discussed by Schumacher, he dismisses as racist, static and without regard for history.⁵³ The vicious circles theory he criticizes for its superficial truism that economic, political and social aspects of life are interconnected and for the fact that historical origins to problems are not made central to the analysis. The subtraction theory is weak, he claims, for it confuses cause with effect.

Having rejected the three most common theories used to explain underdevelopment in northern Manitoba, Loxley adopts a Marxist theory of development. The basic tenets are that poverty in the North is the result of a single historical process of development which brought prosperity to some areas and poverty to others. The origins of this process were the introduction and expansion of the exchange economy, first by merchant capitalists, conducting the fur, retail and fish

trades, and subsequently by industrial capitalists, seeking profit from the exploitation of the mineral, forest and hydro-electric potential of the North. Initially the fur trade was unlike modern industrial capitalism. It did not require land; it was labour intensive and it relied on native labour in all aspects of the trade. There were, however, some similarities to modern capitalism. As the product was exported raw, little added benefit accrued to the North (unlike the Soviet integrated industrial complexes⁵⁴). Technology and consumer goods were imported from the south. Loxley's point is that the major benefits were enjoyed in the south where the furs were further prepared and resold. Loxley points out that the modern resource industries in the North act in much the same way. He calls the northern economy a divergent one because what is produced is not consumed locally and what is consumed is not produced locally.

While Loxley refers to the role of health in the development process and assigns that factor more significance than most other writers, he still does not offer an extended analysis of the relationship. Instead, he draws on the work of Dr. Vicente Navarro, a Cuban physician and theorist on social issues, currently with the John Hopkins University School of Hygiene and Public Health. Writing on the causes of maldistribution of human resources in Latin America, Dr. Navarro states that, contrary to the prevalent view, underdevelopment and uneven distribution of resources in the health

sector occurs for the same reason as it does in every other sector of the economy. It is not due to

"the absence of cultural and technologic diffusion from developed or developing countries, the scarcity of capital in poor nations or the presence of dual economies in underdeveloped countries, i.e. the urban-entrepreneurial economy and the rural primitive economy. Rather, this underdevelopment and subsequent maldistribution of resources is precisely because of the existence of assumed conditions of development, i.e. the cultural, technologic and economic dependency of developing countries and the economic and political control of the resources by specific interests and social groups."⁵⁵

Navarro states that the dependency of developing countries and the economic and political control of resources by outside interests are the two factors which create the so-called "dual economies". He concludes that the uneven allocation of human resources that occurs, can be explained by the same determinants that cause underdevelopment throughout Latin America.

If the analysis of underdevelopment in northern Manitoba advanced by Loxley⁵⁶ is correct, health and development levels could be expected to parallel each other closely as they are both a function of the same structure and subject to the same influences. If the analysis is correct and if health and development levels closely parallel each other, the policy implications for those concerned with northern Manitoba development would be clear cut. Real development would be based on bringing to an end economic control of the region by interests based outside of it, accumulating capital

within the region (lessening dependency on outside interests) for the benefit of those who live within the region and a closer conscious integration of development with health programs.

IV SUMMARY

The literature review found a wide variety of explanations for the phenomenon of regional disparities. It also revealed a distressing lack of conceptual clarity on the precise nature of the relationship between health and development. Research from sources around the world, in both small and large regions, culturally homogeneous regions and those in which major transitions to a new culture are taking place, has failed to provide hard data concerning the dynamics of this relationship. We do not know what effect certain economic interventions will have on health. Similarly, we do not know exactly what will happen to the level of development if interventions are made to the health sector. Without a clear model or conceptual framework, we do not know the precise flow of causation and at best can make an educated guess as to how it operated.

A. Health Literature

With the exception of those writing on China, no one writer on health addressed the specific matter of the association between health and development. Writers on health issues appear divided as to what is the connection between

health and development. Some, like Mushkin, emphasize that health is an investment and that a country cannot develop without a health population. A corollary to this is the view, held by health economists like Weisbrod, that poor health not only thwarts development but it costs a great deal in its own right. Another group of writers, including Campbell and Maegraith, emphasize that progress toward development cannot be measured by conventional economic measures which have for too long disregarded the benefits of better health which at this time can only be imprecisely measured.

B. Third World Literature

From the Third World literature, many writers with extensive experience in developing countries, like Myrdal, Revelle, Schumacher, and Bryant, emphasize the necessity of simultaneous improvements to health, education and job possibilities to raise overall standards of living and promote development. These writers stress that there is no one right solution to cover every stage of development but rather, at each stage, there is an appropriate solution. None of them discuss specifically the issue of regional development. Dr. Victor Sidel is one writer who stresses the importance of the socio-political context in which development is to take place. He argues that efforts to use health to promote development will be ineffective unless these efforts are consistent with objectives shared by the population.



C. Canadian Regional Development Literature

Canadian writers on regional development share a lack of consensus about the causes of underdevelopment. Although poor health has been mentioned in the literature on development in the Third World as one contributing factor, its role in development in Canada has not been well-analyzed. Brewis, Phillips, Scott and Rea pay little attentions to it. It has all but been passed over in the Canadian regional development literature.

The Marxist analysis, supported by Loxley, is the analysis that most extensively examines the role of health in development. If this analysis is correct, it can be predicted that low levels of health and low levels of development will prove to be closely associated. It can also be predicted that within the northern Manitoba region, which is characterized by socio-economic circumstances below the average level of the rest of the province, there will be real disparities between the circumstances of the northern remote and northern industrial centres.

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13. Mushkin, Selma, "Health As An Investment", Journal of Political Economy, Vol. 70, 1970, p. 95.
 14. de Haas, J. H. and de Haas - Posthuma, "Sociomedical Achievements in the Peoples' Republic of China", International Journal of Health Services, Vol. 3, No. 2, 1973.
 15. Weisbrod, B., Economics of Public Health, University of Pennsylvania Press, Philadelphia, Pennsylvania, 1968, pp. 30-31.

16. Winslow, C. E. A., "The Cost of Sickness and the Price of Health", W.H.O. Monograph Series, No. 7, Geneva.
17. Manitoba Federation of Labour, Annual Legislative Presentation to Premier Lyon and Cabinet of the Government of Manitoba, December 12, 1977, p. 17.
18. Campbell, Dr. E. P., "Development Indicators and Investment in Health and Education", The Agency for International Development, War on Hunger, Vol.IV, No. 6, June 1970, p. 9.
19. Le Riche, W. Harding, "Important Vector - Born Diseases: An Attempt at an Analysis of Their Economic Impact", Department of Epidemiology and Biometrics, School of Hygiene, University of Toronto, 1974, (unpublished data).
20. Hughes, J., "Economic Development as a Health Planner: Opportunity or Handicap", Health Care for Remote Areas, Kaiser Foundation, California, May, 1972.
21. Maegraith, Ibid., pp. 32-33
22. Vianen, J. G., "Health Care and Economic Development", Discussion Paper No. 22, Centre for Development Planning, Erasmus, University, Rotterdam, 1973, p. 23.
23. Conley, Gladys, Ibid., p. 83.
24. Malenbaum, Ibid., p. 163.
25. Ibid., p. 165.
26. Letter between Dr. P. Ruderman and Dr. P. Warner, National Health and Welfare, 1978.
27. Myrdal, G., Ibid., p. 375.
28. Ibid., p. 367, The meaning of Myrdal's statement that health conditions are "a determinant of fertility ..." is somewhat unclear. If he meant that the fertility rate would climb as a function of improved health, the northern Manitoba experience, where Indian fertility is and has been much higher than the healthier Canadians as a whole even before significant contraception was available, would prove him wrong.
29. Bryant, Dr. John, Health and the Developing World, Cornell University Press, Ithaca and London, 1969, pp. 124-5.
30. Revelle, Ibid., p. 669.

31. In rich countries, this same sort of notion was made operational in a slightly different way. The "in" word was "lifestyles" and governments appeared to hold people responsible for their lung cancers, alcoholism, obesity, poor physical condition, and so on.

A New Perspective on the Health of Canadians; A Working Document, published by National Health and Welfare, Ottawa, 1974, states that: "Marvellous though health care services are in Canada ..., there is little doubt that future improvements in the level of health of Canadians lie mainly in improving the environment, moderating self-imposed risks and adding to our knowledge of human biology.

Robert Crawford, "You Are Dangerous to Your Health: The Ideology and Politics of Victim Blaming", International Journal of Health Services, Vol. 7, No. 4, 1977, states that "During the period of rapid health sector expansion, higher morbidity and mortality rates for the poor and minorities were explained by emphasizing life-style habits, especially their health and utilization behavior. These culture of poverty explanations emphasized delay in seeking medical help, resistance, and reliance on nonprofessional folk healers or advisors., p. 670.

32. Sidel, Dr. Victor, "From Helping the Victim, To Blaming the Victim, To Organizing the Victim", Speech given to the Canadian Public Health Association Annual Meeting, Winnipeg, May, 1979.
33. Ibid., p. 5-6.
34. Schumacher, E. F., Ibid., p. 140.
35. See the discussion of this perspective in Ontario Economic Council, Northern Ontario Development, Issues and Alternatives, 1976, Toronto, 1976.
36. Economic Council of Canada, Living Together: A Study of Regional Economic Disparities, Ottawa, 1977.
37. Maxwell, Judith, Regional Disparities: The Challenge to Confederation, Montreal, C. D. Howe Research Institute, 1978.
38. Walton, F. T., "The Formulation of Regional Economic Objectives", in Keirstead (ed), p. 268. Bruce F. Johnston's article entitled "Food, Health and Population in Development", Journal of Economic Literature, September 1977, Vol. XV, No. 3, p. 879, gives further

support to Walton's statement that the study of underdevelopment is underdeveloped. "Although the lack of consensus concerning alternative strategies for fostering growth and reducing poverty is conspicuous, certain areas of agreement have emerged. Thus, there is general recognition that "the poor are disproportionately located in the rural areas and are engaged in agriculture or allied rural occupations".

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 40. Lithwick, N. H., Regional Economic Policy: The Canadian Experience, McGraw-Hill Ryerson Limited, Toronto, 1978, p. 67.
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42. Watkins, Ibid.
 43. Phillips, Paul, Regional Disparities, James Lorimer and Company, Toronto, 1978, p. 48.
 44. Ibid.
 45. Phillips, Ibid., p. 51.
 46. Rea, K. J., The Political Economy of Northern Development, Science Council of Canada Background Study, No. 36, April, 1976.
 47. Rea, Ibid.
 48. Armstrong, Arctic Studies, University of Cambridge; Rogers, former Research Professor of Economics, University of Alaska; and Rawley, former scientific advisor to Department of Indian Affairs and Northern Development, Ottawa, in their recent publication, The Circumpolar

North, Metherin Press, London, 1978, stress that the Nordkalotte or northern cap of Scandinavia has had a local population settled there for many years, which is skilled in ways necessary for the traditional economy. Their problem with labour is more how to retain it than how to attract it. This problem has led to emphasis, in all three countries, on ways of making life more attractive. Special programs for economic development, education and social services are an important instrument to accomplish this. For example, in Sweden, the Reindeer Husbandry Law protects a major Lappish resource. In Norway, the Lappish Cultural Institute, at Kautokeino which is state-funded, glorifies the Lappish language and culture. In Finland, recent legislation has provided for a Lappish parliament which related directly to the Finnish Prime Minister on legislative matters of concern to Lapps.

49. Brody, Hugh, "Industrial Impact in the Canadian North", Polar Record, Vol. 18, No. 115, p. 333.
50. Ibid., p. 339.
51. Loxley, Dr. John, "Northern Manitoba Development Strategy: Issues of Theory, Policy and Methodology", unpublished paper, University of Manitoba, February, 1978.
52. Loxley, Ibid., p. 10.
53. Schumacher, Ibid., p. 155.
54. Warren, Dr. K., "Industrial Complexes in the Development of Siberia", Geography, No. 280, Vol. 63, Part 3, July, 1978.
55. Navarro, Dr. Vicente, "The Underdevelopment of Health on the Health of Underdevelopment: An Analysis of the Distribution of Human Health Resources in Latin America", International Journal of Health Services, Vol. 4, No. 1, 1974, p. 14.
56. As well as drawing from the work of Navarro, Loxley draws from Gunder Franck's analysis of Marxist theory. Franck's theory is that remotely located communities serve as satellites to larger centres which extract the wealth from the satellites and leave no new capital behind to benefit the local population. The larger centres, in turn, act as satellites to even larger centres and suffer the same consequences. The end of the chain is a world wide capitalist system.

CHAPTER III

SOCIO-ECONOMIC CIRCUMSTANCES IN NORTHERN MANITOBA COMMUNITIES

I INTRODUCTION

Having suggested in the previous chapter, a relationship between health and development based upon a review of relevant literature, the present chapter focuses on the current socio-economic circumstances in northern Manitoba. The analysis presented in the chapter is necessary background to the study of data for specific communities, where the positive correlation between health and development will be tested more precisely. Part of the purpose here is to indicate where there are important gaps in the data on the many facets of the northern development process. Despite the limitations of the available data, they do support the notion that remote or satellite regions such as northern Manitoba show lower levels of development than the larger, urban centres to the south. The disparities are particularly noticeable between the remote north and the urban south.

II DATA COLLECTION

The limits of the available data on northern Manitoba reveal a variety of problems. First, many conventional indicators of socio-economic conditions are not conveniently recorded in terms of a remote-urban or north-south split.

Thus, the choice of indicators has been made on the basis of available data. For example, it might be helpful to analyze statistics on northern worker health levels in comparison with those for southern workers. However, insufficient data are available to do this. Thus the choice of indicators has been made on the basis of the available data.

Second, every federal and provincial department from which data on one of these indicators might be gathered uses a slightly different set of geographic boundaries for its northernmost service area and may present data as rates which are based on slightly different population bases. Therefore, total comparability of data is limited. For example, Appendix I shows how the Manitoba Department of Northern Affairs defines northern Manitoba. Appendix II shows that for the Manitoba Department of Health and Social Development portions of four regions, Norman, Parklands, Interlake and Eastman are included within the Northern Affairs boundary. Further, Appendix III shows that the Canada Department of Indian Affairs and Northern Development are increasingly referring for administrative purposes to the Tribal Council organization.

Third, in some cases, data gathering is limited by the unwillingness of government to release the results of their internal research. A recent newspaper article (Winnipeg Tribune, October 24, 1979), for example, reporting on a study completed for the Manitoba Department of Health

and Social Development states that "the rate of accidental deaths among children under four is 12 times higher in northern Manitoba than in Winnipeg". The report was never officially released by the department. Therefore, departmental officials will not verify the validity of the newspaper's reporting nor make themselves available to answer questions about the alleged differentials in accidental death rates between northern and southern Manitoba.

Finally, time series data for both health and economic development statistics are unavailable. For example, in the many government departments contacted in connection with this study, departmental officials have said that statistics tend to be collected on an ad hoc basis in connection with particular investigations and follow-up studies are not common.

III INDICATORS

Demographic, economic, infrastructure, educational and health indicators will be used to ascertain what are the prevailing socio-economic conditions. The demographic indicator is discussed under the sub-title "population characteristics". The economic indicator includes the sub-titles "labour force indicators" and "income". The infrastructure indicator includes the sub-titles "housing" and "sewage and water". Education is discussed under the sub-title "vocational preparation". The health indicator includes "maternal and child health" and "nutrition".

A. Population Characteristics

The total population of northern Manitoba is about 96,600. Of these, about 55,608 (57 percent) reside in industrial centres leaving 40,921 (43 percent) northern residents of remote communities. Three quarters of those living in remote communities are status Indians, the remainder are nearly all Metis.⁵⁷

Table I shows that in remote northern communities, 40 percent of the residents are under the age of 15, as compared with just under one-third of residents in industrialized areas (under age 15: remote 40 percent, industrialized 32 percent). Remote northern regions have a slightly higher percentage of residents over the age of 65 than industrialized centres (age 65 or over: remote 4.1 percent, industrialized 3.6 percent). About 56 percent of the residents of remote northern communities are in the 15 to 65 age range, as compared with 64 percent of residents of industrialized centres.

Although industrialized centres include a majority of prime working age population, population growth measured by birth rates is higher for remote northern communities. Natural growth rates alone in remote communities range between 2.5 percent and 3.5 percent as compared with 1.0 to 1.5 percent in the industrialized northern communities.⁵⁸ These population figures suggest that community resources, like workers, are drawn from isolated communities into industrialized centres.

TABLE I

1976 POPULATION STATISTICS
FOR NORTHERN MANITOBA

<u>Indicator</u>	<u>Northern Manitoba</u>	<u>Urban</u>	<u>Remote</u>	<u>Indian Reserve</u>
Total population, 1971	86,995	52,304	14,404	20,287
Total population, 1976	96,597	55,608	11,883	29,088
Annual rate of change	2.1%	1.3%	-3.5%	7.5%
Population 0-14	37.6%	32.0%	39.7%	48.1%
Population 15-64	58.3%	64.4%	56.2%	48.1%
Population 65+	4.1%	3.6%	4.1%	3.8%
Dependency ratio	0.72	0.55	0.78	1.08

Source: M.H.S.C. Records, 1976

"Remote" refers to the unorganized territories which fall under the jurisdiction of the Northern Affairs Act. The Manitoba Health Services Commission sometimes refer to these communities as the "unorganized communities". They consist of all the non-industrial, non-reserve communities.

Dependency ration is calculated by dividing the total population between 15-64 into the total population under the age of 14 and over the age of 65.

B. Labour Force

Underdevelopment, manifested in remote communities as poverty, leads to steady transfer of labour from remote to industrialized centres. As predicted from Phillips views, these effects are exemplified in employment statistics, which show a highly restricted range of employment in remote as compared with industrialized northern communities. The restricted range of vocational opportunity in the remote North results in an unemployment rate 20 to 30 times higher for remote than industrialized communities. Table II giving employment statistics by section, shows a considerably broader and more homogeneous distribution of employment across sectors in the industrialized than the remote communities (with employment largely limited to fishing, trapping and tourism in the remote centres). Table II also shows that about 20 percent of available employment in the remote North is in public administration whereas the employment generated by government accounts for only 6.4 percent of available employment for the industrial North. These data reinforce the notion that the availability of employment in the remote North is strongly related to government decisions and policies. By virtue of the fact that remote northern residents can be shown consistently to be at a disadvantage over residents from urban centres, these data also could be used to dispute Rea's view that the decentralization of the public administration in the North is one means by which economic control from outside the

TABLE II

ESTIMATES OF EMPLOYMENT BY SECTOR 1975
NORTHERN MANITOBA

	<u>Total North</u>	<u>Industrial North</u>	<u>Remote North</u>
Mining	8,000	7,900	100
Forestry	2,100	1,700	400
Hydro Development	3,800	3,500	300
Agriculture	300	300	-
Fishing, Trapping and Tourism	1,000	-	1,000
Manufacturing	1,000	1,000	-
Transportation	1,200	1,100	100
Trade	3,600	3,500	100
Services	1,000	950	50
Finance	300	300	-
Public Admini- stration	1,900	1,400 (6.4%)	500 (19.6%)

Source: Long Term Canada/Manitoba Northlands Subsidiary Agreement, 1976-77, 1980-81, Briefing Material Manitoba Provincial Office of the Department of Regional Economic Expansion.

region can be lessened.

In 1976, the Manitoba Department of Northern Affairs Job Information Officers surveyed 17 native communities: Brochet, Cormorant, Cross Lake, Granville Lake, Hole River, Ilford, Little Black River, Manigotogan, Oxford House, Pikwitonei, Poplar River, Pukatawagan, Seymourville, Split Lake, Thicket Portage, Wabowden and York Landing.

The information in Table III suggests that in 1976 remote communities in northern Manitoba had an unemployment rate of 29.8 percent and a participation rate of 42 percent including seasonal employment. This compares to 4.7 percent and 61.1 percent respectively for Manitoba as a whole. However, when seasonal employment is excluded, the participation rate in these communities appears much lower and unemployment rises sharply. These data suggest that seasonal employment is a major source of work for the northerners in the remote areas. Further evidence in Table IV indicates that seasonal employment constitutes an average of 37.4 percent of the total employment opportunities in these communities as a whole. In the 17 communities surveyed, government was found to be the major employer offering 41.1 percent of the jobs. The service sector followed with 32.9 percent while traditional activities such as fishing and trapping reported 19.9 percent, and the transportation industry 5.8 percent.

Recent Unemployment Insurance Commission information shown in Table V reinforces the point that much employment in

TABLE III

1976 REMOTE NORTHERN MANITOBA LABOUR FORCE INDICATORS

<u>Community</u>	<u>Popu- lation</u>	<u>Potential Labour Force</u>	<u>Actual Labour Force</u>	<u>Number Employed</u>	<u>Partici- pation Rate Percent</u>	<u>Unem- ployment Rate Percent</u>
Brochet/Lac Brochet	1,008	564	125	88	22.2	29.6
Cormorant	561	314	58	48	18.5	17.2
Cross Lake	2,432	1,361	528	185	38.8	64.9
Granville Lake	109	61	21	-	34.4	-
Ilford	209	117	114	104	97.4	8.8
Little Black River	225	126	26	17	20.6	34.6
Manigotogan	210	118	94	78	79.7	17.0
Oxford House	1,000	560	238	147	42.5	38.2
Pikwitonei	210	118	60	50	50.8	16.7
Poplar River	464	259	132	86	50.9	34.8
Pukatawagan	1,100	616	164	60	26.6	63.4
Seymourville	160	90	36	26	40.0	27.8
Split Lake	920	515	153	131	29.7	14.4
Thicket Portage	260	146	89	66	61.0	25.8
Wabowden	1,060	594	291	251	49.0	13.7
Hole River	460	258	116	100	45.0	13.8
York Landing	181	101	34	22	33.7	35.3

Source: Job Information Officer, Department of Northern Affairs, November and December, 1976.

TABLE IV

1976 FULL, PART TIME AND SEASONAL EMPLOYMENT
IN REMOTE NORTHERN MANITOBA COMMUNITIES BY NUMBER OF JOBS AND BY PERCENTAGE

Community	Full Time		Part Time		Seasonal	
	Percent of Total		Percent of Total		Percent of Total	
	No. of Jobs	of 3 cat.	No. of Jobs	of 3 cat.	No. of Jobs	of 3 cat.
Brochet/Lac Brochet						
Cormorant	19	39.6	5	10.4	24	50.0
Cross Lake	139	55.6	22	8.8	89	35.6
Granville Lake	2	9.5	1	4.8	18	85.7
Ilford	23	22.1	5	4.8	76	73.1
Little Black River	14	82.4	3	17.6	0	0
Manigotogan	53	67.9	7	9.0	18	23.1
Pikwitonei	16	32.0	6	12.0	28	56.0
Poplar River	34	39.5	12	14.0	40	46.5
Pukatawagan	80	100.0	0	0	0	0
Seymourville	8	30.8	5	19.2	13	50.0
Split Lake	59	45.0	14	10.7	58	44.3
Thicket Portage	18	22.5	18	22.5	44	55.0
Wabowden	135	53.8	36	14.3	80	31.9
Hole River	36	36.0	3	3.0	61	61.0
York Landing	13	59.1	1	4.5	8	36.4
Oxford House	91	61.9	56	38.1	0	0
Total	740	-	194	-	557	-
Average Percent of Three Categories		49.6		13.0		37.4

Source: Job Information Officer, Department of Northern Affairs,
November and December, 1976

It should be noted that while these conventional unemployment figures are high, they may still grossly understate the real unemployment in the remote areas as people including those seasonally employed often times fail to register as unemployed. In many cases people are discouraged by the lack of employment opportunities and simply do not attempt to participate.

TABLE V

1977 UNEMPLOYMENT INSURANCE COMMISSION DATA
ON INSURED WEEKS BY NORTHERN AND SOUTHERN CLAIMANTS

<u>Insured Weeks</u>	Percent of Claimants	
	<u>North</u>	<u>South</u>
8-9	32.7	21.0
20-29	18.5	18.9
30-39	14.5	15.0
40-49	20.0	21.0
50-52	14.2	24.1
<u>Weeks on Claim</u>		
0	17.9	19.5
1-13	43.5	43.8
14-26	24.1	27.5
27-39	9.3	6.8
40-51	5.1	2.3
52+	0	.1

Source: Unemployment Insurance Commission
Records, 1977

remote communities is short-term. In the North, the largest proportion of U.I.C. claimants (32.7 percent) has only contributed from eight to 19 weeks, while in the south the proportion of applications with this contribution record is much lower at 21.0 percent. At the other end of the scale, only 14.2 percent of the northern claimants contributed 50 to 52 weeks, while the south reports 24.1 percent. In addition, the proportion of claimants receiving benefits for more than 27 weeks in the North is 14.4 percent compared to the southern situation at only 9.2 percent. All these statistics reflect the instability of the northern labour market and the difficulty many northerners face in developing U.I.C. eligibility because of the short-term nature of much employment.

C. Income

Personal income data offer further evidence of the differential in socio-economic circumstances between the industrial and remote North. Personal income for 1972/73 in the northern urban centres in northern Manitoba averaged \$4,019 (11.8 percent higher than the Manitoba average and 4.7 percent higher than the Canadian average). Average income of those living in the other 46 remote northern Manitoba communities was only \$793, a mere 22 percent of the Manitoba average and less than 21 percent of the Canadian average. The average income for a remote northern was \$793 of which 34.4 percent was accounted for by transfers from government including welfare, family allowances, etc., and five percent from income

in kind (fishing, hunting, firewood, etc.⁵⁹). Revenue Canada data for 1977 indicate that this differential is ostensibly being reduced. In that year, the average income for all returns in the industrial North was \$11,950.22 and \$5,918.22 in the remote North⁶⁰, for a ratio of 2:1. However, we do not know if this apparent increase reflects more earned income or more social security benefits.

D. Vocational Preparation

Poverty of vocational resources in underdeveloped communities begins to show itself in the educational process. Data collected by the Manitoba Department of Education indicate that students from remote communities begin falling behind progressively throughout primary school grades. Many find themselves behind by grade eight level. Students from remote areas begin to leave school in large numbers after grade eight. The trend is shown in enrolment figures for remote and industrial communities. Table VI gives the enrolment figures comparing 29 remote northern communities with nine northern urban centres.

Enrolment for the Province of Manitoba as a whole (September/October, 1978 figures) is highest in grade nine with a slight enrolment decline thereafter. For Manitoba, grade 12 enrolment is 80 percent of the maximum (grade nine) enrolment. The pattern of enrolment in the industrialized North differs slightly from the Manitoba average. Maximum enrolment in the industrialized North is at the grade seven

TABLE VI

TOTAL SCHOOL ENROLMENT BY GRADE:
INDUSTRIALIZED AND REMOTE NORTHERN MANITOBA COMMUNITIES

<u>Grade</u>	<u>Remote (29 Communities)</u>	<u>Industrialized (9 Communities)</u>	<u>Total Manitoba</u>
6	542	850	15,187
7	499	983	16,553
8	383	967	17,556
9	263	849	17,892
10	143	813	17,643
11	60	666	15,923
12	30	529	14,254

Source: Manitoba Department of Education, Public School Finance Board Superintendents Report
Provincial Summary
1978

Note: As the Manitoba Department of Education does their long-term enrolment forecasting by means of a "cohort survival" system which is heavily reliant for accuracy on historical data and since these historical data are not available, this table can not be supported with further information on the total number of students eligible for entry into each of the grade levels.

Notwithstanding this limitation, the table does show that about one-eighteenth of those students who reach grade 6 will graduate from grade 12.

level, with slow declines thereafter. Grade 12 enrolment in the industrialized northern centres is 54 percent of the maximum (grade seven) level and 62 percent of the grade nine level enrolment.

In remote northern centres, maximum enrolment is in grade six with sharp decline thereafter. Enrolment in grade 12 is only six percent of the grade six maximum or 11 percent of grade nine enrolment.

It has been demonstrated that remote northern communities are exporting their working age population to the northern industrial centres, that unemployment and seasonal employment are higher in the remote than in the industrial North, and that personal incomes are lower in the remote versus the industrial North. As well, it has been shown that school retention rates for remote community residents are lower than for residents of northern urban communities.

Health indicators provide an important measure with which to assess the overall circumstances in the North. Unfortunately, with the exception of housing, data are not available which distinguish clearly between circumstances in remote versus industrial communities. As an example of this problem, a major source of data on health indicators, the Manitoba Department of Health and Social Development "Maternal and Child Care Vital Statistics", reports statistics by regions with separate entries for Indian Reserves and unorganized territories. The unorganized territories refer to the

communities which are governed by the Manitoba Minister of Northern Affairs. They are part of the remote northern communities to which this paper makes reference. The entry entitled Indian Reserves would include all Indian Reserves in northern and southern Manitoba. "Norman region" includes all communities north of the 53° parallel with no distinction made between industrial and remote communities.

Despite the difficulties in data comparability, the available data on health indicators demonstrate that the North as a region is less well-off compared to Manitoba as a whole and to Winnipeg specifically.

E. Maternal and Child Health

Vital statistics⁶¹ rates for 1975, Table VII, show a live birth rate (45.0) for unorganized territories that is three times as high as for Winnipeg (15.0) and about twice as high as for the Norman region (24.1). Unorganized territory rates for stillbirth (21.8), first day deaths (10.1), perinatal (32.8), post neonatal (16.8) and infant death rates (30.2) are about double those of Winnipeg (9.0) (3.9) (16.8) (3.8) (12.6), or Norman region (9.1) (4.5) (19.4) (6.8) (18.1).

Indian Reserves tend to compare even less favourably with the Norman region and to Winnipeg than to the unorganized territories. The Indian Reserve stillbirth rate is 30.7, pre-natal death rate is 42.8, post neonatal is 21.9 and the infant death rate is 42.2.

There are two exceptions to this finding. The first

TABLE VII

SELECTED VITAL STATISTICS RATES¹
 BY HEALTH AND SOCIAL DEVELOPMENT REGION OF RESIDENCE,

Vital Stats. Region	Population 1975	Livebirth ² Rate	Stillbirth ³ Death Rate	First Day Death Rate	Perinatal ⁴ Death Rate	Post Neonatal ⁵ Death Rate	Infant ⁶ Death Rate
Norman	54,962	24.1	9.1	4.5	19.4	6.8	18.1
Winnipeg	584,396	15.0	9.0	3.9	16.8	3.8	12.6
Indian Reserves	35,148	14.8	30.7	7.7	42.8	26.9	42.2
Unorganized Territories	13,247	45.0	21.8	10.1	32.8	16.8	30.2
Manitoba Total	1,055,677	16.1	10.0	4.9	18.8	5.0	14.8

- Notes: 1. Unless otherwise indicated rates are per 1,000 livebirths.
 2. Livebirth rate is per 1,000 1971-1974 average population.
 Infants born alive, excluding stillbirths.
 3. Foetal deaths of 20 or more weeks gestation per 1,000 live births.
 4. Foetal deaths of 20 or more weeks gestation plus infant deaths
 under 7 days of age per 1,000 total birth.
 5. Infant deaths from 28 days to under 1 year of age.
 6. Deaths under 1 year of age, excluding stillbirths.

is that the live birth rate for Indian Reserves is almost identical to that of Winnipeg. The second is that the first day death rate for Indian Reserves is about twice as high as Winnipeg's (Indian Reserves 7.7, Winnipeg 3.9).

The maternal and child health data presented above support the assumption implicit in the Marxist analysis of underdevelopment that conditions are worse in the remote areas than in the south. In fact, because of having aggregate data for Norman region, the real differences in maternal and child health data between remote North and Winnipeg have likely been minimized.

F. Nutrition

Table IX, "Spatial Food Indices for Some Remote Northern and Urban Northern Manitoba Communities", shows that in 1978 the price of food in northern urban centres was between four and 13 percent higher than in Winnipeg. In remote northern communities, the price of food was between 11 and 74 percent higher than in the urban northern centres.

Not only is food as a whole more highly priced but the foods that are essential for a well-balanced diet, such as fruits and vegetables, eggs and dairy products are among the most highly priced items. This means that a higher proportion of money spent on food is likely being spent on foods categorized under "fats and oils", "dishes and snacks" and "other foods" which cannot likely supply an adequate diet.

Prices and availability obviously affect what people

TABLE VIII

POST-NEONATAL DEATH RATES BY CAUSE
 (Infant deaths from 28 days to under 1 year of age
 per 10,000 live births)

	Provincial, Including Unorganized Territories	Reserves	Rate In Unorganized Territories
Lower Respiratory	12.4	112.4	86.3
Gastrointestinal	59.6	5.4	35.5
Congenital Anomalies	13.8	9.6	10.2
Birth Injury	2.3	0.8	-
Symptoms and Ill Defined Conditions	16.1	9.5	20.3
Other Causes	80.3	9.5	20.3

Source: Medd, L. M.D., "Health and Health Care Delivery in Northeastern Manitoba", supported by a grant from the Northern Studies Committee, University of Manitoba, 1977.

Table VIII, "Post Neonatal Death Rates By Cause" reinforces the findings from Table VII. Table VIII suggests that on Reserves and in unorganized territories environmental factors such as poor housing, poor water and sewage lead to a greater incidence of lower respiratory and gastrointestinal morbidity in infants which leads to death approximately two to ten times as frequently from these causes as for the province as a whole.

TABLE IX

SPATIAL FOOD INDICATORS FOR SOME REMOTE NORTHERN AND URBAN
NORTHERN MANITOBA COMMUNITIES

Item	Remote North					Av.	Urban North				Av.
	God's Lake Narrows	Island Lake	Norway House	Oxford House	Split Lake		Flin Flon	Leaf Rapids	The Pas	Thompson	
Food for Home Consumption	146.5	142.8	121.0	149.1	131.0	137	112.0	116.3	108.8	104.7	111
Dairy Products	169.4	121.1	126.0	171.8	109.8	139	107.4	113.2	102.8	103.6	107
Cereal & Bakery Products	154.2	142.0	111.9	147.7	120.8	134	108.7	109.7	107.9	104.1	108
Fats & Oils	128.1	116.9	96.4	119.1	97.4	111	103.9	107.7	99.8	104.7	104
Meat, Poultry & Fish	126.4	131.5	120.5	137.6	137.5	130	113.4	115.4	114.4	102.6	111
Eggs	149.0	-	127.6	133.9	147.3	144	122.2	110.9	111.6	104.8	112
Fruit & Vege- tables	189.1	195.1	131.6	194.0	161.1	174	117.3	131.0	108.6	111.0	117
Frozen Foods	169.6	-	-	-	156.0	163	106.1	109.6	101.2	100.3	104
Dishes & Snacks	116.1	131.2	117.1	125.4	106.4	119	114.2	111.7	97.9	102.9	106
Other Foods	124.5	131.5	112.0	115.3	108.8	111	110.4	109.0	101.0	105.2	106
Beverages	127.4	157.4	122.2	116.4	126.7	130	108.8	123.7	113.5	106.0	113

Source: Manitoba Bureau of Statistics Prices Monitoring Survey; Food for Home Consumption Spatial Retail Price Indices for Selected Manitoba Communities, 1978.

Note: The term "Spatial" refers here to difference between the price of a basket of food in one place and another at the same time.

eat. What people eat has a lot to do with how they grow and develop, how effectively their bodies can fight disease and how well they feel to work. For example, the Subcommittee on Nutrition, Brain Development and Behavior of the Committee on International Nutrition Programs has said:

"Fetal development is controlled not only by genetic contributions from both parents but also directly by maternal physical and nutritional status. It is during gestation that neuronal growth is maximal. If the fetus is malnourished, resulting in low birth weight for age at delivery, or delivered prematurely because of maternal disability, his brain growth may be directly affected. Similarly, impaired fetal development may increase the vulnerability of the newborn infant to subsequent poor nutrition and environmental stress. Compared to a child normal at birth, the underdeveloped newborn will grow less well, would have limitations in brain development and behavior."⁶²

Nutrition studies on native people are very limited. In recent years, some attention has been paid to the major changes which the native diets have undergone in two or three decades and to the likely deleterious effects on their health. There are no studies which compare nutrition levels between remote northern and industrial northern residents.

The Nutrition Canada Survey, carried out to assess the nutritional status of the Canadian population including Indian and Eskimos, is the most current study in this area. Yet, the results of the survey as they relate to Indians and Eskimos are thought to be of limited value because of the methods used. For example, Dr. Z. I. Sabry, President of the Nutrition Research Consultants, claims that the 24 hour

dietary recall method may be of limited value in populations accustomed to feast or famine patterns and where the availability of food is dependent on the timing of the welfare cheques.⁶³

Although nutrition data are very sparse, the available data, show disfavoured food price differentials between remote and urban northern communities and between northern urban communities and Winnipeg.

G. Housing

Relatively poor housing associated with underdevelopment in remote communities is predicted from the Marxist analysis which suggests that natural as well as personal resources will be exported from remote to developed industrial communities.

Department of Indian and Northern Affairs figures from the Manitoba Region Housing Survey, 1974, compare remote with industrialized northern Indian communities. According to ratings in the survey, only 44 percent of housing in remote communities could be considered "good" as compared with 64 percent of housing in industrialized regions. Age of housing does not differ substantially between remote and industrialized communities, but housing quality appears to account for differences.

Differences between remote and industrialized centres in the development of water supply systems have implications for health levels. Of remote communities, 88 percent obtain water from rainwater storage rivers or lakes, with no developed

water systems, as compared with 36 percent of industrialized northern communities. A majority of industrialized communities (56 percent) obtain water from wells or established water systems, as compared with only eight percent of remote residents.

Housing and water supply figures are summarized in Table X.

H. Sewage and Water

One indication of the effect underdeveloped sewage and water systems have is reflected by morbidity linked to water-borne pathogens. A recent report reveals that in "a comparison of hospital utilization per 1,000 population" shows that residents of the remote North, a substantial proportion of whom are Indian, have a relatively high rate of infection by disease often associated with water-borne pathogens. The comparisons are given in Table XI.

IV SUMMARY

Although there are substantial difficulties with the availability of data, northern Manitoba socio-economic data on population characteristics, labour force, income, vocational preparation, housing maternal and child health, sewage and water, nutrition are consistent in demonstrating that the remote northern communities are at a considerable disadvantage as compared to northern urban centres and to Winnipeg.

TABLE X

HOUSING AND WATER SUPPLY OF SOUTHERN,
NORTHERN INDUSTRIAL AND REMOTE NORTHERN
INDIAN COMMUNITIES (% OF RESIDENCES)

	Region		
	Southern	Northern Industrial	Northern Remote
<u>A. Condition of Housing</u>			
Good	58	64	44
Fair	17	15	17
Poor	20	20	36
<u>B. Age of Housing</u>			
Less than 10 years	62	65	65
<u>C. Water Supply</u>			
Rainwater stand pipe	4	1	12
River or Lake	11	35	76
Well or water supply	64	56	8

TABLE XI

1976 HOSPITAL UTILIZATION BY REGION
PER 1,000 POPULATION

<u>Region</u>	<u>Intestinal Infections (of infectious parasitic origin)</u>	<u>Skin and Subcutaneous Diseases</u>
Manitoba	3.8	2.7
Norman Region	11.0	5.8
Unorganized Territories	18.0	8.9

Source: Manitoba Health Services Commission,
"Hospital Utilization by Municipality".

These socio-economic circumstances provide an important context in which to interpret the results of an analysis, described in Chapter IV, of some data used to test the relationship between health and economic development in remote communities in northern Manitoba.

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57. Manitoba Health Services Commission, Population Statistics, 1976.
58. Source: Long-Term Canada/Manitoba Northlands Subsidiary Agreement, 1976/77 - 1980/81, Briefing Material, Manitoba Provincial Office of the Department of Regional Economic Expansion. These data are based on population projections provided by Statistics Canada.
59. Loxley, Ibid., p. 3.
60. Revenue Canada, 1977.
61. Manitoba Department of Health and Social Development, "Maternal and Child Care Vital Statistics Update September 1976", Division of Resources.
62. The Sub-Committee on Nutrition, Brain Development and Behavior of the Committee on International Nutrition Programs, in its report entitled The Relationship of Nutrition to Brain Development and Behavior, National Academy of Sciences, National Research Council, Washington, D.C., June, 1973.
- There is limited evidence at this time which suggests that birth weights are not a problem for the northern Manitoba native population. Coodin, Dilling and Hawaorth, reporting on growth, nutrition and health status of infants and preschool children from Cross Lake and Garden Hill Reserves, state that mean birth weights for Cross Lake were 3.31 kg and 3.50 kg for Garden Hill. The Garden Hill newborns mean birth weight is among the heaviest recorded in the world. (Report of the Second Canadian Ross Conference on Paediatric Research, Ross Laboratories, Montreal, Quebec, 1975.
63. Sabry, A. I., Phd, "The Nutrition Canada Survey", Nutrition of Indian and Eskimos Children, Ibid.

CHAPTER IV

PRESENTATION OF DATA RELATING TO HEALTH AND DEVELOPMENT IN NORTHERN MANITOBA

I INTRODUCTION

The purpose of this chapter is to analyze some data on northern Manitoba in terms of the expectations raised by the review of the literature on health and development which was set out in Chapter I. Although there is not a clear consensus in the literature concerning the extent to which health and economic development are related, there is a suggestion that health and development variables (in the context of a region) will be strongly interrelated.

II DESCRIPTION AND EVALUATION OF THE DATA

A. Selection of Communities

Communities for this study were selected by three criteria. They were: that the community not be part of the industrial North; that a community population should be 300 or more; and that a nearly complete set of data should be available for the community.

Part of the justification for using these criteria is that policy makers will direct their attention more readily to problems which (would appear to) affect larger remote communities. Another justification for using these

criteria is simply that totally comparable data are not readily available for all remote communities given that federal and provincial government departments use slightly different criteria when reporting on remote communities. In May, 1978 for example, the Manitoba Department of Northern Affairs prepared the first census on remote communities which included 48 communities with a total population of only 10,017. The Department of Regional Economic Expansion uses a somewhat more flexible operating definition of 'remote' and sometimes makes reference to the remote North as having more than 48 non-reserve, non-industrial communities. All of the communities for this study fall within the definition of remoteness of the Department of Northern Affairs and of the Department of Regional Economic Expansion.

Utilizing the three criteria introduced above, 18 communities were selected.⁶⁴ The total population of these communities is approximately 17,322 or just over 42 percent of all remote northern residents. (See also Table I, Chapter III.) These communities were not drawn using a random sampling procedure. However, they include communities from every sub-region within the northern region as well as a mix of exclusively Reserve, and mixed Reserve-Metis communities. This group of 18 communities is also representative of the remote communities in that there is a mix of communities with very limited access to urban centres as well as those with easy access.

The remote North is not a totally homogenous region in terms of the mix of population which is often found in any one community. In this study, where a reserve was immediately adjacent to a non-status Indian (Metis) community, the Reserve and the Metis community were treated as one community, for example, Pauingassi and Little Grand Rapids. Development indicators were taken to represent the situation on both Reserve and the adjacent Metis communities. Similarly, health data for the Reserves were taken to represent the health data for any of the adjacent Metis communities as Manitoba Health Services Commission data do not distinguish, in their reported billings, between services to Treaty and Metis.

B. Health Variables

1. Sources of Data

There were two sources of health data. The principal source was the Manitoba Health Services Commission "Report (MHSC) on Morbidity by Indian Band, Age and Diagnostic Category for 1976". This report was specially prepared at the request of the Department of National Health and Welfare, Manitoba Region, Medical Services Branch. These data provide information on illness treated by a physician who charges the MHSC for his/her services.

The MHSC also provides an annual age breakout for each Reserve community with a five-year subtotal. This age breakout allows for an investigation of morbidity (illness)

in three groupings: 0-6 (infants and preschool), 7-19 (school children and young adults), and 20-onwards (adult population). These three age groupings were utilized so that when the findings of the research were analyzed, policy implications, some of which might relate to specific age groupings in the target population, would be more readily identified. (See Appendix IV.)

The second source of health data is MHSC's "Report for Hospital Utilization by Municipality" for the years 1975, and 1977. These data are presented as a rate per 1,000 for actual cases by Reserve or municipality by each of 19 diagnostic categories. (See Appendices V and VI.)

2. Evaluation of Data Base

The strengths of the health data base are that the data are reasonably current, provide an accurate record of all physician visits and can easily be converted to a rate to facilitate comparisons among the communities. Also, as physicians are trained to diagnose and to treat illness, their record of visits and billings provide at least one crude indicator of the amount of illness in a community.

The major weaknesses of the data stem from the many problems that beset any attempt to measure health. Lee Soderstrom, in his recent book on the Canadian Health System, lists some of the major problems.⁶⁵ He says mortality indices tend to ignore other dimensions of health such as the presence of disease, disability or discomfort. Morbidity

indices, on the other hand, tend to be based on hospitalization data which are greatly affected by the availability of hospital facilities. Further, hospitalizations do not provide any information about the health of ambulatory patients or those who do not seek health services. Soderstrom claims that comprehensive data concerning disease prevalence can only be obtained from household surveys. In this connection, we should note that the last such Canadian survey was conducted in 1950/51. As each individual experiences disease and discomfort in a different way, even a comprehensive household survey may well only reflect these individual differences.

All of the problems to which Soderstrom draws our attention apply to the morbidity data for northern Manitoba. In fact, physicians' visits have proven not to be a very sensitive indicator of health or illness, because much illness goes untreated or is treated by a field station public health nurse. Data from public health nurse log books were unavailable and comparisons cannot be made with data generated by physicians visits. Also, although there are many people who want to see the doctor when he or she visits the remote community and who are really sick, there are also people who see the doctor when they are well. Post-partum patients and well babies would be examples. There are other people who see the doctor because the doctor's visit is a once a month 'happening' in the community and they would like to take

part in it. Some doctors say that patients ask to see them when they are well because they believe the doctor can prevent them from becoming ill. Whatever the reason, doctor's billings alone are not a very sensitive indicator of real morbidity. Similarly, hospitalizations are an insensitive measure. Just as for people from urban communities, some people from remote communities are hospitalized when their illnesses warrant hospitalization. Others are hospitalized because they live near a hospital and the nurse may not wish to take any unnecessary risk. Others might be hospitalized because the nurse lacks either the skills or the equipment to treat their condition adequately.

Despite all their limitations, the morbidity and hospitalization data are the only data available which come close to measuring health and for this reason they will be used as proxy measures for health.

3. Analytical Treatment of Data

The MHSC Morbidity Report included eight diagnostic categories: upper respiratory infections, gastrointestinal infections, skin disorders, accidents, parasites, psychiatric disorders, lab and x-ray, and other (optometric, dental and chiropractic billings). The reported incidence for these three conditions was consistently low for all communities.

For each community, the incidence of morbidity in each of the eight diagnostic categories for each of the three age groups was summed and then converted to a rate per

thousand based on the population for that age group. Three health variables were identified and have been labelled Morbidity 0-6, Morbidity 7-19, and Morbidity 20-onwards.

As well, the incidence of morbidity for all age groups for four specific diagnostic categories, that is upper respiratory, gastrointestinal infections, accidents and psychiatric disorders was summed and converted to a rate per thousand using the total community population as a population base. Thus, four additional health variables were created bringing the total number of health variables to seven. These four variables were included to facilitate the analysis of relationships between a single health problem and a particular development variable.

The category "grand total" from the Hospital Utilization Report was used as one further health variable for the year 1976. The "grand total" is presented as a rate per thousand for each community based on the population of that community.

Since morbidity data and the category "grand total" were only available for 1976 and since hospitalization data were available for the years 1975, and 1977, the total of these data were used to establish a time series for health data. Although the data sets for health variables for the years 1975, 1976 and 1977 were not totally comparable, there was a certain degree of overlap in terms of categories. (See Appendix VI.) For example, the Morbidity Report records all

physician visits for upper respiratory conditions and the hospitalization data show a category for upper respiratory illness.

The following eight diagnostic categories from the hospitalization data were not included in the analyses: neoplasms, circulatory diseases, genitourinary diseases, musculoskeletal diseases, diseases of the blood, congenital anomalies, prenatal diseases and special conditions and infants. (See Appendix VIII.) Their exclusion was to some extent an arbitrary one by the researcher. However, it was felt that these particular diagnostic categories were not easily and immediately influenced by socio-economic conditions. For example, as some current evidence suggests that the growth of neoplasms occurs over such a long period of time, it would be impossible with the available data to isolate the conditions in the North which might cause greater incidences than occur in the south.

The eight health variables for morbidity and the rates for the eleven variables for hospitalizations for each community were ranked and then correlated to each other by means of a Kendall correlation.

C. Development Variables

Conventional indicators of economic development such as income, investments, capital accumulation, are either not available for remote northern Manitoba communities or their definitions are too ambiguous in the northern context to be

of direct benefit. Income tax data, for example, are commonly used as indicators of economic development. However, until the Child Tax and Property Tax Audit Plans were established in Manitoba, many northerners living below the poverty line did not even file a tax return. Therefore, historical growth trends are difficult to reconstruct. Further, Revenue Canada (Taxation Branch) does not distinguish between industrial and remote communities. In order to protect taxpayer confidentiality, in reply to requests for information, departmental officials will eliminate all income breakdown (that is, whether a filer has a taxable income or not) on localities with less than 100 taxfilers. The Revenue Canada locality code system further confounds any attempt to make comparisons among the remote communities as several of these communities may be identified by the same code number. Therefore, any data released are said, by the Department, to represent all of the communities in that code. For tax years 1976 and 1977, the communities linked under one locality code were as follows: Berens River, Pauingassi and Red Sucker Lake (code 34245), Easterville and Moose Lake (code 34478), Bloodvein (code 43257), Cross Lake, God's Lake, God's Lake Narrows, Nelson House, Norway House, Oxford House and Split Lake (code 34646) and Poplar River (code 34246). Thus, the Revenue Department's presentation of the data is so ambiguous that they are not helpful statistics to use.

"Soft" indicators of development must be used as

proxies for these other measurements. For this study, the following development variables are going to be used: communication networks, transportation networks, sewage treatment and disposal systems, services in the community, recreational facilities, organized activities, employment and housing.

1. Sources of Data

The development data were derived from three sources. The principal source of data consisted of the community profiles compiled each year for the Department of National Health and Welfare. These are completed each summer by the field station public health nurse at the request of the Department. Profiles from the years 1974, 1975 and 1976 were used.

The Manitoba Department of Northern Affairs Community Profiles compiled in 1975 provided a second source. These profiles were used to substantiate data found in the National Health and Welfare profiles. In the case of data on northern employment, the Northern Affairs profiles were occasionally more comprehensive.

In three or four situations where there was a difference between the above two sources, such as in determining the current status of a road being built into Split Lake from Thompson, officials of other provincial and federal government departments, such as the Department of Regional Economic Expansion, Health and Social Development, who work in or travel to the 18 communities, were consulted on an infor-

mal basis for their views.

2. Evaluation of Data Base

The strength of the data base is that the information was collected primarily by people who were on-site and presumably knew each community in question. Since the nurse treats all members of the community, her contacts, unlike those of most itinerant visitors to the community, are not limited only to the community leadership.

The weakness of the data base is that the accuracy of the data rests with how intimately the nurse knows the community, how long she has been in the community and how well tied into the community organization she or he really is. Further, as the nurse is trained predominantly in treatment and not in organizational skills, some field station nurses could be expected to have limited understanding about the workings of Band, municipal, provincial and federal level government programs exclusive of health programs.

One further weakness concerns the actual structure of the questionnaire the nurses are asked to complete. In at least two instances, there is evidence of the possibility of contamination. For example, the presence of telephones is an item included in the communications section and further reference is made to telephones under the section on housing. The second reference was omitted in this study. Further, the form makes reference twice to housing and to hydro. The references to housing under the community activities section

was treated as if they referred to whether a housing service or counsellor were available. The reference to hydro was treated as if it referred to whether staff who could install or repair hydro installations were present in the community.

The use of these data as indicators of development is justified on the grounds that they are the most current available data which come closest to that which we would like to measure.

3. Analytical Treatment of the Data

With the exception of employment and housing data, each of the development variables was broken out into sub-categories consistent with the sub-categories contained in the National Health and Welfare Community Profiles. The sub-categories for each development variable are listed in Appendix IX. For each of the sub-categories, for each of the years 1974, 1975 and 1976, the presence or absence of the facility, resource or service was noted. These presence or absence judgments were summed and the sum was used as the score for that development variable for that particular community. (See Appendices X, XI and XII.)

In the case of data on employment and housing, a different procedure was used. As the questionnaire regarding employment has four parts (that is, number permanently employed, number seasonally employed, number of permanent welfare and number on seasonal welfare), a percentage was calculated based on the total population and the number employed or on

welfare in each category. Similarly, the section of the questionnaire which deals with housing is divided into four parts, those houses with electricity, with bath, with indoor toilet and with running water. The actual amount of housing with these amenities was calculated as a percentage using the total number of housing units in the community as the base.

III DISCUSSION OF FINDINGS

The theory, discussed previously raises some possible expectations for these data. Before presenting the actual findings of the data, it may be helpful to restate these expectations.

From the Marxist theory, it should be expected that variables related to the mode of production in the North would be closely related to each other. The problem with interpreting these data against Marxist theoretical criteria is that there is no clearcut variable which can be said to be either directly related to the mode of production or a good proxy for one. The transportation variable, for example, in this study, is more a measure of remoteness than it is a measure of the quantity of goods that leave or come to the remote communities. From a Marxist perspective, one should expect to find relative stability, across time, in indicators relating to employment with the region. However, since the North is, in Marxist terms, a precapitalist economy and since

a true historical series of employment-related data is not available, only a weak and partial test of the validity of the Marxist analysis could be carried out.

Another theory which is called "the colonial model" raises the expectation that with more financing to the underdeveloped region, the region's economy will improve. Elements of this theory are reflected, not so much in the views of any one particular development theorist, as in the actions of federal, provincial and territorial governments who continue to make substantial financial investments in the North often without apparent regard for the actions of other levels of government. From this model, one might expect that there perhaps would be a high level of amenities, such as housing, with a correspondingly low level of employment and high level of welfare dependency. A high level of accidents and mental disorders, signalling a high level of frustration, might well be a part of the colonial model. As data on some of the indicators that correspond with this theory, such as the amenities, housing sewage and water supply and the employment related variables, are available, at least a partial test of this theoretical perspective is possible.

From the views of Hugh Brody, one might expect that no demonstratable relationship between proxies for development and proxies for health can be shown. Brody suggests that large scale industrial development can occur alongside and independently of any interaction with small traditional communi-

ties. Brody hints at there being a time lag which must occur before the presence of this industrial development begins to have an observable effect on the adjacent traditional communities. Unfortunately, there are, to date, few examples of this large scale industrial development occurring alongside of traditional communities. The length of the time lag is not known and the theory cannot be properly tested.

Scott's staples theory cannot be tested because native people tend not to participate in the staple industries, data on migration into and out of the northern region are sparse, and because measures of government intervention are not available.

Phillip's notion that the economic structure of each of Canada's regions is thoroughly ingrained within the region and not easily amenable to change cannot be tested with the available data because they do not include measures of the economic structure of other regions and because they do not include a measure of attempts made to alter the structure of the northern region.

One expectation for the health variables that arises out of the work of Gladys Conley is that, because the effects of health are so diffuse and because good health or ill health affects everyone differently, in a relatively small sample, differences between rates of illness in several diagnostic categories would be difficult to discern and likely quite minimal.

The views of Vicente Navarro, strongly suggest that the forces that create and sustain underdevelopment, sustain the underdeveloped region in poor health. Navarro compares the maldistribution of economic resources in Latin America to the maldistribution of health resources, concluding that the maldistribution of economic and health resources is the same. Only the order of magnitude of the maldistribution may be different. While the view seems reasonable when considered in the light of the data presented in Chapter III, there are no further data with which to test this view more completely.

An atheoretical view of what expectations are raised of the health data emerges from the data presented in Chapter III. Remote northern communities are consistently shown in this chapter to be at a disadvantage when compared to northern industrial centres and to Winnipeg in terms of amenities like housing and water supply. These amenities and others create the environmental conditions that are heavily implicated in infectious diseases. The expectation is that where environmental conditions are poor, all infectious diseases will be closely related to each other.

When the theoretical perspectives and available data were considered together, the most reasonable manner in which to test the data against the theory emerged. As a first step, because the available development data precede health data in time, the development variables were taken to be the independent variables. Correlations among the development

variables for each of three years were examined to see how strongly related they are to each other. Next, the dependent variables, the health measures, for each of three years were examined to see how strongly they were related to each other. A third step was to examine the strength of the relationships between health and development variables for the same year, 1976.

The Kendall Tau index of rank order correlation was computed among the variables. The Kendall rank order correlation coefficient was used because the data were characterized by a large number of tied ranks. Circled values are significant at p less than .05 (two-tail).

The two-tail test of significance was used throughout this analysis because the data were not strong enough to provide a measure of direction and because the theories themselves which relate to health and development are ambiguous.

The decisions to test non-directionally, to have a significance level of .05, and to use Kendall's Tau make the analysis a more conservative one than would have been the case if a one-tail test had been used, the significance level had been lower, or if a different correlational analysis statistic such as Spearman's or Pearson's rho had been used.

Intercorrelations for 1974 development variables are given in Table XII.

TABLE XII

1974 DEVELOPMENT VARIABLES FOR REMOTE
NORTHERN MANITOBA COMMUNITIES

Variables	Communi- cation	Transpor- tation	Sewage	Community Services	Recrea- tion	Organized Activities	Permanent Employment	Seasonal Employment	Permanent Welfare	Seasonal Welfare	Electricity	Bath	Toilet	Running Water
Communication		.25	.00	.65	.03	.09	.02	-.18	-.58	.06	-.01	.07	.32	.28
Transportation			-.04	.54	.47	.47	.10	-.50	-.12	.00	-.23	-.18	-.12	.04
Sewage				.10	.30	-.11	.44	.00	-.03	-.39	-.10	-.12	-.21	-.29
Community Services					.16	.25	.01	-.23	-.41	-.19	-.07	.23	.06	.37
Recreation						.37	.42	.39	.05	-.24	-.22	-.06	-.08	.05
Organized Activities							.29	-.20	.13	-.05	.10	.18	.13	.35
Permanent Employment								-.20	.18	-.04	-.13	.07	-.17	.15
Seasonal Employment									.20	.21	.11	.33	.50	.36
Permanent Welfare										.16	.03	.07	-.15	.02
Seasonal Welfare											-.31	-.29	.47	.00
Electricity												-.07	.03	.16
Bath													.29	.69
Toilet														.60
Running Water														

The highest correlations are those between the presence of housing with baths and with running water (.69) and between the presence of housing with toilets and with running water (.60). This finding would suggest that where there is a water supply system sufficient for running water, an indoor toilet and bath are likely to be included in the system's capacity.

The strong correlations between the communications variable and community services (.65), transportation and community services (.54), transportation and recreation facilities (.47), transportation and organized activities (.47) can possibly be explained by reasoning that the presence of one amenity, like an all-weather road or telephone connection to outside the community, has a spin-off effect on the rate at which other amenities or infrastructure will be obtained. For example, one may reason that it is a great deal easier to make the views of a remote community known if representatives of the community can attend the necessary forums to do just that.

None of the theories previously discussed mention representation as a factor in underdevelopment. The views of Gundar Franck perhaps come closest to considering it. One may extrapolate from Franck's theory that one of the factors that helps sustain the exploitation of the satellite communities is its distance from the 'capitalist centre'. If they were less remote, one might speculate that their popu-

lations might be less willing to comply with the practices that sustain their underdevelopment.

Corollary to that is the possibility that the addition of such infrastructure as roads, or communications networks may be one factor which forces the community to begin to set other priorities. For example, if post secondary education is an important local issue and the community can organize a committee to address it, the members of that committee as well as the rest of the community to whom they expose their ideas, may be encouraged to partake in other committees that spring up to address other related issues.

Again, as with representation, apart from Malenbaum, little attention is paid by development theorists to the factors of motivation and indigenous leadership. Despite the lack of a theoretical perspective, government officials who work with these communities suggest that where the community can organize itself to address one issue, the chances are good that they can and will do the same with other issues.

It is harder to speculate on an explanation for the four negative correlations between employment related variables and those development variables related to amenities or infrastructure: communications with permanent welfare (-.58), community services with permanent welfare (-.41), transportation with seasonal employment (-.50), and recreation and seasonal employment (-.39). One possible hypothesis is that the greater the extent of industrialization, the lower

will be the degree of welfare dependency. Industrialization, at least in the conventional market sense, should bring jobs and employment stability to the community. If the industrialization process is government-led, as it often is in the North, then one might expect to find a negative relationship between amenities or infrastructure and seasonal employment or welfare measures for only the length of the government's employment creation programs. The positive relationships between sewage and permanent employment (.44) and between recreation and permanent employment (.42) would support this line of reasoning.

The structure of the 1975 development variables, Table XIII, is somewhat different from that shown for 1974. As in 1974, strong correlations occur between the variables 'presence of toilets' and 'presence of running water' (.50). Unlike the findings for 1974, the development variables which relate to infrastructure or amenities show much weaker relationships to each other. Indeed, the only significant correlation is that between transportation and community services (.42).

Apart from the strong negative correlations shown between the communications variable and the variable permanent welfare (-.55), which was also seen in 1974, (-.58), there are no other negative relationships. Just as for 1974, the employment variable labelled permanent employment shows a significant and in the case of the 1975 data, a stronger

correlation to the variable labelled recreation (.56). The other significant correlations in Table XII occur between all of the housing variables: housing with electricity, bath, toilet and running water, and the variables dealing with communications, community services and organized activities. Since the "n" is the same, albeit low, for most cases, it is difficult to explain why these significant correlations appear in this year's data and not in the previous year's as well.

The highest correlation in the table, that between seasonal employment and the presence of toilets in housing (.87) may well be spurious as it is based on an "n" of only six.

Table XIV gives the intercorrelation matrix for development variables for 1976. Predictably, the highest correlations are for the presence of bath and the presence of running water (.93), the presence of running water and the presence of toilets (.79) and the presence of toilets and the presence of baths in housing (.71).

Unlike the findings for 1975, but like the findings for 1974, the development variables which relate to infrastructure or amenities show strong relationships to each other. Just as for the 1975 data, there is a significant correlation between the transportation and community services variables (.57) and in 1976, this correlation is stronger than for 1975.

The other significant correlations among the variables that relate to amenities or infrastructure are as follows:

communications and sewage (.47), communications and community services (.34), community services and recreation (.34) and recreation and organized activities (.34).

Just as for 1974, and 1975 the variables recreation and permanent employment are positively correlated (.47). For the first time in the three year series, two employment related variables show a positive correlation (seasonal employment and permanent welfare .44). The association makes sense from the perspective that many people who are seasonally employed, as fishermen or trappers, earn incomes below the poverty lines and so are permanently on welfare. The correlation between seasonal welfare and organized activities (.51) is difficult to explain. As it is based on an "n" of nine, it too may well be spurious.

The only other two significant correlations in 1976, that between communications and the presence of toilets (.69) and permanent welfare and the presence of housing with electricity (-.51) are inconsistent with findings from at least one of the previous two year's data and are therefore difficult to explain. The fact that they were derived from small "n"s, eight and ten, suggests that they may be spurious.

In addition to the data limitations already acknowledged, the apparent lack of internal consistency among development variables (with the exception of strong correlations in each of three years among the variables for bath, toilet and running water) could be explained by two other

possibilities. Although it may reasonably have been assumed that development variables would show stronger relationships to each other, the proxies for development that are being used in this study may simply be too far removed from "hard" development variables to reflect this cohesiveness. To the extent that industrialization is largely government-led, these communities have tended to receive short-term "make-work" grants from such government programs as Canada Local Employment Assistance Program (LEAP), Manitoba Special Native Northern Employment Program (SNNEP), the Canada-Manitoba Special ARDA Program, the Canada Works and Young Canada Works Programs. Thus, their scores on the development variables, particularly those related to employment, may vary considerably from year to year depending on whether their community has received a grant.

Table XV gives the intercorrelations among hospitalization variables for 1975. Five of the ten variables correlate significantly with the variable labelled "total" which is defined as the overall rate of hospitalizations. The correlations for four of these five variables are the highest to be found in this table. These correlations suggest that not all of the components which make up the variable "total" are equally related to it. It would appear that a large portion of illness requiring hospitalization stem from conditions included in the diagnostic categories infectious parasitic diseases, mental disorders, respiratory diseases, ill-defined

TABLE XV

1975 HOSPITALIZATION UTILIZATION VARIABLES
FOR REMOTE NORTHERN MANITOBA COMMUNITIES

Variables	Inf. Parasitic Diseases	Endo-Nutritional Metabolic Diseases	Mental Disorders	Nervous System Disorders	Respiratory Diseases	Digestive Diseases	Obstetrical Conditions	Skin & Sub-Cutaneous Diseases	Ill-defined Conditions	Accidents & Poisonings	TOTAL
Inf. Parasitic Diseases		.21	.16	.28	.37	.10	.32	.38	.35	.33	.59
Endo-Nutritional Metabolic Diseases			.10	.28	.20	.33	.00	.03	.18	.20	.24
Mental Disorders				.07	.30	.12	-.05	.06	.39	.25	.41
Nervous System Disorders					.36	.04	-.07	.11	.33	.23	.31
Respiratory Diseases						.10	.03	.10	.24	.25	.44
Digestive Diseases							.25	-.15	.23	.45	.29
Obstetrical Conditions								.03	.06	.44	.33
Skin & Sub-Cutaneous Diseases									.07	.03	.16
Ill-defined Conditions										.31	.54
Accidents & Poisonings											.58
TOTAL											

Kendall's Tau N = 18

conditions and accidents. One can foreshadow that the results of the intercorrelations between health and development variables will explain the significant correlations between infectious parasitic diseases and respiratory illness (.37), skin and sub-cutaneous diseases (.38), and ill-defined conditions (.35) as being related to environmental conditions. Poor housing, poor water supply, inadequate sewage systems and crowded conditions could all contribute to the conditions mentioned above.

The significant correlations between mental disorders and ill-defined conditions and mental disorders and total hospitalizations might be explained by the fact that alcohol-related illness is included under the diagnostic category "mental disorders". With widespread alcohol related problems throughout most of the northern communities, there are no facilities to treat alcohol related problems and many patients are referred to hospitals for treatment.

One speculation as to the meaning of the relationship between mental disorders and ill-defined conditions is that, because of the speed and dynamism with which change is occurring in the North, the impact that these changes have on physical and emotional health is not completely known. Occasionally, less well-known conditions begin to occur with greater frequency. Examples of such conditions are fetal alcohol syndrome in newborns and lead poisoning in young children and adolescents. Until these conditions are better

understood and recognized by those doing referrals and hospital intake, they may be recorded as either ill-defined conditions or mental disorders.

The effects of the small "n" are quite apparent in this table because, all other things being equal, by increasing the "n" by four or more, there would be at least four more significant correlations.

Table XVI gives the intercorrelations among morbidity variables for 1976. As with the hospitalization data for 1975, strong correlations are found between variables that might be affected by environmental conditions. Specifically, the correlations are upper respiratory infections and gastrointestinal infections (.63), gastrointestinal infections and psychiatric illness (.54), psychiatric illness and upper respiratory infections (.52), accidents and upper respiratory infections (.41), hospitalizations and psychiatric disorders (.41), psychiatric disorders and accidents (.39). One possible explanation for the correlation between psychiatric disorders and all other conditions is that the feelings of alienation, anomie and depression are widespread throughout the remote North. Although none of the theories discussed earlier deal with symptoms of psychological dislocation explicitly, some theorists such as Loxley and Watkins do mention alienation of the population in underdeveloped areas in their works. As well, the native organizations frequently make reference in their appeals to government to having their culture destroyed

TABLE XVI

1976 MORBIDITY VARIABLES FOR REMOTE NORTHERN
MANITOBA COMMUNITIES

Variables	Morbidity 0-6	Morbidity 7-19	Morbidity 20+	Upper Respiratory	Gastroin- testinal	Accidents	Psychiatric	Hospital
Morbidity 0-6		.33	.54	.47	.47	.41	.30	.04
Morbidity 7-19			.56	.39	.31	.63	.40	.20
Morbidity 20+				.52	.44	.61	.29	.05
Upper Respira- tory Infection					.63	.41	.52	.06
Gastrointes- tinal Infec- tion						.39	.54	.19
Accidents							.40	.33
Psychiatric Disorders								.41
Hospitali- zations								

Kendall's Tau N = 18

and to feeling as if they were somewhere between a new and an old world. The testimonies of native people to the Berger Commission are probably the most dramatic proof of the pervasiveness of these feelings in the native population.⁶⁶

With morbidity data being divided into three age groupings, it was possible to look at the correlations between the disease specific variables and the morbidity variables grouped by ages. The highest correlations were found between accidents and adolescent morbidity (.53) and between adult morbidity and accidents (.61). Early childhood morbidity correlated (.54) with adult morbidity. Adolescent morbidity correlated (.56) with adult morbidity.

The finding that early childhood morbidity is significantly correlated with upper respiratory infections (.47), gastrointestinal infections (.47) and with accidents (.41) might lend some support to the notion that infants who do not enjoy good health tend to illness throughout childhood and adulthood. The fact that significant correlations occur between the variables for adolescent morbidity and upper respiratory illness (.39) and between adult morbidity and upper respiratory illness (.52) and gastrointestinal illness (.44) is added evidence.

Table XVII gives the intercorrelations among hospitalization variables for 1977. As with the hospitalization data for 1975, five of the ten variables correlate significantly with the variable labelled "total". The correlations between

TABLE XVII

1977 HOSPITALIZATION UTILIZATION VARIABLES
FOR REMOTE NORTHERN MANITOBA COMMUNITIES

Variables	Inf. Parasitic Diseases	Endo-Nutritional Metabolic Diseases	Mental Disorders	Nervous System Disorders	Respiratory Diseases	Digestive Diseases	Obstetrical Conditions	Skin & Sub-Cutaneous Diseases	Ill-defined Conditions	Accidents & Poisonings	TOTAL
Inf. Parasitic Diseases	.05	.27	.41	.45	-.10	-.05	.22	.19	.37	.46	
Endo-Nutritional Metabolic Diseases		.03	.08	.10	.17	-.25	.30	-.22	-.10	.07	
Mental Disorders			-.01	.48	.11	.11	-.02	.32	.45	.59	
Nervous System Disorders				.21	-.04	-.03	.26	-.01	.03	.15	
Respiratory Diseases					.11	.09	.06	.19	.45	.62	
Digestive Diseases						.16	.14	.24	.19	.28	
Obstetrical Conditions							.14	.29	.42	.25	
Skin & Sub-Cutaneous Diseases								-.12	.32	.25	
Ill-defined Conditions									.37	.36	
Accidents & Poisonings										.73	
TOTAL											

Kendall's Tau N = 18

these five variables and the variable "total" are among the highest to be found in the table. This finding would lend support to the suggestion made earlier that a large proportion of illness requiring hospitalization stems from conditions included in the diagnostic categories infectious parasitic diseases, mental disorders, respiratory diseases, ill-defined conditions and accidents. That many of these conditions are products of environmental conditions is further supported by the significant correlations found between infectious parasitic diseases and nervous system diseases, one of which is otitis media, an infection of the inner ear to which northern native children seem particularly susceptible (.41), and between infectious parasitic diseases and respiratory diseases (.45).

As with the data for 1975 and 1976, the variable "accidents" correlates significantly with several other variables, mental disorders (.45), respiratory diseases (.45), obstetrical (.42), and ill-defined conditions (.37). This may be because the population as a whole is less safety conscious, there is inadequate fire-fighting equipment available in most northern remote communities, people are unaware of the dangers of new equipment such as guns, skidoos, motor boats and other power equipment or because the people who drink heavily in these communities are unaware of or unwilling to admit the impact their drinking has on their judgement. With limited recreational facilities available throughout

the North, some feel that a certain degree of pent-up anger and frustration is released in violent behavior which often results in accidents.

Table XVIII gives the correlations between morbidity data and development data for 1976. The predictions that morbidity as a health measure and development variable would be correlated are weakly supported.

Significant correlations were found in five out of 112 combinations or only about five percent of possible variable pairs. Sewage systems, as could be expected, were significantly associated with late childhood morbidity (.58) and with morbidity from infections, upper respiratory (.50), gastrointestinal (.50). Level of organized activities was associated with adult morbidity (.39) and upper respiratory morbidity (.43).

However, these correlations must be interpreted with caution since a small number of significant correlations are to be expected by chance in a set of correlations of this size.

IV SUMMARY

Of three sets of correlations (health with health variables, development with development variables, and health with development variables), only the health with health variables show consistently strong intercorrelations. In addition to the possible explanations raised throughout this

TABLE XVIII

INTERCORRELATIONS BETWEEN HEALTH AND DEVELOPMENT
VARIABLES FOR REMOTE NORTHERN MANITOBA COMMUNITIES
FOR 1976

Health Variables / Development Variables	Morbidity	Morbidity	Morbidity	Upper	Gastro-	Accident	Psychiatric	Hospital
	0-6	7-19	20+	Respiratory	intestinal			
Communication	.09	.35	.27	.28	.18	.32	-.16	-.08
Transportation	.13	-.16	.25	.16	.11	.13	-.25	.13
Sewage	.02	.58	.45	.50	.50	.11	.37	-.15
Community Services	-.04	-.01	.25	.27	.20	.28	-.02	-.01
Recreation	-.36	-.01	-.04	.02	-.02	-.02	.02	-.07
Organized Activities	.07	.11	.39	.43	.21	.09	.15	-.05
Permanent Employment	-.28	.24	.17	-.17	.09	-.02	.06	-.09
Seasonal Employment	-.06	-.22	.00	-.33	.00	-.06	.11	.17
Permanent Welfare	.31	-.13	.10	-.16	-.02	-.35	-.10	-.13
Seasonal Welfare	.20	.11	.24	.16	.20	.29	.24	.29
Electricity	-.36	-.15	-.03	.00	-.23	-.23	-.21	-.13
Bath	-.07	.21	.21	.14	.07	.21	.43	.29
Toilet	.07	.50	.36	.29	.21	.36	.29	.29
Running Water	.00	.29	.29	.21	.14	.29	.50	.21

chapter, there are other possibilities to consider as to why the findings of this analysis are not more conclusive. One possible explanation for some of the implausible findings, such as that of a correlation of .87 between seasonal employment and the presence of toilets in housing, is that the measures that are being used are just too far removed from that which we are trying to assess and are therefore too inaccurate to be of real value. An additional explanation is that a time lag must elapse before a relationship between health and development can be shown and that time lag is longer than the period for which data are currently available.⁶⁷ Alternately, it is possible that improvements in health will tend to precede development. As there are very limited health data similar to those used in this study for early periods, this proposition, too, cannot be tested now. Yet another explanation is that the centrality of health relative to development can be called into question. One health theorist, Dr. Peter Ruderman, did suggest that, except in special circumstances, such as in a highly malarious zone where industry is very labour intensive, the effect of health on development is very marginal and almost impossible to measure. A further possibility, which again cannot be properly assessed with the data currently available, is that health status might have a greater impact at various stages of development. For example, the impact of poor health on workers in a traditional hunting and gathering society is

much harder to calculate and ascribe a level of importance than is the impact of poor health on workers in an industrial setting. As native workers have only within the last decade begun to move into northern industrial settings, such as mines, forestry complexes or hydro-electrical developments, this proposition too, is difficult to assess. Gladys Conley suggests that the effects of health, irrespective of the stage of development of the society, are so diffused that they cannot be measured in their own right and certainly not in response to specific economic interventions. One final possibility, suggested by Victor Sidel, is that health and development are both advanced when there is some consistency in government objectives and when people feel that their interests are reflected in those objectives. Different approaches to northern development have been taken by the same political party which has formed the federal government for the majority of the last 16 years and by different political parties which have formed the Manitoba government over that same period of time. Thus, it would seem reasonable that either the Manitoba native population does not know well enough what are the governments' objectives and therefore cannot feel a part of those aspirations or alternately, that they feel that they understand them all too well and do not agree or wish to promote them.

64. The eighteen communities with their populations are:
1. Berens River (825)
 2. Bloodvein (457)
 3. Cross Lake (2022)
 4. Easterville (Chemahawin) (430)
 5. God's Lake Narrows (1045)
 6. Grand Rapids (322)
 7. Moose Lake (318)
 8. Nelson House (1804)
 9. Norway House (2334)
 10. Oxford House (994)
 11. Paungassi (Little Grand Rapids) (814)
 12. Peguis (2007)
 13. Poplar River (505)
 14. Pukatawagan (Mathias Colomb) (1111)
 15. Red Sucker Lake (325)
 16. Shammattawa (556)
 17. Split Lake (1089)
 18. Tadoule Lake (Churchill Band) (373)
65. Soderstrom, Lee, The Canadian Health System, Croom Helm, London, 1978.
66. Watkins, Ibid.
67. An attempt was made to construct a three year time-series with the available data.

In support of the proposition that development precedes health, correlations between 1974 development variables and 1976 morbidity variables Table XIX and 1975 development variables and 1976 morbidity variables Table XX each show five significant correlations, the same number as appear in Table XVIII. Again, however, the "n's" for some of the correlations are very low and so it is difficult to assess fully the implications of these correlations.

The significant correlations in both of these tables between hospitalizations and sewage (Table XIX, Table XX) might mean that the greater the sewage options, the less will be the hospitalizations for conditions arising out of poor sanitation.

The significant correlations that occur between organized activities and adult morbidity and between organized activities and upper respiratory infections and between adult morbidity and permanent employment in each of the two sets of intercorrelations are somewhat more difficult to explain. They would appear to mean that with more employment and organized activities, there is the likelihood of a corresponding rise in adult morbidity

and in particular, upper respiratory infections. One explanation might be that, because of the generally poor level of health in the adult population, when they do go to work, the extra effort that their employment extracts from them predisposes them to more illness. As a good deal of work in the North is done outdoors and as the housing conditions tend to be poor, the possibility that illness in the working age population manifests itself in upper respiratory infections should be reasonable.

If the notion that development precedes health is correct and if there is a lag in time before the effects of development are manifested in changes in health, then it should be the case that correlations between health variables, that preceded in time, development variables would be weaker. A check to test for this was carried out.

Table XXI shows 1975 hospitalization variables inter-correlated with 1976 development variables. The results of this intercorrelational analysis confounds the findings further. Nine significant correlations were found and there appear to be no discernable pattern for how these correlations relate to those in Tables XIX and XX.

TABLE XIX

INTERCORRELATIONS BETWEEN 1974 DEVELOPMENT VARIABLES
AND 1976 MORBIDITY VARIABLES
FOR REMOTE NORTHERN MANITOBA COMMUNITIES

Health Variables Development Variables	Morbidity 0-6	Morbidity 7-19	Morbidity 20+	Upper Respiratory	Gastro- intestinal	Accident	Psychiatric	Hospital
Communication	.12	.37	.29	.46	.12	.32	.17	.09
Transportation	.14	-.33	-.01	.21	.01	-.04	-.21	-.06
Sewage	.37	.03	.30	.30	.30	-.17	-.17	-.57
Community Services	.21	.07	.30	.39	.23	.37	.07	.23
Recreation	.27	-.10	.07	.07	.07	.10	-.01	-.15
Organized Activities	.19	.08	.41	.38	.32	.22	.08	.03
Permanent Employment	.22	.27	.40	.31	.27	.18	.29	-.27
Seasonal Employment	.11	-.02	-.07	-.24	.02	-.02	.11	.20
Permanent Welfare	.05	-.21	.08	-.03	.21	.03	.26	.05
Seasonal Welfare	.06	-.02	-.16	-.05	.02	-.16	-.05	.13
Electricity	-.15	.21	.08	.03	-.10	.38	.15	.36
Bath	.20	.20	.29	.07	.38	.16	.20	.20
Toilet	.36	.24	.09	.06	.06	.12	.24	.24
Running Water	.31	.27	.36	.20	.24	.49	.42	.49

TABLE XX

INTERCORRELATIONS BETWEEN 1975 DEVELOPMENT VARIABLES
AND 1976 MORBIDITY VARIABLES
FOR REMOTE NORTHERN MANITOBA COMMUNITIES

Health Variables Development Variables	Morbidity 0-6	Morbidity 7-19	Morbidity 20+	Upper Respiratory	Gastro- intestinal	Accident	Psychiatric	Hospital
Communication	-.02	.13	.15	.25	-.01	.18	-.12	-.13
Transportation	.08	-.12	.17	.21	.14	.14	-.12	.04
Sewage	.21	-.08	.29	-.04	.00	-.12	-.29	-.54
Community Services	-.12	.13	.24	.03	-.11	.13	-.26	.04
Recreation	-.03	.00	.05	-.31	-.37	-.11	-.27	-.24
Organized Activities	.16	.35	.41	.41	.29	.19	.19	.09
Permanent Employment	.06	.25	.36	.02	.04	.18	.07	-.16
Seasonal Employment	-.25	.13	-.18	-.27	-.27	-.09	-.27	-.22
Permanent Welfare	.05	.06	.12	.00	.24	-.03	.30	-.18
Seasonal Welfare	-.13	.11	-.02	.16	.11	.11	.02	.02
Electricity	-.11	.43	.22	.09	-.14	.35	.17	.25
Bath	.09	.31	.31	.04	.00	.13	-.27	-.09
Toilet	.00	.58	.13	-.13	-.27	.31	-.18	.09
Running Water	.13	.45	.09	-.36	-.40	.54	-.31	.31

TABLE XXI

INTERCORRELATIONS BETWEEN 1976 DEVELOPMENT VARIABLES AND
1975 HOSPITALIZATION VARIABLES

	Inf. Parasitic Diseases	Endo Nutrition- al Metabolic Diseases	Mental Disorders	Nervous System Disorders	Respiratory Diseases	Digestive Diseases	Obstetrical	Skin and Skin Diseases	Ill-defined Conditions	Accidents & Poisonings	Grand Total
Communication	-.06	-.20	.17	.01	.11	.41	-.13	-.10	.34	.08	.11
Transportation	.21	.04	-.10	-.22	.10	-.02	-.08	.36	-.02	-.08	.00
Sewage	-.06	-.29	.22	.00	.11	.02	-.06	.15	.11	.02	.19
Community Services	-.01	.16	-.05	-.23	.03	.10	-.16	.08	-.08	-.08	-.02
Recreation	-.01	.14	-.31	-.28	-.24	.30	.40	-.27	-.05	.18	.07
Organized Activities	.37	-.13	-.12	-.15	.29	.11	.31	-.14	-.05	.11	.19
Perm. Employment	.17	.32	.13	.32	-.10	.20	.46	.02	.24	.28	.31
Seasonal Employment	.06	.00	.17	-.24	-.17	-.06	.11	-.06	-.22	.11	.00
Permanent Welfare	.38	-.04	-.24	.39	-.20	.05	.31	.20	.24	.02	.20
Seasonal Welfare	.56	-.10	.16	.43	.38	.29	.56	-.11	.33	.51	.47
Electricity	-.15	.20	-.05	-.70	.00	.03	-.21	-.03	-.08	-.13	-.26
Bath	-.21	-.95	.00	-.33	-.14	.42	.21	-.07	.21	.43	.00
Toilet	.07	-.95	.14	.07	.14	.57	.21	.21	.50	.57	.29
Running Water	.14	-.95	.07	-.33	-.07	.50	.29	.00	.29	.36	.07

CHAPTER V

SUMMARY, CONCLUSIONS AND POLICY RAMIFICATIONS

In the concluding section of this investigation of the relationship between health and economic development in northern Manitoba, the main perceptions that have emerged will be drawn together.

The reason for the investigation is that the North is increasingly becoming of central interest to Canadians. Specifically, the public is interested in the North for three reasons: because of its energy potential, because it stirs up major questions about the ownership of Canadian resources and because of the growing strength of the native movement which is trying to focus attention on native land claims. A recent Financial Post Special Report calls the North "tomorrow's treasure chest, a hedge against an uncertain future".⁶⁸ Although there is substantial financial investment going into the northern development, and substantial attention being paid to it, there is little consensus among Canadians as to what kind of economic interventions will create and sustain meaningful development from which all Canadians can benefit.

Chapter II of this study looked at health literature, literature on the experiences of the Third World and literature on Canadian regional development. While the

literature review brought forward a number of important facets of development, a major theme in this chapter of the study has been the inadequacy of present day theory to address this problem. Much of the literature on the Third World, for example, examines the poverty conditions in whole nations or groups of nations which tend to have unstable governments. This literature has the advantage of having been developed from observations of a reasonable duration, but has the disadvantage of being written in a context far different from that of northern Canada.

The health literature is helpful in assessing just how diffuse are the effects of good health. However a major limitation in the health literature is that many health economists tend to look at health and health costs only from the perspective of losses in productivity. This perspective is not particularly useful when investigating a population which is not totally part of a wage economy.

The review of Canadian literature has shown Canadian thinking on development to be embryonic and fragmented. There is a clear lack of consensus among Canadian theorists as to how best to effect development and as to what factors contribute to development. Only Brody's and Loxley's views make reference to the possible relationship between social or health factors and economic ones. While the present study does not provide a complete survey of all views on development and health, it does demonstrate that detailed applied

theory in the field is very limited.

In Chapter III, the socio-economic circumstances of the remote northern Manitoba population were compared to those of northern Manitobans living in northern industrial centres and to those living in Winnipeg. The socio-economic indicators included population characteristics, labour force, income, vocational preparation, maternal and child health, nutrition, housing and sewage and water supply. Data on each of these indicators consistently showed the remote northern resident to be at a disadvantage compared to the resident of either the northern industrial centres or of Winnipeg. Although there are a variety of theoretical perspectives suggested in Chapter II as to why these circumstances occur, the fact that they occur confirms remote northern communities as part of an underdeveloped region.

In Chapter IV, an attempt was made to analyze certain data which relate specifically to health and economic development in northern Manitoba. A conservative analysis of the data suggested that at least a weak positive relationship can be shown between these variables. However, the findings of the analysis must be considered to be inconclusive because of the relative weakness of the data themselves which made it impossible to test properly any of the theoretical perspectives discussed earlier in the paper.

The original hypothesis has been neither proved nor disproved. What has been proven is that the whole question

of there being a relationship between health and development has been given limited attention. However, governments clearly have been developing northern priorities and programs for some twenty years, despite limited research on all facets of northern development and they are not likely to stop while this particular question is put to more rigorous testing. Despite the lack of clarity in the findings of Chapter IV, the policy ramifications of the hypothesis should be explored.

In order to discuss the policy ramifications, a look at the milieu in which northern development policy formulation to date has taken place would be helpful. Unfortunately, a good deal of policy formulation takes place in settings to which the general public does not have access, such as "Cabinet" meetings. However, it is known that within the last twenty years, the Manitoba government, occasionally in concert with the federal government, received a variety of commissions, hearings and reports on one facet of northern development or another. A brief examination of the purposes and findings of these commissions' hearings and reports may help to clarify what is the real policy-making milieu in which the question of a relationship between health and development will be pondered.

One of the first such reports was entitled The 1958 Economic Survey of Northern Manitoba.⁶⁹ The primary purpose of the study was to provide an objective analysis of the

region's development prospects. The report recommended appropriate government action, particularly in natural resource development and outlined opportunities for private investment.

The Lagasse Report (1959) was the first major detailed study of the native population of Manitoba.⁷⁰ The two central themes of this report were that the Indians and Metis have a lower standard of living than that which is acceptable to the rest of the Canadian population and that a new approach must be used to solve their problems and prevent the number of unintegrated Indians and Metis from increasing indefinitely.

The Committee on Manitoba's Economic Future, which was established to carry out an impartial analysis of the Province's growth potential from 1962 to 1975, explored the social and economic problems of Native Manitoba people, and concluded as follows.⁷¹ Indians and Metis have a major contribution to make to the economy if they are integrated as productive members of the labour force. The level of social and economic integration of these people is very low and shows little improvement after almost 100 years of special administration. The levels of living and per capita earned incomes are little more than one-tenth of the rest of the Province. Rapidly increasing numbers make them more and more reliant upon welfare payments to support their present low subsistence level of living.

In 1962, Jamieson and Hawthorn prepared a report for the Committee on Manitoba's Economic Future or COMEF entitled "The Role of Native People in Industrial Development in Northern Manitoba, 1960-75".⁷² One of the key issues that emerged from their research is that natives are deriving little benefit from northern development and that the developing northern industrial system seems unable to absorb natives into it. Their recommendations called for measures to encourage and condition natives to migrate to industrial centres.

A Conference on Manpower Training was held in Winnipeg on September 30, 1963.⁷³ The purpose of the Conference was to advance the economic and social well-being of Manitobans. This Conference identified Indians and Metis as a group that had special education and training needs, and concluded that the needs of the Metis and Indian are so unique that they require the development of special programs.

References to the North in the Report of the Manitoba Royal Commission on Local Government Organization and Finance (1964) are very few.⁷⁴ However, it does refer to the establishment of the northern health services section of the Department of Health, whose purpose it was to create greater interest in the importance of good health.

In 1966, the federal and provincial governments recommended the Commission of Inquiry into Freshwater Fish Marketing to study the marketing problems of the freshwater

fish industry.⁷⁵ The Commission points out that many fishermen are able to supplement their low fishing incomes.

However, there are many freshwater fishermen who cannot and thus live at subsistence level. The failure of the freshwater fishery to support the fishermen adequately is associated with Metis and Indians as their participation in commercial fishing increases.

Legislation was introduced in the Manitoba Legislative Assembly in 1966 to establish a Commissioner of Northern Affairs.⁷⁶ The responsibility of the Commissioner, a Cabinet Minister, was to head a network of local government administrators in the Manitoba North. The Commissioner of Northern Affairs established local advisory committees and they had no financial resources or formal powers.

However, political pressure grew at the community level for more responsible local democratic government. This pressure came from Band Councils on Reserves, and from a population aware of the existence of the system of local government in the south.

In 1970, an Amended Northern Affairs Act gave more authority to local community Advisory Committees.

In June, 1974, the new Northern Affairs Act came into effect. This Act allowed for a Department of Northern Affairs with a Minister, the successor of the Commissioner of Northern Affairs. The Minister would be responsible for the coordination of government activities in northern Manitoba.

The northern communities which opted for an incorporated council could do so by petitioning the Minister for incorporation. The effect of incorporation is to make the incorporated community council a legal body.

The purpose of the Target for Economic Development (TED) Report, 1969, was to determine the roles of private enterprise, government and other institutions in shaping Manitoba's future.⁷⁷ The problems of Manitoba's native people were analyzed thusly in the report:

"In general, the Indian and Metis population represents a less skilled, less mobile group. Solution of this unemployment problem may require both training and breaking down lack of mobility, for it is unrealistic to expect that jobs can simply be created in the existing environment. Education and training are first steps in bringing into the labour force those willing to accept regular employment."

In 1967 the Conservative government appointed a commission to be known as "The Northern Transportation Commission".⁷⁸ The Commission recommended a "Plan for Northern Regional Development" based on the establishment of federal-provincial policies applicable to all regions of northern Canada. The report states that "a national transportation policy designed to meet the particular requirements of the Canadian North is critical to its development and to its integration into the national economy".

The Department of Regional Economic Expansion was created in 1969. In 1970, The Pas was established as a Special Area, largely to assist the economic and social

adjustment.

Subsequent to the establishment of The Pas Special Area, the Federal-Provincial Joint Planning Committee was created.

While Manitoba was prepared to come together with DREE under the Joint Planning Committee, the Province was also concerned with how northern development priorities would be handled. In 1970, the Planning Secretariat of the Planning and Priorities Committee of Cabinet undertook a Policy and Program Review for systematically analyzing and integrating northern programming between various government departments and agencies. A Northern Working Group was assigned the task of providing the northern dimension to the Policy and Program Review process.

While this Northern Working Group was primarily set up to provide a research and planning support for a comprehensive northern development strategy, it also provided a research capacity to the Northern Task Force, an inter-party Legislative Committee with outside regional representation to explore northern problems and recommend sources of action.

The Northern Task Force was one of the main mechanisms for dialogue between the political system and local northerners.⁷⁹ In March, 1970, an interim report from the citizens of the North to the Manitoba Legislative Assembly was compiled by the Northern Task Force. The Task Force visited 41 northern Manitoba communities from November, 1969,

to February, 1970, to hear from the people what they saw as their problems and what they suggested might be done to solve these problems.

On July 20, 1971, the Canada-Manitoba Special ARDA Agreement was signed. With the signing of this Agreement, a special mechanism was created to deal with supporting native economic and social development ventures. The Agreement provided for a Joint Special Committee between the Province and the Department of Regional Economic Expansion.

In March 1973, having just completed an intensive program and policy review, Manitoba elaborated a planning framework for Manitoba. The document entitled "Guidelines for the Seventies" represented the areas of public policy that the Manitoba Government wished to see pursued in the future. In Volume 3 Regional Perspectives, the issue of northern development was extensively discussed. Two major options were promoted. They were transportation and communication linkages from remote communities and programs to ease social adjustment for natives.

In April, 1973, the Department of Regional Economic Expansion prepared a series of papers on economic circumstances and opportunities. The then Minister, Don Jamieson, spoke of them to the Standing Committee on Regional Development of the House of Commons. A significant paper in that series was the report titled "Western Northlands" Economic Circumstances and Opportunities, April, 1973. Pursuant to the

presentation of these papers, approval was granted to DREE to negotiate a northern development agreement with the Province of Manitoba. An Interim Agreement was signed on June 4, 1974. A five-year agreement was signed in 1976.

Although this brief presentation has undoubtedly overlooked some important input into the northern development process, such as the Hydro diversion hearings, the examples which have been cited do suggest a somewhat pragmatic approach to northern development policy formulation.

In these few examples alone, a divergence of views is quite evident on what is the situation of native people, why it is that way, what role natives should play in the future development of the North and how best government can meet both its needs and its obligations to the native people. This divergence of views on northern development predictably has lead and continues to lead to a divergence in policy orientation and programs among levels of government who program in the North. Due to the fiscal crisis of the State, governments have seemingly arrived at their policies from what the theorists might describe as an atheoretical perspective and have seemingly been content to or been forced to live with their ambiguities and inconsistencies. Therefore, if studies such as this one, are to have any impact whatsoever on future policy directions, the most successful route likely will be if it is raised in a fiscal context by native people themselves. In doing this, native leaders place into

confrontation the reality of how policy is made with the implications of an hypothesis which has not been proven and for which data, in the short run, do not exist to prove it.

In foreshadowing what future research might show, native leaders in Manitoba today, in concert with native leaders throughout the country, are calling for the approach of provincial and federal policy towards natives to be re-designed. They are asking for governments to maintain a generous enabling posture while beginning to transfer responsibility and to grant autonomy, insofar as it is feasible, to the native communities and organizations. If native leaders are successful in their demands they will have an opportunity to better test the hypothesis long before government is likely to do it.

The fact that the findings of this study are unlikely to be reflected in government policy in the short run does not mean that the research has not made a contribution to Canadian political science.

This research, because of its very limitations, suggests a line of thinking for more extensive research. A means by which more carefully defined health and development variables can be recorded over a longer span of time needs to be found. Health indicators are particularly useful indicators to approximate whether the well-being of a community has improved or worsened. Health indicators reflect on the composite of people's life situations including their

personal and social relationships, their material well-being and their sense of satisfaction with their lives and work. Health indicators allow one to measure how changes in a community such as changes to its economy, are affecting the community as a whole. If the impact of these changes can be approximated, in part, through health indicators for one community, the approximations may have some predictive value for other similar communities about to experience the same sort of change.

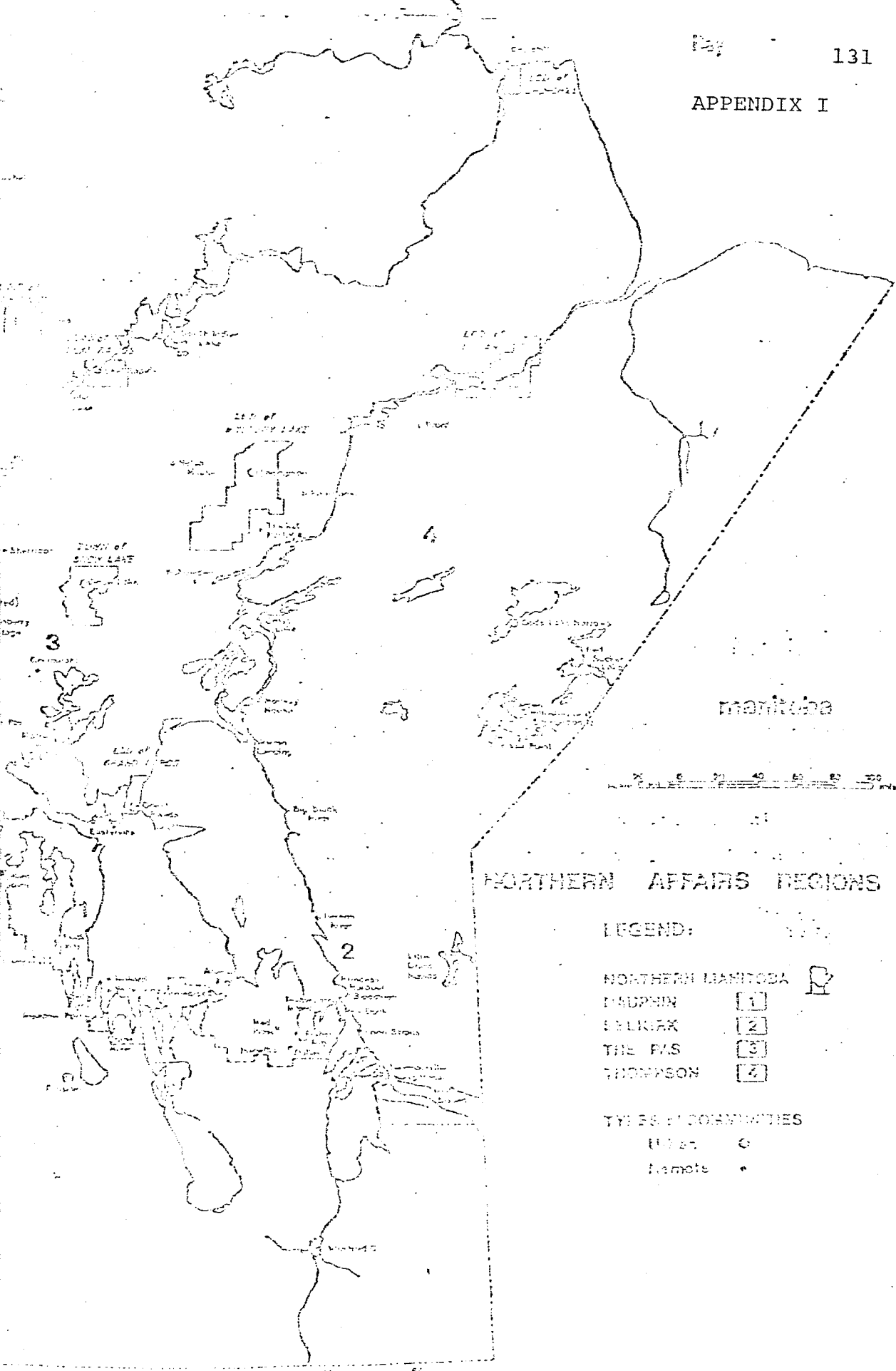
Another contribution that this study has made to Canadian political science is that it has amassed and presented considerable data on northern Manitoba socio-economic circumstances. Although northern development has captured the public's attention, it has not captured the attention of sufficient numbers of scholars and bureaucrats who wish to document the changes that are occurring so rapidly. Theory, after all, is supposed to emerge from that which is observed over and over again. Without more information being available to future scholars of the North, a theoretical perspective that more correctly fits the northern Manitoba situation is unlikely to emerge.

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68. Financial Post Special Report, "Canada: Into the 1980's", December 1, 1979, p. 2.
 69. Government of Manitoba, 1958 Economic Survey of Northern Manitoba.

70. Lagass, Jean, "The People of Indian Ancestry in Manitoba", Department of Agriculture and Immigration, Social and Economic Research Branch, 1959.
71. Report of Committee on Manitoba's Economic Future, 1962-1975, 1963.
72. Jamieson, S. and Hawthorn, H., "The Role of Native People in Industrial Development in Northern Manitoba, 1960-75", 1962.
73. Memorandum of Results of the Conference on Manpower Training, September 30, 1963.
74. Report of the Manitoba Royal Commission on Local Government Organization and Finance, 1964.
75. Report of Commissioner of Inquiry Into Freshwater Fish Marketing, 1966, p. 10.
76. Manitoba Department of Northern Affairs Act.
77. "Manitoba to 1980", Report of the Commission on Targets for Economic Development, Winnipeg, Manitoba, 1969.
78. Province of Manitoba Royal Commission Inquiry Into Northern Transportation, April, 1969.
79. Interim Report from The Citizens of Northern Manitoba to The Manitoba Legislature, compiled by the Northern Task Force; Winnipeg, 1970, pp. 56-64.


APPENDICES

APPENDIX I





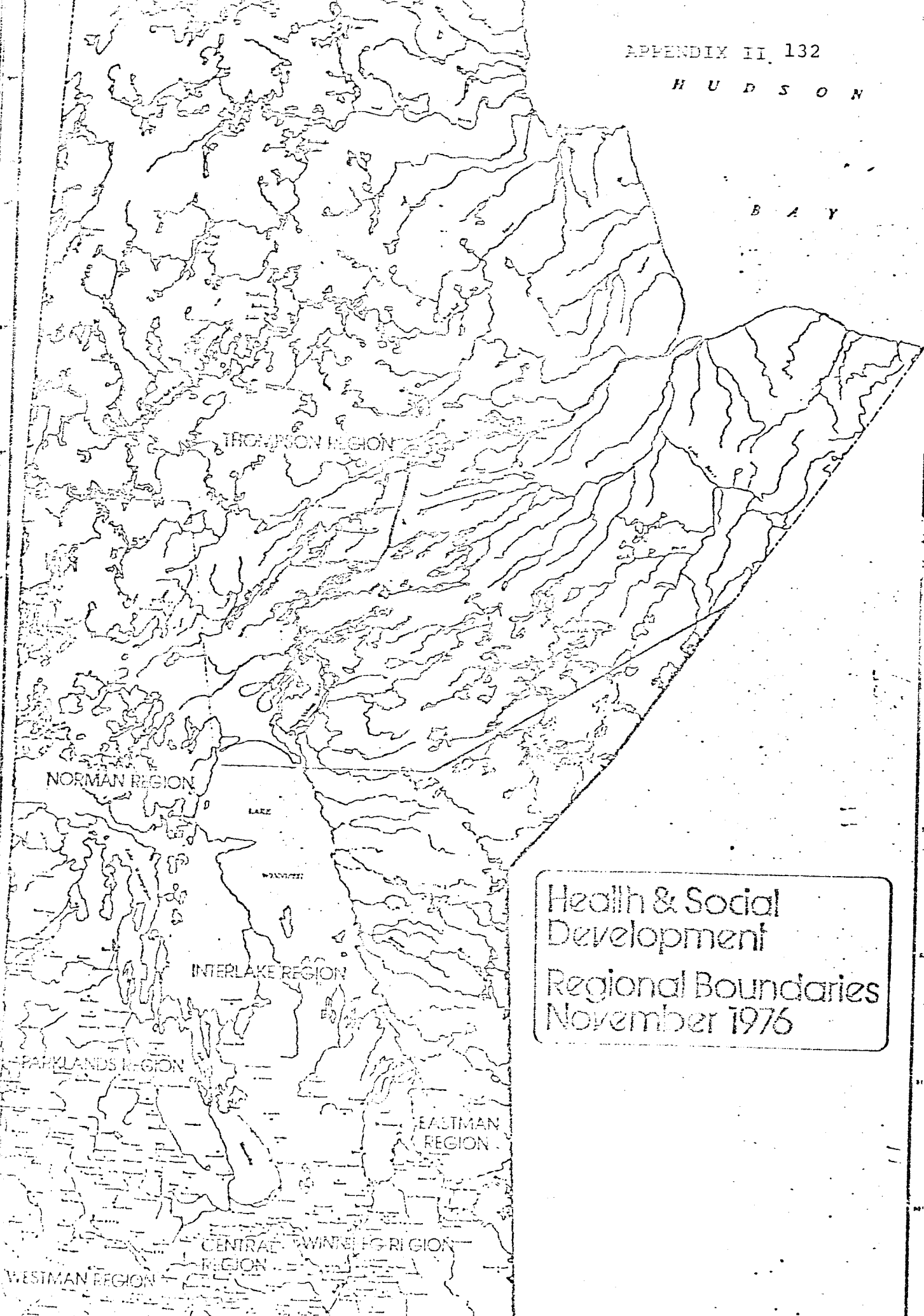
NORTHERN AFFAIRS REGIONS

LEGEND:

- NORTHERN MANITOBA 
- DAUPHIN 1
- SELKIRK 2
- THE PAS 3
- THOMPSON 4

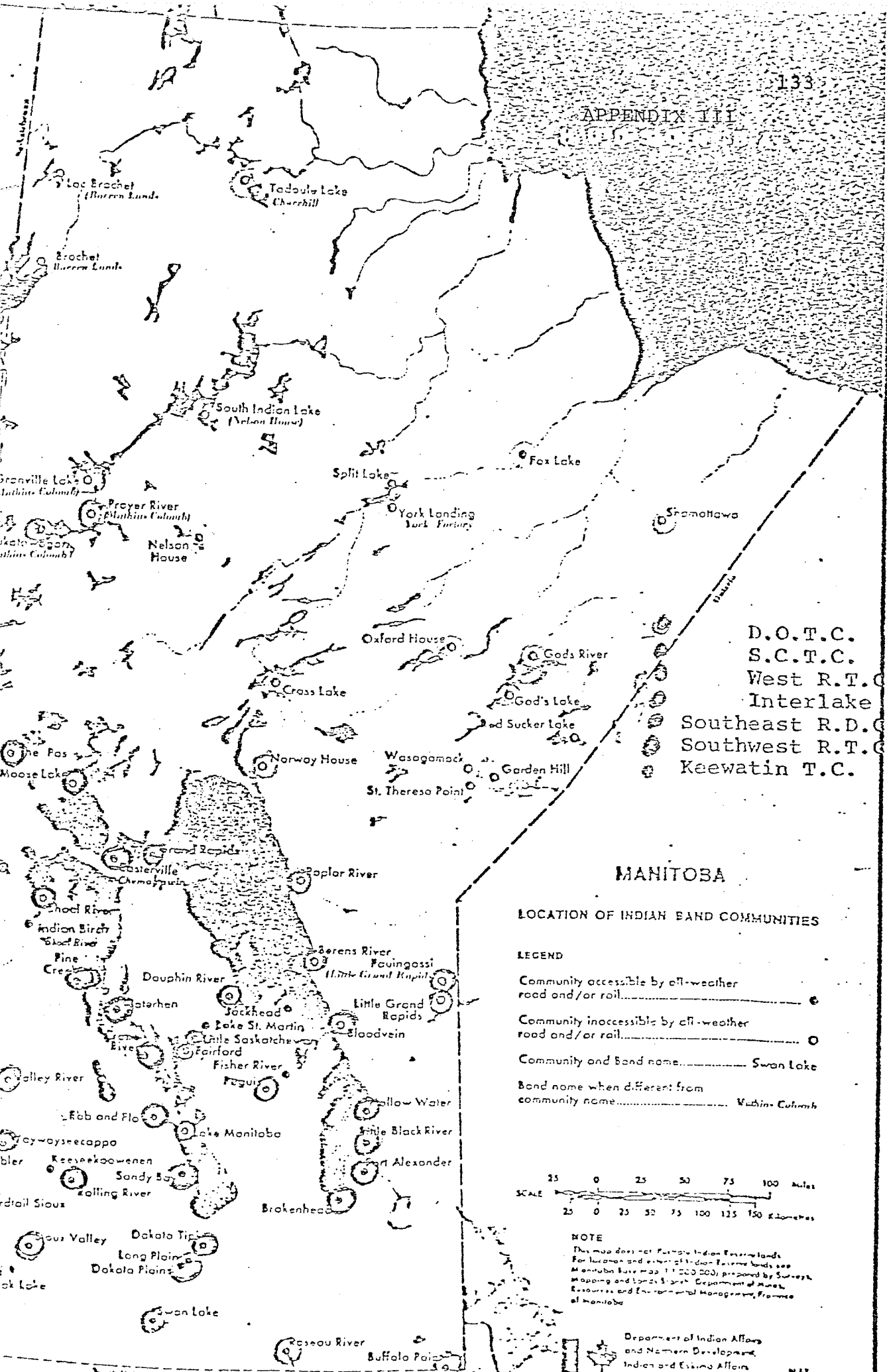
TYPE OF COMMUNITIES

- Urban 
- Remote 



Health & Social
Development
Regional Boundaries
November 1976

APPENDIX III



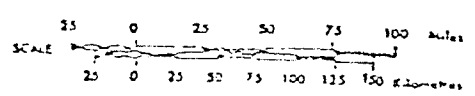
- D.O.T.C.
- S.C.T.C.
- West R.T.C.
- Interlake R.D.C.
- Southeast R.D.C.
- Southwest R.T.C.
- Keewatin T.C.

MANITOBA

LOCATION OF INDIAN BAND COMMUNITIES

LEGEND

- Community accessible by all-weather road and/or rail.....
- Community inaccessible by all-weather road and/or rail.....
- Community and Band name..... Swan Lake
- Band name when different from community name..... *Matias Columbi*



NOTE
 This map does not include Indian Reserve lands. For location and extent of Indian Reserve lands see Manitoba Survey Map 1:100,000 prepared by Survey Mapping and Lands Branch, Department of Mines, Resources and Environmental Management, Province of Manitoba.

Department of Indian Affairs
 and Northern Development
 Indian and Existing Affairs
 Program Manitoba Region.

MAY
 1978

D.O.T.C. (DAKOTA-OJIBWAY TRIBAL COUNCIL)

Swan Lake	Roseau River
Sandy Bay	Birdtail Sioux
Long Plain	Dakota Plains
Oak Lake Sioux	

S.C.T.C. (SWAMPY CREE TRIBAL COUNCIL)

Shoal River	Mathias Colomb
The Pas	Chemawawin
Moose Lake	Grand Rapids

WEST REGION TRIBAL COUNCIL

Crane River	Ebb & Flow
Gambler	Pine Creek
Rolling River	Valley River
Waterhen	Waywayseecappo

INTERLAKE RESERVE DEVELOPMENT COUNCIL

Little Saskatchewan	Fairford
Lake Manitoba	Peguis
Dauphin River	

SOUTHEAST RESERVE DEVELOPMENT COUNCIL

Poplar River	Little Grand Rapids
Bloodvein	Hollow Water
Fort Alexander	Brokenhead
Berens River	Buffalo Point
Little Black River	

SOUTHWEST REGION TRIBAL COUNCIL

Sioux Valley	Dakota Tipi
Valley River	

KEEWATIN TRIBAL COUNCIL

Norway House	Cross Lake
God's Lake	Barren Lands
Churchill	Oxford House
God's River	Nelson House
Shamattawa	Split Lake
York Factory	Northlands
Fox Lake	

APPENDIX IV

1976 MANITOBA HEALTH SERVICES COMMISSION REPORT ON MORBIDITY
BY INDIAN BAND, AGE AND DIAGNOSTIC CATEGORY

Health Variables Community								
	Morbidity 0-6	Morbidity 7-19	Morbidity 20 Onward	Upper Respira- tory Infections	Gastrointes- tinal Infections	Accidents	Psychiatric Disorders	Hospitalization
Berens River	894.3	798.2	436.0	173.6	102.8	310.5	65.0	219.3
Bloodvein	923.0	600.8	940.8	162.5	111.2	370.9	104.0	284.5
Cross Lake	1170.8	877.2	1201.2	399.4	132.4	421.5	92.0	291.8
Easterville (Chemawawin)	1037.2	878.5	1418.1	213.6	151.2	497.8	47.2	186.0
God's Lake	1571.3	1024.8	1444.5	369.5	222.5	544.2	162.1	326.3
Grand Rapids	1958.4	1985.4	2256.6	210.8	105.6	705.1	70.8	211.2
Moose Lake	1544.4	1412.1	2189.9	412.3	206.6	649.0	138.1	434.0
Nelson House	1124.2	839.3	1112.2	310.8	186.4	397.8	78.8	335.4
Norway House	1741.4	1130.4	1475.1	486.2	288.0	561.0	151.1	290.5
Oxford House	1173.3	1082.1	1177.4	441.8	186.5	358.3	138.5	208.2
Pauingassi (Little Grand Rapids)	1958.4	507.6	595.9	115.8	94.5	200.7	52.7	255.5
Peguis	1845.6	1715.2	1742.1	702.7	279.2	906.0	156.8	278.0
Poplar River	735.5	1068.0	1089.5	128.1	76.5	265.3	75.0	223.8
Pukatawagan (Mathias Colomb)	1031.0	1163.7	1116.3	257.1	171.3	546.2	93.5	358.2
Red Sucker Lake	1277.4	1017.6	1330.0	346.5	111.0	364.6	107.1	209.2
Shamattawa	1000.5	1113.8	892.2	127.9	142.0	594.3	144.3	438.8
Split Lake	739.2	951.5	950.5	164.8	69.2	324.9	64.0	206.6
Tadoule Lake (Churchill)	1638.2	1379.7	1402.3	415.4	209.0	647.0	219.9	431.6

APPENDIX V

HOSPITALIZATION UTILIZATION RATES BY COMMUNITY FOR 1975

Health Variables Community	Inf. Parasitic Diseases	Endo Nutrition- al Metabolic Diseases	Mental Disorders	Nervous System Disorders	Respiratory Diseases	Digestive Diseases	Obstetrical	Skin & Skin Diseases	Ill-defined Conditions	Accidents & Poisonings	Grand Totals
Berens River	12.1	2.7	1.3	10.7	49.7	5.4	49.7	4.0	5.4	25.5	197.3
Bloodvein	11.8	-	7.1	4.7	35.5	7.1	47.3	9.5	7.1	28.4	203.3
Cross Lake	25.2	1.2	10.0	7.0	76.9	12.9	58.7	8.8	15.3	35.8	295.9
Easterville (Chemawawin)	24.5	2.5	0	9.8	39.2	9.8	31.9	9.8	7.4	17.2	188.7
God's Lake	37.5	2.7	8.0	16.1	62.5	17.9	67.9	3.6	13.4	50.0	340.2
Grand Rapids	8.2	4.1	4.1	16.4	61.5	16.4	20.5	8.2	8.2	32.8	213.1
Moose Lake	28.5	28.5	3.2	9.5	50.6	31.6	69.6	12.7	3.2	50.6	335.4
Nelson House	34.7	3.2	8.2	13.3	64.4	10.7	68.9	14.5	19.6	43.0	317.8
Norway House	28.1	4.9	9.2	18.4	83.8	15.7	55.2	10.8	17.8	35.7	341.8
Oxford House	15.7	1.1	2.2	11.2	48.3	11.2	65.2	4.5	12.4	30.3	225.8
Paungassi (Little Grand Rapids)	23.8	2.6	4.0	17.2	35.8	9.3	55.6	10.6	13.2	22.5	229.1
Peguis	13.6	9.1	15.3	9.6	47.0	20.9	39.0	4.0	20.9	31.7	272.8
Poplar River	20.9	2.3	4.6	0	32.5	13.9	78.9	4.6	13.9	39.4	276.1
Pukatawagan (Mathias Colomb)	34.4	1.1	10.0	16.6	61.0	14.4	63.3	18.9	22.2	61.0	350.7
Red Sucker Lake	20.3	0	37.3	0	54.2	6.8	54.2	10.2	6.8	20.3	247.5
Shamattawa	16.4	0	10.2	12.3	55.3	20.5	65.6	4.1	10.2	51.2	266.4
Split Lake	18.4	13.5	2.5	12.3	38.0	19.6	63.7	7.4	13.5	38.0	261.0
Tadoule Lake (Churchill)	58.0	17.4	11.6	37.7	95.7	11.6	55.1	8.7	20.3	46.4	437.7

Source: Manitoba Health Services Commission

APPENDIX VI

HOSPITALIZATION UTILIZATION RATES BY COMMUNITY FOR 1977

Health Variables Community	Inf. Parasitic Diseases	Endo Nutritional Metabolic Diseases	Mental Disorders	Nervous System Disorders	Respiratory Diseases	Digestive Diseases	Obstetrical	Skin & Skin Diseases	Ill-defined Conditions	Accidents & Poisonings	Grand Totals
Berens River	12.8	5.8	4.6	9.3	32.5	4.6	59.2	7.0	10.5	15.1	181.2
Bloodvein	4.3	8.6	4.3	6.5	41.0	17.3	64.8	15.1	15.1	34.6	235.4
Cross Lake	18.0	3.4	7.3	5.8	37.5	11.2	44.7	9.2	20.4	39.9	246.1
Easterville (Chemawawin)	27.0	6.8	2.3	11.3	47.3	6.8	29.3	6.8	4.5	11.3	189.2
God's Lake	25.3	2.8	8.4	2.8	61.9	14.1	68.5	.9	27.2	41.3	295.5
Grand Rapids	30.9	15.4	3.1	9.3	37.0	3.1	30.9	12.3	0	27.8	228.4
Moose Lake	35.7	16.2	6.5	26.0	58.4	26.0	51.9	13.0	13.0	32.5	311.7
Nelson House	27.6	2.7	7.6	13.5	114.7	15.7	63.3	7.6	17.9	44.9	360.4
Norway House	17.7	4.6	10.6	9.3	46.5	14.8	45.2	4.6	19.4	30.8	247.0
Oxford House	12.6	1.0	6.8	3.9	21.3	20.4	57.2	2.9	18.4	24.2	190.1
Pauingassi (Little Grand Rapids)	24.0	0	3.6	14.4	25.2	8.4	58.8	10.8	12.0	38.4	230.5
Peguis	15.7	8.8	11.8	8.3	60.4	15.2	31.4	4.9	11.3	29.5	248.5
Poplar River	11.6	5.8	9.6	7.7	46.2	9.6	50.1	3.9	9.6	17.3	202.3
Pukatawagan (Mathias Colomb)	47.5	7.0	20.2	11.4	73.9	20.2	84.5	17.6	43.1	54.6	452.5
Red Sucker Lake	14.9	0	0	11.9	32.7	6.0	53.6	0	20.8	8.9	181.5
Shamattawa	37.3	0	23.1	12.4	90.6	5.3	71.0	8.9	16.0	76.4	374.8
Split Lake	8.9	6.2	2.7	10.7	24.9	19.6	59.6	9.8	12.4	24.9	222.2
Tadoule Lake (Churchill)	56.3	8.0	21.4	21.4	50.9	10.7	37.5	5.4	21.4	32.2	239.8

Source: Manitoba Health Services Commission

APPENDIX VII

HOSPITALIZATION DIAGNOSTIC CATEGORIES
(AS PUBLISHED BY THE
MANITOBA HEALTH SERVICES COMMISSION)

01 Inf Parasitic Dis

- 002 Intestinal Inf
- 003 Tuberculosis
- 004 Streptococcal
- 007 Infectious Hepatitis
- 008 Other Viral Dis
- 009 V D
- 010 Other Infective Dis

03 Endo Nutrit Metab Dis

- 042 Thyrotoxicosis
- 044 Diabetes Mellitus
- 045 Other Endocrine Dis
- 046 Nutritional Deficiencies
- 048 Other Metabolic Dis

05 Mental Disorders

- 052 Alcoholic Psychosis
- 053 Schizophrenia
- 054 Affective Psychoses
- 055 Other Psychoses
- 056 Neuroses
- 057 Alcoholis
- 058 Drug Dependence
- 059 Nonpsychotic Mental Dis
- 060 Mental Retardation

06 Nervous System Dis

- 061 Meningitis & Inf Dis C N S
- 063 Multiple Sclerosis
- 064 Paralysis Agitans
- 065 Epilepsy
- 066 Other Dis C N S
- 067 Dis of Nerves and Periph Ganglia
- 068 Eye Infections

- 069 Strabismus
- 070 Cataract
- 071 Glaucoma
- 072 Other Dis of Eye
- 073 Otitis Media
- 074 Mastoiditis
- 075 Other Dis - Ear and Mastoid
- 076 Active Rheumatic Fever
- 078 Hypertensive Disease

08 Respiratory Dis

- 092 Acute U R I
- 093 Influenza
- 094 Pneumonia
- 095 Bronchitis & Emphysema
- 096 Asthma
- 097 Hypertrophy T & A
- 099 D N S
- 100 Other Dis O R T
- 101 Emphysema & Abscess of Lung

09 Digestive Dis

- 104 Dis of Teeth
- 105 Other Oral Dis
- 107 Ulcer - Peptic
- 108 Gastritis - Duodenitis
- 109 Other Dis of Upper G I Tract
- 110 Appendicitis
- 111 Hernia - No Obstruction
- 113 Intestinal Obstruction
- 114 Chronic Enteritis & Colitis
- 115 Other Intestinal Diseases
- 116 Cirrhosis of Liver
- 117 Other Hepatic Disease
- 118 Cholelithiasis
- 119 Cholecystitis & Cholangitis
- 120 Other Dis of G B
- 121 Dis of Pancreas

11 Obstetrical Cond

- 136 Pre- & Post-Natal Inf
- 137 Hemorrhage of Pregnancy
- 138 Toxemias - Pre- & Post-Natal
- 139 Other Complication of Pregnancy
- 140 Abortion
- 141 Delivery No Complication
- 142 Delivery Complicated by Bleeding

- 143 Delivery Complicated by Bony Abnormality
- 144 Delivery with Other Complications
- 145 Puerperal Complications

12 Skin & S C Dis

- 146 Inf- Skin & S C Tissue
- 147 Other Infections Skin & S C Tissues
- 148 Dis of Skin & S C Tissue

16 Ill-Defined Conditions

- 169 Observation Only
- 170 Ill-Defined Conditions

17 Accidents Poisonings

- 171 Frac Skull
- 172 Frac Spine Trunk
- 173 Frac Upper Limb
- 174 Frac Femur
- 175 Other Frac Lower Limbs
- 176 Dislocation Sprains & Strains
- 177 Internal Injury
- 178 Superficial Injury
- 179 Foreign Body
- 180 Burns
- 181 Injury Nerves Spinal Cord
- 182 Poisoning Medical Agents
- 183 Poisoning Non-Medicinal Agents
- 184 Surgical & Medical Complications
- 185 Other Effects of External Causes

APPENDIX VIII

HOSPITALIZATION DIAGNOSTIC CATEGORIES
OMITTED FROM STUDY
(AS PUBLISHED BY THE
MANITOBA HEALTH SERVICES COMMISSION)

02 Neoplasms

- 012 C A Stomach
- 013 C A Intestine
- 014 C A of Rectum
- 015 C A Other Digestive Organs
- 016 C A Trachea, Bronchus and Lung
- 020 C A Breast
- 022 C A Uterus
- 025 C A Prostate
- 026 C A Bladder
- 027 C A Other G-U Organs
- 029 Other Primary-Secondary C A
- 030 Leukemia
- 031 Other C A Lymph & Hematopoietic
- 034 Benign Tumor Uterus
- 035 Benign Tumor Ovary
- 036 Benign Tumor Other Gyn
- 038 Other Benign Tumors
- 039 Carcinoma in SITU-Cervix
- 040 Other Unspecified Tumors - Other

07 Circulatory Dis

- 076 Active Rheumatic Fever
- 077 Chronic Hrt Dis
- 078 Hypertensive Dis
- 079 Acute Yocardial Infarction
- 080 Ischemic Heart Dis
- 081 Other Heart Dis
- 082 C V A
- 083 Cerebral Thrombosis
- 084 Other C V D
- 085 Arteriosclerosis
- 086 Other Dis Vascular
- 087 Pulmonary Embolism & Infarction
- 088 Venous Phenoniene
- 089 Varicose Veins

090 Hemorrhoids
091 Other Circulatory Dis

04 Dis Blood

049 Iron Deficiency Anaemias
050 P A & B12 Deficiencies
051 Other Blood Dis

10 Genitourinary Dis

125 Cystitis
126 Other Urinary Dis
127 B. P. H
128 Phimosi
129 Other G U Dis Male
130 Dis of Breast
131 Dis Ovary Tubal Parametrium
132 Inf Uterus Vagina Vulva
133 Uterus Prolapse & Malposition
134 Disorders of Menstruation
135 Other Dis Female Genital Organs

13 Musculoskeletal Dis

149 Rheumatoid Arthritis
150 Osteo Arthritis
151 Arthritis & Rheumatism
152 Osteomyelitis Other Bone Dis
153 Displacement of I V Disc
154 Other Dis of Joint
155 Synovitis Bursitis
156 Other Dis of Movement

14 Congenital Anomalies

157 Spina Bifida Hydrocephalus
158 Congenital Anomalies of Heart
159 Cleft Palate & Cleft Lip
160 Congenital Anomalies Digestive
161 Congenital Anomalies G U System
162 Congenital Anomalies Movement
163 Other Congenital Anomalies

15 Perinatal Dis

165 Asphyxia Anoxia or Hypoxia
166 Hemolytic Disease of Newborn
167 Immaturity
168 Other Perinatal Dis

18 Special Conditions & Infants

186 No apparent disease

APPENDIX IX

SUB-CATEGORIES OF
DEVELOPMENT VARIABLESEmployment

No. permanently employed
No. seasonally employed
No. on permanent welfare
No. on seasonal welfare

Communication

Radio
Radio-telephone
Telephone
Telex/Telegraph
Regular mail delivery
Other

Transportation

All seasons road
Winter road only
Rail
Boat
Bus service
Air strip
Float-plane
Ambulance service

Housing

Total no. of dwellings
Electricity
Bath
Indoor toilet
Running water

Community Services

Co-op
Day-care centre
Economic development program
Elementary school
Fire protection

Forestry service
Foster homes
Homes for the aged
Housing
Hydro
Native centre
Kindergarten
Police
Public works
Secondary School
School for the mentally handicapped
Welfare services

Recreation Facilities

Playing fields
Equipped playgrounds
Skating rinks
Gymnasiums
Auditoriums
Community hall
Recreation centre
Other

Organized Activities

Committees
 Health
 Housing
 Church
 School
 Recreation
Homemaker's club
Pow-wows
Festivals/Fairs
Bazaars
Bingos
Dances
Sporting events
Native crafts
Other

APPENDIX X

1974 DEVELOPMENT VARIABLES SCORES BY COMMUNITY

Community	Development Variables							Employment				Housing			
	Communication	Transportation	Sewage Rx and Disposal	Community Services	Recreation Facilities	Organized Activities	Permanent	Seasonal	Permanent Welfare	Seasonal Welfare	Electricity	Bath	Toilet	Running Water	
Berens River	4	5	3	12	4	4	2.2	3.3	2.2	-	13.3	4.1	4.1	4.1	
Bloodvein	2	4		10			1.6	16.9	7.7	11.2	85.5	11.3	11.3	11.3	
Cross Lake	4	4	2	11	3	9	1.4	7.0	2.9	11.8	100.0				
Easterville (Chemawawin)															
Cod's Lake	3	3		10	3	6	5.1	28.1	26.6	56.2	82.4	22.4	22.4	22.4	
Grand Rapids															
Moose Lake															
Nelson House	2	5	2	11	4	11	4.3	8.2	6.5	43.1	85.0	10.0	10.0	10.0	
Norway House	4	5	2	12	7	11	5.9	1.5	3.9	23.8	10.3	14.8	14.8	14.8	
Oxford House	3	3	3	7	3	7	4.0	14.7	5.8	58.2	74.2	3.9	24.2	4.7	
Pauingasse (Little Grand Rapids)	2	4		8	5	6	1.8	20.2	3.0	40.4	48.0		84.0		
Peguis	5	4	7	13	7	9	6.7		1.4	8.2	99.6	12.9	12.9	12.9	
Poplar River	2	2		6	2	5	4.3	9.1	2.8	12.8	84.8		6.3	5.1	
Pukatawagan (Mathias Colomb)	5	3	2	13	2	7	1.4	21.0	1.3		87.1	87.1	87.1	87.1	
Red Sucker Lake	1	3	4	8	4	9	4.5		19.4	10.6	70.8	47.7	6.2	6.2	
Shamattawa	2	2	2	5	4	6	3.8		6.9	14.4	87.9	9.1	12.1	9.1	
Split Lake	3	4		8	7	10	5.9								
Tadoule Lake (Churchill)															

APPENDIX XI

1975 DEVELOPMENT VARIABLES SCORES BY COMMUNITY

Community	Development Variables						Employment				Housing			
	Communication	Transportation	Sewage Rx and Disposal	Community Services	Recreation Facilities	Organized Activities	Permanent	Seasonal	Permanent Welfare	Seasonal Welfare	Electricity	Bath	Toilet	Running Water
Berens River	3	5	6	11	4	6	1.3	18.2	1.7		76.1			
Bloodvein	2	4		8	4	3	6.6		4.0	14.1	88.9	9.7	9.7	9.7
Cross Lake	4	4	2	11	3	9	1.4	6.9	2.8	11.6	99.1			
Easterville (Chemawawin)	4	5	4	11	4	6					65.0	11.0	11.0	11.0
God's Lake														
Grand Rapids	3	3	4	12	7	9	13.1	20.9	3.6	39.6	100.0	41.5	41.5	42.1
Moose Lake	2	6		12	6	9								
Nelson House	2	4	2	11	4	11	4.3	8.2	6.5	43.1	85.0	10.0	10.0	10.0
Norway House	4	5	4	10	6	12	8.0	2.0			100.0	11.0	11.0	11.0
Oxford House	3	3	3	7	3	7	4.0	14.7	5.8	58.2	73.1	3.8	23.8	4.6
Pauiingassi (Little Grand Rapids)	2	4		7	5	3	1.4	6.9	5.5	6.9	48.0			
Peguis	4	5					4.6	5.1	8.6	2.7				
Poplar River	2	3	3	12	7	11	9.7	9.7	9.7	9.7	100.0	21.0	21.0	21.0
Pukatawagan (Mathias Colomb)	5	4	2	13	2	7	1.4	21.0	1.3	-	89.2	89.2	89.2	89.2
Red Sucker Lake	1	3	4	8	4	9	4.1		17.5	9.6	66.7	44.9	5.8	5.8
Shamattawa	2	2	2	5	4	6	3.8		6.9	14.4	85.3	8.8	11.8	11.8
Split Lake	3	3		8	7	8	5.9							
Tadoule Lake (Churchill)	1	2		2	1									

APPENDIX XII

1976 DEVELOPMENT VARIABLES SCORES BY COMMUNITY

Development Variables Community	Communication	Transportation	Sewage Rx and Disposal	Community Services	Recreation Facilities	Organized Activities	Employment				Housing			
							Permanent	Seasonal	Permanent Welfare	Seasonal Welfare	Electricity	Bath	Toilet	Running Water
Berens River	2	4		13	5	8	4.0	5.6	2.0	3.0	88.7	3.5	2.1	2.1
Bloodvein	2	4	1	9	4	4	4.7	10.6	4.5	.9	94.9	11.5	11.5	11.5
Cross Lake	3	5	2	8	3	11	1.5	7.2	3.0	17.0	99.2			
Easterville (Chemawawin)	3	6		12	4	9					100.0			
God's Lake	3	4	2	11	6	11	5.7	47.8	31.9	51.8	76.6			
Grand Rapids				8	2									
Moose Lake	2	6		12	6	10								
Nelson House	2	6	2	10	5	9	7.5	8.9	16.1	32.3	88.2			
Norway House	4	5	3	12				1.7	3.7	4.8				
Oxford House	3	3	5	6	5	11	4.7	2.2	8.1	12.0	77.5	17.6	16.2	16.2
Pauingassi (Little Grand Rapids)	2	4	1	6	1	2	3.6		66.4		54.5	5.9	5.9	5.9
Peguis	5	4		13	5	6								
Poplar River	2	3	2	6	6	9	9.7	10.2	23.5	10.2	82.1	10.5	10.5	10.5
Pukatawagan (Mathias Colomb)	4	4	4	10	3	6					69.0	10.6	59.3	10.6
Red Sucker Lake	2	3	3	7	2	8	6.5	14.3	5.4	10.8	64.5	1.3	5.1	5.1
Shamattawa	3	2	2	6	4	7	4.9		2.7	13.3	94.3	11.4	11.4	11.4
Split Lake	3	3	1	8	7	8	7.5				94.5			
Tadoule Lake (Churchill)	1	2		2	1	0								

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