

RESEARCH DESIGN
FOR THE
STUDY OF SOCIAL PROBLEMS

by

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for

ALBERTA OIL SANDS ENVIRONMENTAL
RESEARCH PROGRAM

HE 2.2.1

May 1979

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Minister of the Environment
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Edmonton, Alberta

and

The Hon. John Fraser
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Sirs:

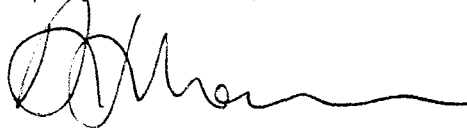
Enclosed is the report "Research Design for the Study of Social Problems".

This report was prepared for the Alberta Oil Sands Environmental Research Program, through its Human Environment Research Committee (now the Human System) under the Canada-Alberta Agreement of February 1975 (amended September 1977).

Respectfully,



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RESEARCH DESIGN FOR THE STUDY OF SOCIAL PROBLEMS

DESCRIPTIVE SUMMARY

BACKGROUND AND PERSPECTIVE

With the increase in incidence of resource development particularly in Alberta, several new towns have grown to accommodate the workers. Several types of social problems have come to be identified with these resource communities.

This present study attempts to identify the social problems that prevail, to assess and analyze them and to design a system of social preventive and rehabilitation measures for the AOSERP study area. The research design will allow the problems to be monitored over a period of 10 years.

The authors suggest four questions which need to be answered by such a research project:

1. What types of social problems are caused for the communities, government and industry by oil sands development?
2. What social, economic, environmental, and cultural variables precipitate these problems?
3. What preventive and rehabilitation measures are available to respond to these problems?
4. Are the responses adequate in relation to the problems?

The theory of change and persistence is discussed. Historically the emphasis of research has been upon understanding the processes which interact within the human environment, not with the process of change. Survival of the human environment depends on the ability to change, and change is necessary as non-renewable resources become depleted.

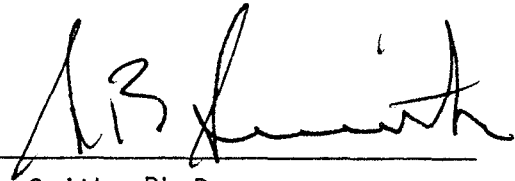
The relevant issues, methodology, and the data collection techniques are reviewed. The study area has been divided into three zones and the types of information to be collected in each zone are discussed.

An extensive bibliography was compiled to survey the published literature dealing with social problems in resource towns. This bibliography has been annotated to display the topics covered by many of the references.

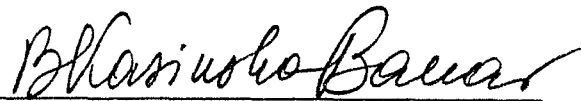
ASSESSMENT

The report entitled "Research Design for the Study of Social Problems" was prepared by Dr. E.W. Van Dyke, Mr. C. Loberg, Dr. D. Bai and Ms. L.M. Church of Applied Research Associates Ltd. The report covers many theoretical aspects of the social problems that can occur in resource towns in general and those of northeastern Alberta, in particular. However, the required level of development was absent from the design of the proposed 10 year project. The bibliography is extensive and will be useful as a reference tool.

The report does not necessarily reflect the views of Alberta Environment, Environment Canada, or the Oil Sands Environmental Study Group. The Alberta Oil Sands Environmental Research Program recommends the report for publication and limited distribution, and thanks Dr. Van Dyke, Mr. Loberg, Dr. Bai and Ms. Church for their contribution.



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ABSTRACT

Resource development has increased in incidence and importance, particularly in Alberta. New towns have grown to house the influx of workers. Several types of social problems have been associated with resource communities, although clear identification is difficult. No long-term study has been undertaken which could provide information to prevent the re-creation of the same types of human problems.

This aspect of our social history indicates that perhaps we are more interested in economics than in the social cost of resource development. The present project is an attempt to complement knowledge concerning the economics of resource development with information concerning social processes. This can help to identify the social problems that prevail, to assess and analyze them and to design a system of social preventive and rehabilitation measures for the AOSERP study area. The research design will allow the problems to be monitored over a period of 10 years.

While some statistical data were collected, most appear to be quantitative in nature. The data provide a context for interpreting the data from the study area to other projects.

The authors suggest four questions which need to be answered by the present project:

1. What types of social problems are caused for the communities, government, and industry by oil sands development?
2. What social, economic, environmental, and cultural variables precipitate these problems?
3. What preventive and rehabilitation measures are available to respond to these problems?
4. Are the responses adequate in relation to the problems?

The theory of change and persistence is discussed. Historically the emphasis of research has been on understanding the processes which interact within the human environment, not with the process of change. Survival of the human environment depends on the ability to change, and change is necessary as non-renewable resources become depleted.

The relevant issues, methodology, and the data collection techniques are reviewed. The study area has been divided into three zones and the types of information to be collected in each zone are discussed. An annotated bibliography accompanies this project in Section 8.

ACKNOWLEDGEMENTS

This research project HE 2.2.1 was funded by the Alberta Oil Sands Environmental Research Program, a joint Alberta-Canada research program established to fund, direct, and co-ordinate environmental research in the Athabasca Oil Sands area of northeastern Alberta.

1. INTRODUCTION

Since the end of World War II, and perhaps doubly so during the last 15 years, resource development has increased in incidence and importance in the Province of Alberta as in other regions of Canada. As people move into the more remote areas from which natural resources are harvested, new towns grow up to house the influx of workers. The explosive growth of such towns generates a wide range of social problems which, correctly or not, have come to be identified with resource communities.

The fact that few persons seem to be able to state clearly what kinds of human problems are caused by, or are associated with, resource development is curious. For all the new towns which have been established in response to resource development in Alberta, no systematic, long-term study has provided information which may be applied to the creation of subsequent new towns. Consequently, after 30 years of resource boom towns, we continue to re-create the same types of human problems as were built into the resource towns of two or three decades ago. Not only are we unsure of the solutions to these human problems; we have no reason to believe that the problems themselves are being identified any more accurately now than they have been in the past.

This aspect of our social history might be interpreted as an indication that we are more interested in the economics of resource development than in the sociology of this process. Yet, perhaps a more inexplicable aspect of this issue revolves around why we continue to view social and economic issues as mutually exclusive. Thirty years after the initial occurrence of modern boom towns in our province, we still do not have the information to assess the actual dollar (let along the social) cost to government and industry of the creation of recurrent (and frequently needless) human problems.

Every government or corporation involved in resource development really takes part in two processes at the same time, namely, harvesting of raw materials and the creation of social situations. Before and during the process of harvesting raw materials, detailed feasibility studies assess the economic viability of the

operation. The economic forecast is based upon the past performance of similar operations. The economic details of past performance are documented so that future operations may be improved.

But the documentation of social processes which are equally integral to resource development has been overlooked. Consequently, at the present time, any social forecasting which might be attempted is based upon intuition because systematic documentation of past performance is unavailable.

As suggested above, practical people frequently feel that social issues are too intellectual and are not reflected on the balance sheet. While it is true that social scientists often are guilty of overzealous crystal ball gazing in ivory towers, is the practical approach beyond reproach? What good is the most precise economic projection if the people who work on the proposed project do not behave as the forecaster assumes they would? The fact that people in real life do not behave according to the ideal mode of the economic man might be the most common cause of both economic and human problems.

Resource development involves socio-economic processes. The present research project is an attempt to complement knowledge concerning the economics of resource development with information concerning concomitant social processes, that is, to generate information and knowledge pertaining to the whole process of resource development.

The overall purpose for Stage A of this study is to design a comprehensive system for assessment and analysis of human problems and social preventive and rehabilitation measures operating within the Alberta Oil Sands Environmental Research Program (AOSERP) study area. The research design will enable the monitoring of these issues for a period of 10 years. While some statistical data will be collected, the type of data required appears to be more of a qualitative than a quantitative nature. Consequently, the study will focus upon the socio-economic processes involved in resource development. The data will also provide a context for interpreting

the statistical data extracted from the study area and through other research projects.

1.1 THE HUMAN ENVIRONMENT

One of the emphases of the Human Environment Committee of the AOSERP program appears to be upon the quality of life in the research area. The linkage between the human environment and the quality of life seems reasonably obvious. Consequently, the tendency is to overlook this linkage in an attempt to rush on to the next step of devising social indicators which will monitor the quality of life. But without a solid understanding of the meaning of human environment and quality of life, and the linkage between the two, the fundamental foundation and context of the research exercise is missing.

For the purpose of this study, then, how may the human environment be conceptualized? There appear to be three general components of the human environment, the bio-physical, society, and culture. As these concepts have some very specific meaning in the context of this project, let us examine each component in turn and then suggest some of the interrelationships between the three.

1.1.1 The Bio-physical Environment

For the purpose of this study, the bio-physical component of the total human environment may be viewed as the total range of natural surroundings which comprise the ecosystems into which man has intruded, or with which humans have interacted, in northeastern Alberta. Furthermore, the discussion is not of the bio-physical environment as it may have existed in some idealized state apart from the intrusion of man. It is of the biological and physical surroundings as they exist at the present time, that is, having been modified to greater or lesser extents by man.

1.1.2 Society

Society refers to a group of organisms (in this case, humans) living in a relationship of interdependence in a specific environment. An additional characteristic of human societies is that each possesses a distinctive culture. For this study, then, a society is a group of people (i.e. a population) living and interacting with one another in the context of a specific natural environment and a distinctive way of life. Because members of a society share a distinctive culture, they are inevitably organized as a means to attain certain culturally defined goals.

1.1.3 Culture

Culture is not simply a reference to dances, songs, and indigenous handicrafts. Culture refers to the total way of life of a society. Culture is an integrated system of beliefs, values, attitudes, behaviors, and the material consequences, which are learned, shared, and transmitted from one generation to another in a given society. From an analytical perspective, components of any socio-cultural system would include the economic system, technology, social organization, political organization, and world view (i.e. the prevailing ideology or way of looking at life; values, attitudes, beliefs, etc.).

The human environment is created by the interaction between the bio-physical, society, and culture. One component does not of itself have a deterministic influence upon the others. Rather, each component of the whole human environment must adapt and adjust to change in the other two (Figure 1).

For example, there are limitations upon the number of people who can be supported by a given environment. In this sense, the size of a society might be governed by bio-physical restrictions. On the other hand, through technology or other aspects of culture, man is able to modify the environment and (again with limitations) to adapt or adjust the bio-physical to his needs.

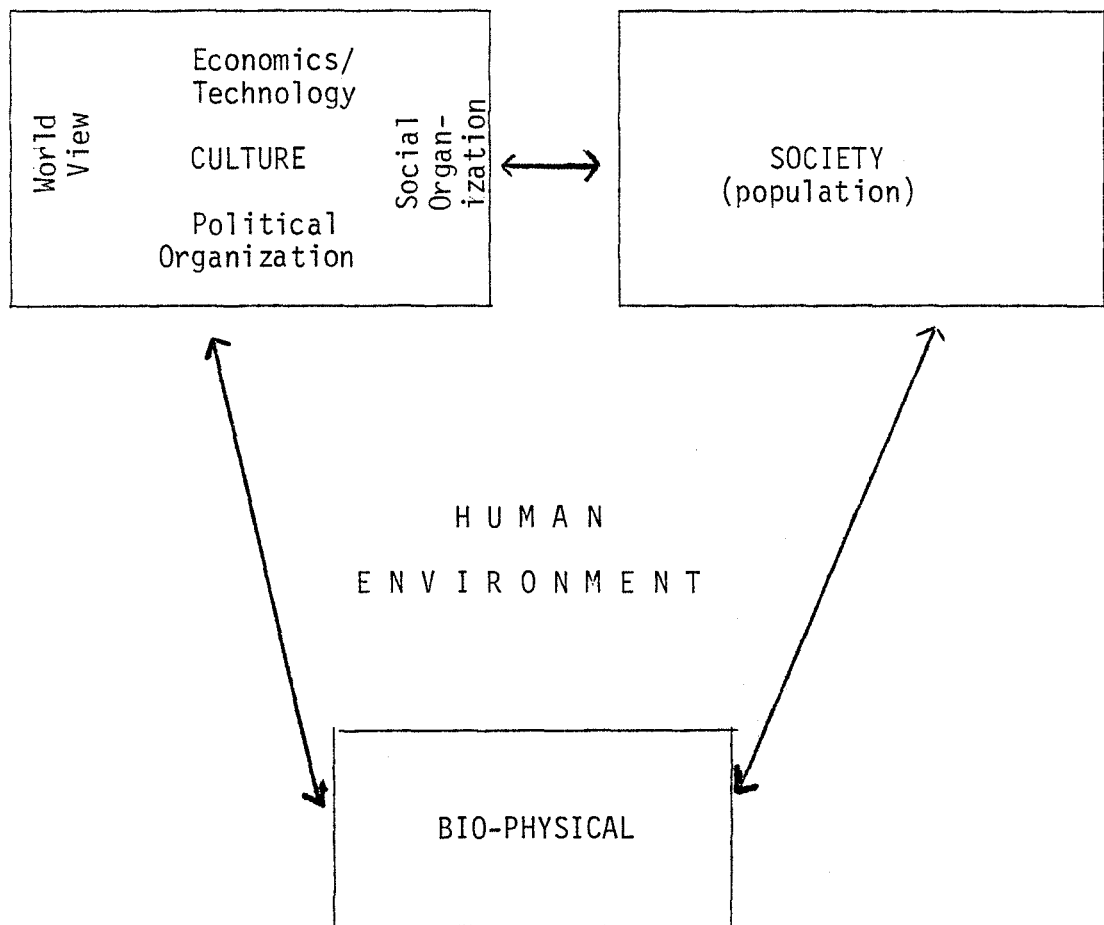


Figure 1. Human environment interactions.

To use another example, various societies relate to their bio-physical surroundings in vastly different ways. According to the world view of our own society, the goal is to dominate, control, or own the bio-physical component. Other societies have stressed living in harmony with, and as an integral part of, nature. Our relationship to nature in part stems from the stress which our world view places upon economic organization and technological achievement.

The important point to derive from this discussion is that man does not interact objectively with his bio-physical surroundings. People do not interact with nature simply according to bio-physical laws. The interaction is always filtered through the medium of culture. As a consequence, the character of the interaction of a given society with nature is always a reflection of the prevailing values, beliefs, attitudes, behaviors, and the accompanying technology. The human environment is not simply the relationship of human organisms (society) with nature (the bio-physical surroundings). It is the total and largely subjective interaction of society, culture, and nature.

Resource development must be seen in this light. The process is not the only way in which man can relate to nature, but is the way in which our society chooses or prefers to interact. Resource development is a product of, as well as a contributor to, our values, attitudes, beliefs, and behaviors.

Accepting the above, how do we link the concept of quality of life to the study of the human environment? The link is subjective and cultural. The positive or negative quality of life in northeastern Alberta is ultimately a value judgement based upon what is accepted as good and bad by resident groups, individuals, governments, and companies.

Through objective, scientific means, we can study the bio-physical surroundings, society, or perhaps even culture. Through such means we may arrange facts concerning the study area. However, to assess the quality of life in relation to the human environment, and to influence government, corporate, and community policy as a

result, takes us beyond science to the realm of meaning, values, and subjectivity. Assessing the quality of life goes beyond identifying the characteristics of a given life style and identifies whether life is good or bad, meaningful, indifferent, and so on.

From an objective, scientific point of view, then, one may be tempted to append the human environment onto some portion of a more general study of the biological and physical environments. From such a perspective, we would view even the roles of people in the environment as an objective and mechanical interaction of biological and physical entities.

But the ultimate end of enquiry is allegedly to influence policy related to easing the negative impact of resource development--that is, the negative impact upon nature, communities, and individuals. From this vantage point, the core of the study revolves around the human environment, the components of which are culture, society, and the bio-physical.

Through the mechanism, one other important point concerning resource development in northeastern Alberta may be understood. The relationship between our culture, society, and the bio-physical surroundings has been imposed upon the relationships between other cultures and societies of the study area and the bio-physical environment. As mentioned above, because of cultural differences, various societies relate to nature in different ways. As a consequence, the impact of resource development is felt in different ways by the various people of the northeastern area. Similarly, the meaning of resource development, including the positive and negative values placed upon various aspects of development, will vary greatly from community to community. In a very real sense, one way of styling the human environment such as through human development has been overlaid upon traditional human environments styled by other societies.

This issue is the focal point of many aspects of human problems in the communities within the study area. Science can assist in gaining knowledge about what is happening with the AOSERP

study area. But the meaning of what is happening, and the policy decisions which give direction to what is happening, go beyond science. They are part of the human environment.

1.2 THE STUDY AREA

Many cultures are represented in the northeastern sector of the province. These include Cree, Chipewyan, and a variety of ethnic groups, most of which share some elements of the traditions of Western civilization. Each of these societies tends to be organized territorially, thus occupying specific geographical areas and ecological zones. In essence, each society with its distinctive culture has established a relationship with nature which defines the character of its human environment. As suggested above, resource development as a characteristic of yet another human environment has been overlaid upon the entire range of these indigenous societies.

The immediate problem is to determine the areas, and the communities, which should be included within the present study. This task is difficult because the relationships of the northeastern communities to resource development vary so greatly depending on such factors as distance from resource extraction sites, social, economic, and ecological impact; cultural difference; size of community. Also, the area included within the scope of research must be manageable by being sufficiently small to be monitored adequately each year through the 10-year life of a project.

Following much discussion and extensive investigation, it became apparent that all communities in the northeastern sector could not fall legitimately into a single category for purposes of this study. Resource development affects Fort Mackay or Fort McMurray in a manner differing in intensity and character from the effects of such development upon Fort Chipewyan, Lac La Biche, or Kikino. If this is true, the research design should differentiate between categories of communities in order to most effectively deploy limited research resources.

Our personnel were of the opinion that this procedure would be desirable both for theoretical and pragmatic reasons. Consequently, the proposed study areas were categorized from the areas experiencing the most direct impact of development to the more peripheral communities. Some persons argued that the boundaries should be extended even further as resource development in northeastern Alberta has direct impact upon, and implications for, the entire province and perhaps the nation as a whole. However, an arbitrary cutoff was made in deference to the manageability of the research project and the nature of the problems to which the present study is addressed. Following is an outline of the three proposed zones which would comprise the study area.

1.2.1 Zone One

The first zone includes the communities and areas which have most directly experienced the impact of resource development to the present time. These are the areas which accommodate the actual extraction plants. Perhaps as the 10-year study progresses, the status of other areas will have to be changed to be included within this zone.

The specific communities included in Zone One are: Fort McMurray, Fort MacKay, and Anzac. At the present time, these communities appear to be experiencing the brunt of the impact of resource extraction activity.

1.2.2 Zone Two

The second zone includes communities and areas which have been affected directly by the development activity in the Fort McMurray area, but which do not have such activity on their doorstep. Such areas have experienced intensive exploration for additional sources of raw materials or may be supplying manpower to the extraction sites in the Fort McMurray area. Included within Zone Two are: Fort Chipewyan; La Loche, Saskatchewan; and Janvier.

1.2.3 Zone Three

These areas and communities will experience some of the direct effects of labour demand and the large scale movement of manpower and materials. However, they are decidedly in a peripheral relationship to the areas of concentrated extraction activity. They experience only the ripple effect of social, economic, and ecological impact. Communities within this category would include: Fitzgerald, Lac La Biche and vicinity, Heart Lake, Beaver Lake, Kikino, Caslan, St. Paul, and Bonnyville.

Figure 2 illustrates the AOSERP study area.

One further point of importance is implicit within the concept of the categorization of the study zones. For purposes of this study, Zone One will receive the most concentrated attention in terms of the research problems; Zone Three will be the area of most diffused forces. At the same time, this research design will permit comparison of relative impacts of development upon these three zones.

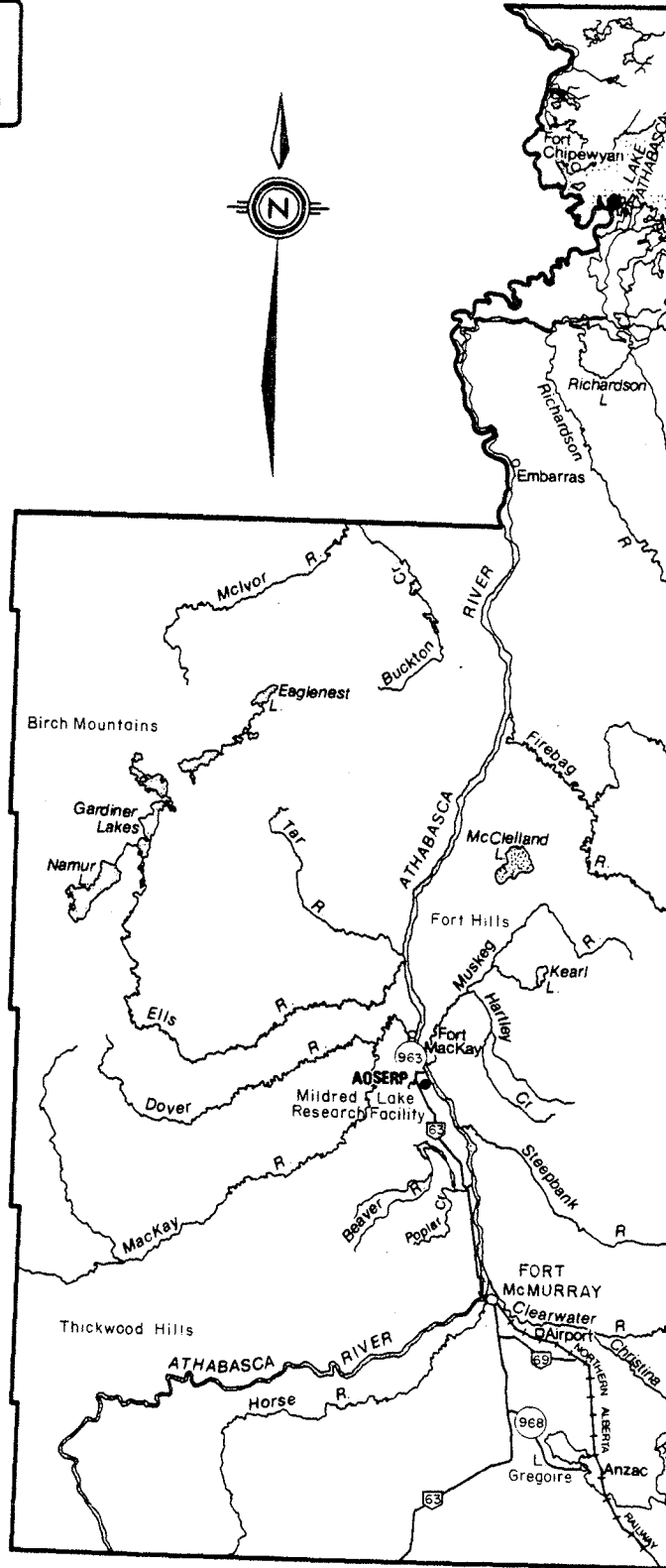
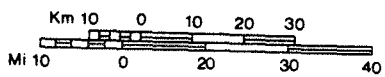


Figure 2. The AOSERP study area.

2. RESEARCH PROBLEMS

At the most general level, four questions are to be answered by the 10-year research project:

1. What types of social problems are caused for the communities, government, and industry by the oil sands development?
2. What social, economic, environmental, and cultural factors or variables precipitate these problems?
3. What preventive and rehabilitation measures are available to respond to these problems?
4. Are the responses adequate in relation to the problems?

Superficially, these questions may appear facile and overly simplified. However, to the planner in government or industry, and above all, to the residents of the communities affected by development, these are the practical questions. To design a research program which will confront these issues directly is considerably more difficult. Turning from the practical questions, for which the client requires an answer, it is necessary to reformulate these problems in a way that will make them practical in the context of research.

The first problem to be examined is: what types of social problems are caused for the communities, government, or industry by the Athabasca Oil Sands developments? This problem may have meaning for the planner and operations person in government or industry, or to the local resident of an affected community. However, it is too vague to be of assistance in constructing an adequate research design. At the same time, the goal of enquiry into the problem is to derive knowledge of direct assistance to such policy makers.

For example, how may the term social problem be defined? Is this an attempt to quantify the incidence of social problems as defined by government agencies or by industry? Or is it an attempt to determine what is troublesome to people who live in the specified communities? What is viewed as a social problem by a community

such as Fort McMurray may not be problematic in the least to Janvier. By experience, then, we have come to the point that we want to ask a more meaningful question for research purposes, namely: what types of social situations are troublesome or vexacious to government, industry, and above all, to the residents of the communities within the study area?

Again, in the first question, the concept the Athabasca Oil Sands development is a very elusive phrase. Of all the complex socio-economic processes and structures implied by this concept must be broken down into component parts in order to be handled by a research design. It is not the generalized concept of resource development which creates problems, but the specific component aspects of this process. What are these characteristics of resource development?

According to previously completed research, resource developments in Alberta appear to share at least six characteristics:

1. relatively large scale and intense economic activity based upon harvesting of natural resources;
2. more or less planned economic activities carried out by large corporations and/or governments;
3. massive or large scale movements of goods and people;
4. the creation of new communities designed to accommodate and to service the labour force;
5. intrusion into, and modification of, the existing human environment that is culture, society, and the bio-physical; and
6. areas of activity (recent in origin) which are away from population centres. Thus, the areas are isolated from other communities.

Beyond these six general features, the character of resource development varies in relation to local conditions and corporate or governmental structures. Even the six characteristics suggested above are too generalized to be of direct value in construction of a research design. In order to understand the nature of relationships between resource development and human problems, ideally we must be

able to examine isolated variables rather than clusters of variables. Thus, if massive or large scale movement of goods and people is a component of oil sands developments, one meaningful research problem might be: what types of social situations caused by transience are troublesome or vexacious to government, industry, and the residents of local communities? Are these problems caused simply by transience, or are there other variables which modify the relationship? (See Appendix 7.1 for other examples of the specific types of issues which might be explored.)

When we ask a question of causation, such as what types of problems are caused by . . . the issue of intervening variables becomes relevant. The second problem is: what social, economic, environmental, and cultural factors or variables precipitate these problems? These intervening variables are the factors which have a bearing upon the assumed causal link. For example, if it is said that resource development causes family breakdown, we could be overlooking a variety of factors, such as transience, affluence, alcohol, which may be intervening variables. Ideally a complete research design would aim at isolating and identifying the intervening variables in inferred causal links.

While this is the ideal, it is not always possible in practice. To infer causality in the relationship between releasing an object and noting its fall to the ground is different then inferring a causal relationship between transience and family breakdown. The difference occurs because both the nature of the data and the context of the problems are different.

Philosophers of science have debated at length concerning how causality should be defined, or even such a phenomenon exists in reality. As a result, the concept has been defined in many different ways. However, in accordance with Simon (1969), we are searching for an operational rather than an ontological definition of causality. The way in which causality is defined, of course, will have important implications for both the methodology and the conclusions related to the study.

Simon (1969:448,449) suggests that from an operational viewpoint, a causal statement should include the following criteria:

1. "It is an association that is strong enough so that the observer believes it to have a predictive (explanatory) power great enough to be scientifically useful or interesting . . . In other words, unimportant relationships are not likely to be labelled causal."
2. ". . . The side conditions must be sufficiently few and sufficiently observable so that the relationship will apply under a wide enough range of conditions to be considered useful or interesting. In other words, the relationships must not require too many "ifs", "ands", and "buts" in order to hold."
3. ". . . There should be good reason to believe that, even if the control variables were not the "real" cause (and it never is), other relevant "hidden" and "real" cause variables must also change consistently with changes in the control variables. That is, a variable being manipulated may reasonably be called "causal" if the real variable for which it is believed to a proxy must always be tied intimately to it . . .

Examples of spurious relationships and hidden-third-factor causation are commonplace. For a single example, toy sales rise in December. There is no danger in saying that December causes an increase in toy sales, even though it is "really" Christmas that causes the increase, because Christmas and December practically always accompany each other.

Belief that the relationship is not spurious is increased if many likely variables have been investigated and none removes the relationship."

4. ". . . The more tightly a relationship is bound into (that is, deduced from, compatible with, and logically connected to) a general framework of theory, the stronger is its claim to be causal."

The data by themselves, then, can never indicate anything more than an association between events. Causality as such cannot be proven. In a sense, the causal link is provided by the mind of

the observer. However, from a practical or operational point of view, the concept of causality helps to explain specifically certain relationships between events.

Simon's operational definition of causality provides a helpful analytical structure for the assessment of data concerning human problems and resource development in northeastern Alberta. However, he goes on to make a further point which provides the core of the construction of the present research design. He demonstrates that the term causal has different meanings to the decision-maker and to the scientist.

"The term "causal" has, and probably should have, different meanings to the decision maker and to the scientist. The decision maker will call a relationship "causal" if he expects to be able to manipulate it successfully. Cigarette smoking may be considered causal by the decision maker who wishes to reduce deaths from lung cancer and other diseases statistically related to smoking, which was the meaning of the Surgeon General's committee's use of the word "cause". But to the scientist qua investigative scientist the word "cause" is likely to mean that the situation does not require further and deeper exploration; in the case of cigarettes, perhaps only one ingredient in the cigarettes does the damage, and the scientist searching for this ingredient may choose to withhold the word "cause" from the cigarettes themselves.

The difference in meaning and use of the causal concept between decision making and "pure" investigative situations is just one illustration of the general proposition that the attribution of causality depends upon one's purpose. Not only may the particular occasion of the term's use differ between policy makers and "pure" investigators, but also the frequency of its use may differ, for there seems to be a difference in the necessity of the causal concept for people in these different roles. The causal concept is perhaps most necessary for policy makers, especially when he is considering changing one variable in hopes of achieving change in another variable. The classification of causal versus noncausal is an attempt to discriminate between situations that he believes allow such control and those that do not" (Simon 1969:451).

In other words, the decision-maker is interested in causality primarily from the standpoint of how different variables function in a given social context. For example, he wants to know how variables such as alcohol or transience or affluence function in the context of resource communities. The characteristics of a functional relationship ". . . are all contextual, that is, they depend upon general knowledge of the situation under investigation, the sort of knowledge that cannot be expressed or proved in formal quantitative terms" (Simon 1969:454).

In summary, then, the research design must monitor four primary issues through a 10-year period.

1. What types of social problems are caused for the communities, government, and industry by the oil sands development?
2. What factors or variables precipitate these problems?
3. What preventive and rehabilitation measures are available to respond to these problems?
4. Are the responses adequate in relation to the problems?

These problems must be solved within the context of a research design which is capable of:

1. demonstrating relationships between social problems and preventive and rehabilitation measures;
2. collecting and integrating comprehensive data concerning these issues;
3. providing a means for assessing by jurisdiction that is municipalities, improvement districts, Indian reserves, the per capita cost of preventive and rehabilitation measures as accrued by government and private agencies;
4. providing a means of analyzing and forecasting the future effect of oil sands development upon the specified communities; and
5. monitoring the above issues throughout a 10-year period.

The 10-year time span should allow insight into the processes involved in (1) resource development; (2) the emanation of

human problems; and (3) the development of preventive and rehabilitation measures. Over the life span of the project, we are not attempting to measure change, but to monitor and to understand the processes of change inherent in the spheres mentioned above.

On an annual basis, the research design also must be capable of assessing the relationship between (see Figure 3):

1. aspects of resource development and perceptions of social problems;
2. perceptions of social problems and preventive services;
3. perceptions of social problems and rehabilitation services;
4. all the above and the quality of life;
5. the quality of life and corporate, government, and community policy formulation; and
6. policy formulation and aspects of resource development.

The process monitoring capability of the research design must then be overlaid upon the assessment of relationships between the project variables. This will provide an overall project model which will allow for diachronic (process through time) and synchronic (structure at a moment of time) analysis. The final model of the research design is illustrated in Figure 4.

Note that one unusual feature of the final diagram of the project design is the initial broken line running from policy to resource development. This is intended to suggest that present approaches to resource development are neither objective nor natural, but are products and consequences of implicit or explicit policy assumptions or decisions.

In other words, present resource development reflects prevailing cultural values, attitudes, and beliefs. This is not the only way that resource development may be approached, managed, or accomplished, but (for whatever reasons) is the way in which it is done. Presumably, the present approach has been generated in whole or in part by some rational process of policy formulation and

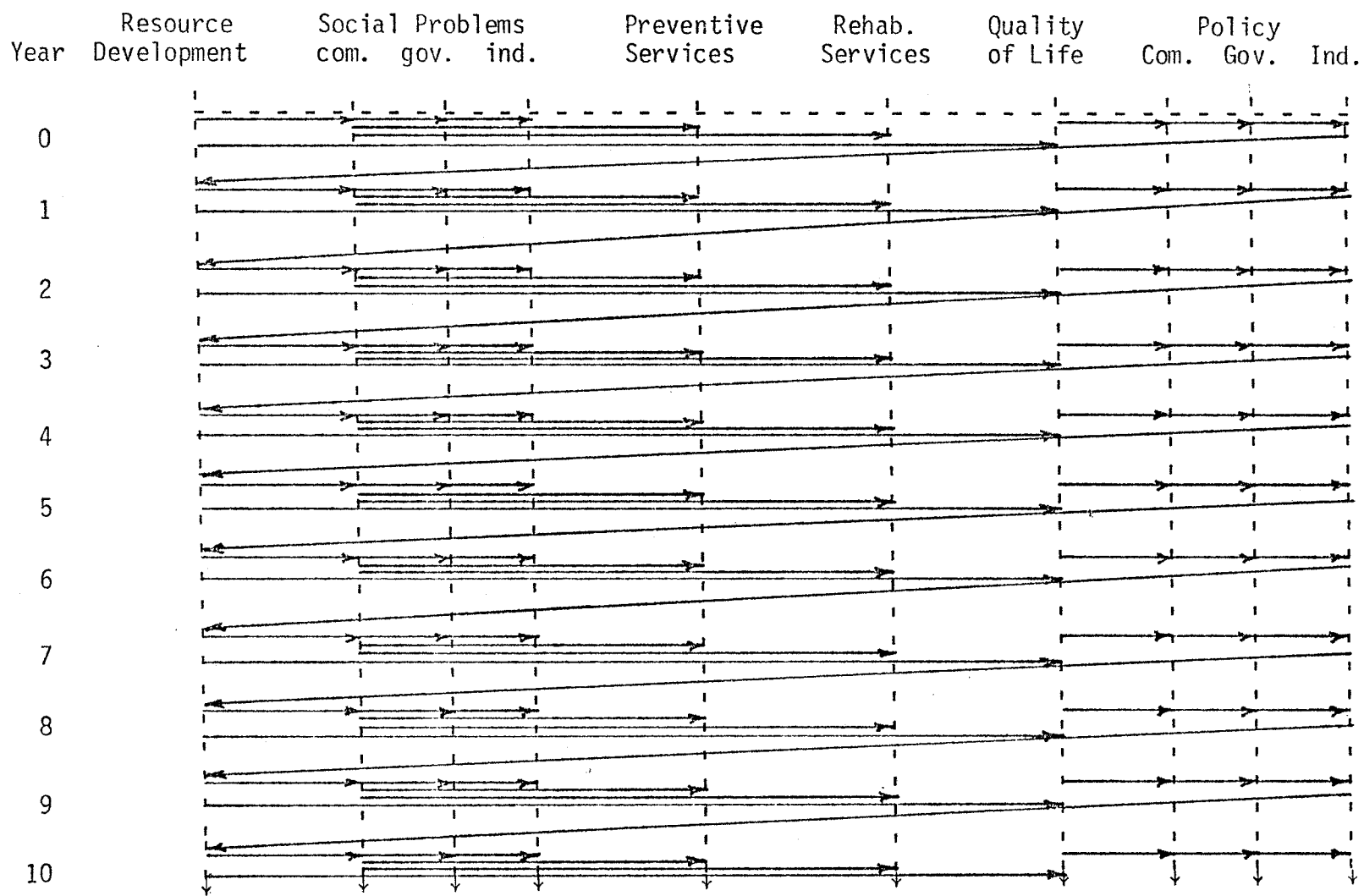


Figure 3. Assessment of relationship between project variables.

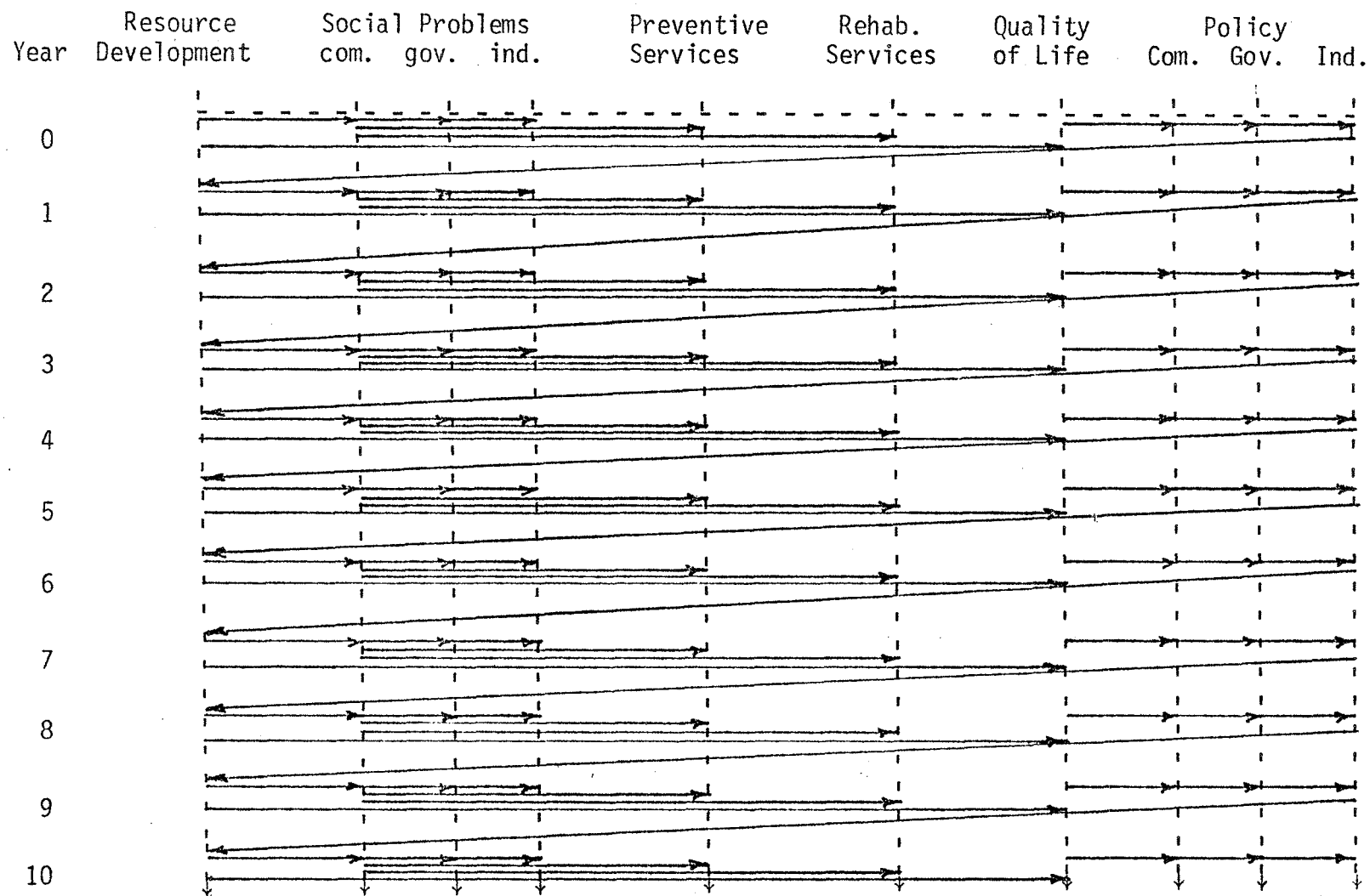


Figure 4. Project design.

development on behalf of the participating communities, governments, and industries. To this end, the entire diagram illustrating the proposed project design is intended to demonstrate that the overall expectation of this study is to assist policy makers to assess and to analyze the nature of the assumptions underlying resource development. The character of resource development may be related to the positive and negative implications which these processes have for human environments, and subsequently, for the qualities of life within these environments. As suggested by the diagram, sequential analyses over the 10-year life of the project may be expected to effect a series of policy changes and thence will produce ongoing changes in the character of resource development.

3. CHANGE AND PERSISTENCE

Before discussing the types of methodology which might be appropriate to the implementation of the proposed research design the issue of socio-cultural changes will be discussed. Two points appear to make change relevant to the present study: (1) we generally assume that monitoring the study over a period of 10 years will provide insights into process of change; (2) we assume (rather vaguely) that the primary impact of resource development upon the study area must be expressed in terms of rapid and dynamic change. Usually, in the latter case, change is viewed as being the culprit, producing tension and stress, or at least providing impetus to negative consequences.

Therefore, if the primary issues to be addressed by this research design were phrased in traditional terms, the statement would include two separate, but related issues: (1) the problem of social and cultural stability; (2) the problem of social and cultural change. Indeed cultural change

" . . . is only one side of the shield; for change, by and of itself, is meaningless, until it is projected against a baseline, measured in time and intensity, and in terms of its extensiveness. Above all, it must be contrasted to the phenomenon that is always opposed to it, the phenomenon of cultural stability --a phenomenon which, in its psychological aspects, is called conservatism (Herskovits 1951:483).

Talcott Parsons makes a similar statement when he claims that "the specificities of significant change could not even be identified if there were no relative background to nonchange to relate them to" (Parsons 1964:83).

In standard studies, stability or nonchange, the static aspect of a socio-cultural system, has been contrasted to, and artificially separated from, change, the latter conceived to be the dynamic aspect of a socio-cultural system.

These same issues, however, may be discussed in a new context and in terms which do not artificially segregate compatible aspects of socio-cultural processes. This concept might be called the process of socio-cultural persistence.

In the social sciences, persistence, as a theoretical phenomenon, is largely ignored. Consequently, while an abundant body of literature exists concerning theories of social and cultural change, direct discussions of social and cultural persistence seem to be infrequent. Perhaps three reasons exist for this apparent lack of interest in persistence.

First, conceptual frameworks such as structural-functionalism, cultural evolution, conflict theory, and other major theoretical perspectives, implicitly recognize limited aspects of persistence. Evidence of this recognition exists in the use of terms such as social integration, social equilibrium, nonchange, cultural stability, cultural conservatism, and resistance to culture change. Such implicit recognition of persistence, without formal attempts to integrate the phenomenon into formal theory, relegates persistence to the realm of the axiomatic. From this position, persistence may be called upon to provide a theoretically stable base for culture so that change may appear dynamic. At the same time, one is not obliged to explain persistence because the phenomenon is self-evident. Thus, viewed from this perspective, persistence remains the constant, the relative background of nonchange, against which the dynamic process of change may be contrasted and measured. In such a case, there remains no need or reason to analyze persistence.

Second, persistence has been understood traditionally solely as a static or negative phenomenon and has been described accordingly in terms of stability, nonchange, or resistance to change. As suggested above, static phenomena tend to be treated as givens. On the other hand, Herskovits recognized that ". . . it is much easier methodologically, to study change than it is to study such a negative oriented phenomenon as stability" (Herskovits 1954:484).

Third, our own cultural bias tends to confront us with the phenomenon of socio-cultural persistence only in the context of pragmatic attempts to execute programs of planned change. Such applied projects tend to concentrate merely on development of a methodology for overcoming resistance to change. Change becomes

the theoretically significant concept, the dynamic aspect of culture. Persistence, on the other hand, is overlooked due to the near fanatical fixation on change which has long been in vogue in the social sciences.

An alternative to static or negative views of persistence might be generated if socio-cultural persistence is conceived to be a dynamic process incorporating three definite characteristics.

First, persistence implies perpetuity in culture. The process by which human beings learn, share, and communicate their experiences from generation to generation that is, through time and from person to person that is, through space is a distinctive socio-cultural process which may be identified as one aspect of socio-cultural persistence.

Concomitant with, supplementing, and contributing to perpetuity is another feature of persistence, a process which cyberneticists refer to as ultrastability.

" . . . Many of the sociologists who are interested in the subject of social change object to the use of all concepts of equilibrium, homeostasis, or stability, arguing that to include such ideas as a central part of theory is to preclude the possibility of dealing with change. They seem to believe that stability and change are not only contradictory ideas, but that the processes themselves are totally incompatible. The difficulty here is not merely semantic: some kinds of stability do negate certain kinds of change. What has been overlooked is that at least one category of stability depends upon and is the consequence of change . . .

An open system, whether social or biological in a changing environment either changes or perishes. In such a case, the only avenue to survival is change. The capacity to persist through a change of structure and behavior has been called ultrastability" (Cadwallader 1964:159).

The concept of ultrastability as it pertains to socio-cultural persistence, contains some important implications: (1) change is understood in context; (2) change is the process of providing social and cultural alternatives to persons and groups in society; (3) by providing for flexibility, change provides for

persistence through time. Elaborations of each of these points is in order.

To begin, ultrastability allows change to be viewed in context rather than as an isolated process. This process is seen against a background of, interacting with, and contributing to, other social and cultural processes. Change in some areas appears to promote persistence in others, in that change is supportive to the process of persistence.

Futhermore, change is integral to persistence in that social and cultural alternatives are supplied to community members by the process of change. As Cadwallader suggests in the passage quoted above, ultrastability as a characteristic of the process of persistence depends upon the behavioral and structural alternatives provided by the process of change being selectively stabilized and integrated into the socio-cultural system. Part of the process of persistence, then, involves the selective normalization and institutionalization, of patterns of behavior and elements of social structure, respectively.

The obvious inference, then, is that change provides for flexibility in a socio-cultural system. Cadwallader's reminder is again pertinent, that in an environment which is changing, an open system "either changes or perishes". Ultrastability, then, contributes to perpetuity and leads to a discussion of the third characteristic of persistence, that is adaptation. x

Adaptation connotes a particular perspective on change which involves change with an environment. In the context of socio-cultural persistence, environment refers not only to the bio-physical, but includes all aspects of the human environment.

From the perspective of socio-cultural persistence, adaptation takes place not only in the sense that socio-cultural system changes with an environment, but also in the sense that the environment itself is modified and changes. This involves a constant reflexive process of feedback between the human organism in society, the socio-cultural system, and the bio-physical surroundings.

In this instance, adaptation does not denote certain types of adjustment to a habitat or ecosystem. Rather, adaptation, as a characteristic of socio-cultural persistence, implies a much broader range of possible change. Adaptive change may take place in value systems, economic systems, political systems, social systems, technology, world view, and so on. Ultimately, adaptation is not a processual end in itself, but rather is a supportive process contributing to the much more dynamic process of socio-cultural persistence. Viewed in this way, we can see that change is not necessarily to be viewed as having a destructive impact, but indeed may be in certain instances a pre-requisite to maintaining and perpetuating a certain style and quality of life. The types of change necessary to accommodate, that is to maintain and to perpetuate a given life style, are themselves a reflection of the quality of life of the society in question.

Resource development is a process integral to the maintenance of our present quality of life, whether that quality be assessed as being positive or negative. Such development involves the imposition of our style of human environment upon wilderness areas or upon other types of human environments. Resource development is the adaptation of our society to the existing human environment as well as the modification or adjustment of the existing environment to meet our needs. In any confrontation between two or more societies, the question is one of which human environment will persist in the face of adaptive change.

The socio-cultural and bio-physical impacts of this struggle for persistence is great. We know that the struggle produces human problems. One of the critical questions usually overlooked by researchers is: are the problems a reflection of the negative impacts of resource development or are they attributable to the lack of complete establishment of our human environment? In other words, are the problems caused because resource development has occurred and created rapid change, or because change has not yet completed the imposition of our life style upon the existing environment? Probably there are

some problems attributable to each factor, but it would be helpful to be able to identify in which of these contexts the various problems may be understood.

The northeastern portion of the province is of interest not merely because the impact of resource development has created some human problems, but because we are able to see in isolation the struggle for survival of our human environment in relation to the similar struggles of other societies indigenous to the area. Seen in such perspective, the positive and negative aspects of our human environment and assess its desirability as well as its potential for survival can be analyzed.

In summary, the diachronic emphasis of the research is upon understanding the processes which interact within the human environment in a context of resource development. Measurement of change is not the objective.

Second, other human environments are on a collision course with our own. They will either change in order to survive or they will die.

Third, the nature of our own human environment will be forced to change increasingly as non-renewable resources are expended. Alternately, we may be forced to change drastically the values upon which our human environment is constructed in order to avoid exhausting the supply of non-renewable resources.

4. METHODOLOGY

It is a difficult task to structure an appropriate methodological design for a study of this nature. Therefore, before providing a description of the specific methods and techniques which have been chosen, a brief discussion of some of the more complex issues of relevance may be of assistance in demonstrating the trade offs implicit in the final methodological structure.

Indeed, such trade offs have occurred of necessity. This point must be stated explicitly and without apology. It is of great important that we recognize where, how, and why it has been necessary to structure the methodology as has been done.

Extensive experience in addressing similar types of methodological problems has taught that methodological excellence (in the best tradition of objective or value free scientific enquiry) may be expected to conflict with some of the inconsistencies and unpredictability of human behavior. Also, because of the values, attitudes, and beliefs cherished by individuals and communities, concepts such as random samples, directed interviews, and so on, sometimes cannot be useful because the people who are the subjects of enquiry will not tolerate such interference. Consequently, at points in the present study where by experience we anticipate such conflicts, they have been resolved in favor of the presentation of the integrity of human behavior rather than the modification of human behavior filtered through an excellent, but inappropriate, model of data collection and analysis.

While this procedure may be somewhat disturbing to hard headed scientists, we are not going to make the data appear to be more objective than they really are. It seems more appropriate to gain imperfect knowledge concerning what people really do than to achieve perfect documentation and analysis only of those facts which fit a specific methodological model.

Deutscher (1966:239) attributes the following statements to La Piere:

"The questionnaire", he observed, "is cheap, easy, and mechanical. The study of human behavior is time consuming, intellectually fatiguing, and depends for its success upon the ability of the investigator. The former method gives quantitative results, the latter mainly qualitative. Quantitative measurements are quantitatively accurate; qualitative evaluations are always subject to the errors of human judgement. Yet," he concludes, "it would seem far more worthwhile to make a shrewd guess regarding that which is essential than to accurately measure that which is likely to prove quite irrelevant."

The foregoing comments must not be construed as an argument to condone or to excuse shoddy data collection and analysis. On the contrary, the value of the proposed work depends entirely upon the attainment and maintenance of unprejudiced and disciplined rigor in data collection, and fair-minded and intellectually honest analysis and interpretation of the data in the context of their indigenous human environment. This is a level of investigative and interpretive excellence which is achieved rarely through the (allegedly objective and value free) scientific study of human behavior. Instead of identifying and recognizing its implicit value structure, such an approach to scientific enquiry denies that it is bound by a value structure at all. Ideally, the goal of all systematic, fair-minded and rigorous enquiry into human behavior must be to recognize and to make allowances for the values which are inevitable, rather than trying to assert that science itself is not the product of a very distinctive value system and world view.

A further problem associated with the construction of a methodological design for the research is that people do not always behave as they say they do. So much of the data collected by social scientists ignores this fundamental fact. A variety of data collection techniques focus squarely upon merely asking people via questionnaires, interviews, and so on what the nature of their values, attitudes, beliefs, and behavior might be. Only infrequently

is any check made to ascertain whether or not a difference exists between words and action.

As suggested above by Deutscher, one of the primary reasons for the use of questionnaires is that they are cheap, easy, and mechanical. Answers are also easily quantified.

For these reasons, certain aspects of the present study will revolve around varieties of survey techniques. However, when such techniques are not supplemented by other methods which emphasize qualitative data, they are to be accepted with some measure of suspicion. This study is an attempt to integrate quantitative and qualitative data to create more comprehensive concepts and to expand understanding, though the primary focus is upon eliciting qualitative information to complement other studies.

In Section 2 of the present document, social problem was defined as a social situation which is troublesome or vexacious to persons from communities, government, or industry. This implies that we will have to ask people from each of these groups to offer their perceptions of the positive and negative aspects of the quality of life in their respective human environments.

Because people must be asked to identify and describe the nature of situations which are troublesome, the data will be based upon personal perceptions. Individuals are being asked what they believe to be true. People are asked to identify the cause of the problem, they will give their individual and personal perceptions of the causes.

Two very important points must be made concerning this issue. First, what people believe to be true is sometimes of more importance to the social scientist than what is objectively true. This is because people act upon what they believe to be true rather than upon what is objectively true.

Second, because the data are based upon personal perceptions, that is, what people believe to be true, statistical manipulation of the data might be interesting and even useful in some instances to demonstrate correlations between variables or the intensities of problems. However, a high correlation between alcohol abuse and family breakdown only provides mathematical indices of perceived relationships between variables. Certainly such cannot be accepted as proof of causality from an ontological perspective.

Precisely for this reason, the preceding theoretical discussion provided operational rather than ontological criteria of causation. Having come full circle, we may now appreciate why both the person experiencing troublesome social or personal situations (problems) and the policy maker vested with the task of solving these problems must be interested in causation from an operational rather than an ontological point of view. The methodology which has been constructed has had to reflect this point.

4.1 DATA COLLECTION

Throughout all aspects of the study, data will be collected via personal interviews. No mail out questionnaires will be used at any time. Questionnaires will be used as needed by the interviewers solely as an aid to structuring data in a manageable form. While some information requested by the interviewers will be subject to quantitative analysis, aspects pertaining to the informants' perceptions of resource development, social and personal problems, and the causal connections between the two, will be recorded on the basis of open-ended, informal interviews.

Random samples may be attempted in most communities, though they will likely prove to be difficult in native communities. Where necessary, an interpreter will have to be used for interviews with informants who do not have facility in English.

The general methods and techniques of data collection will be similar in all three study zones. The focus upon social problems, preventive, and rehabilitation measures also will be the same in each of the three zones. As suggested above, the intensity of coverage will be greatest in Zone One and least in Zone Three.

4.1.1 Zone One

Interviews in Zone One will include four categories of information:

1. residents of the communities within the zone, selected where possible on the basis of a random sample of households, including all geographical areas of the communities. Eighty respondents would be required from Fort McMurray, 10 from Fort MacKay, and 10 from Anzac;
2. representatives of provincial and federal government agencies in the communities. All agencies would be interviewed;
3. representatives of the 20 companies with the largest employee rolls; and

4. representatives of all public and private agencies involved directly in developing and delivering preventive and rehabilitation programs.

The above mentioned interviews would require approximately three-man months of time annually to complete. The information is required from each of the four categories of respondents is illustrated in Section 7.3.

In addition to these interviews, another type is planned for Zone One only. At the beginning of the study, 20 families should be selected from Zone One and asked to participate in a more intensive type of interaction. Every 3 months throughout the 10-year life of the project, members of these households should be interviewed to gain information concerning the detailed, ongoing positive and negative aspects of living in the resource community. The objective would be to maintain an ongoing diary record of problems and positive points with emphasis placed upon how these issues emanate, the motivation for moving into the resource area, and the methods and effectiveness of problem resolution. If any of these families move from the resource community, we would want to record motivation, rationale, and so on. Families moving away would be replaced on the intensive interview list with a new family moving afresh into the community.

These intensive interviews appear to be the only means by which we may establish an in-depth record of the overall dynamics of moving to, living in, and leaving a resource community.

4.1.2. Zone Two

Excepting the intensive interviews just described above the types of information and the four categories of informants would be similar in Zone Two to those applied in Zone One. The only additional information required would be to ascertain whether members of the households interviewed leave their home communities to work in Zone One. Ten households from each listed community in Zone Two should be interviewed annually in addition to those listed in points

(2), (3), and (4) under Zone One above. Zone Two interviews would require one man-month of time annually.

4.1.3 Zone Three

The structure of annual interviews in Zone Three should be identical to those of Zone Two. Because of the large geographical area included within Zone Three, the overall coverage will be less intensive. Zone Three interviews would require approximately six man-weeks of time annually.

In addition to the annual collection of field data from the study zones, the bibliographical data in the card index system will have to be expanded as required. Rather than attempting this on an annual basis, the task should be generally ongoing throughout the life of the project.

With the exception of the intensive interviews to be conducted on a continuing basis throughout the 10 year life of the project, all data gathering should take place during the first four months of each fiscal year of the project. Analysis could be completed during months 5, 6, and 7, with a completed report of the analyzed results published by the ninth month of each fiscal year.

4.2 ANALYSIS

The annual analysis of the data will be structured according to the relationships illustrated in the Project Design. Each year, analysis will provide:

1. an indication of the nature of resource development;
2. community, government, and industrial perceptions of social and personal problems;
3. an indication of the perceived causal linkages between aspects of resource development and social and personal problems;
4. the orientation, content, and cost of preventive and rehabilitation services; and

5. insights into the overall assessment of the quality of life in the communities within the study area.

The production of an annual report focusing upon these issues should be of practical use and consequence to communities, government, and industry. Such reports would expose these interest groups not only to the information derived from research, but also to policy recommendations which are the consequence of research. The ongoing monitoring of these issues also will indicate the effect of policy and program modification during these years. The final report at the conclusion of the 10 year study should be able to pinpoint the processes of socio-cultural persistence and change in the communities within the study area.

One problem area is anticipated in relation to the methodology and analysis. In attempting to determine the per capita cost of preventive and rehabilitation services by jurisdiction in the study area, significant difficulty in disaggregation of statistics is expected. Also, the methods of maintaining records will differ greatly from program to program. Consequently, it is difficult to predict the degree of precision with which this task may be completed.

5. CONCLUSION

In conclusion, we might ask legitimately what expectations we may have for the proposed study if it is maintained over the proposed 10 year period. Perhaps these points may be summarized concisely below.

1. The research will provide a quality of information which is impossible to achieve through the more common quantitative types of studies. As a result, the quantitative studies will be able to be interpreted in the context of human environment of the communities in the study area.
2. Consequently, the results should be eminently practical, particularly for the field personnel of government and industry. Such persons consistently and legitimately are frustrated by the ethereal and unhelpful nature of research projects pertaining to social problems and solutions.
3. The study will document year by year the key variables in the development of resource communities. "If one knows the present values of certain key variables and the stability or rates of change of these variables, then one can predict the values of these variables, and many others, at any future time" (Cancian 1964:114). The study will provide the very contextual foundations for assessment of persistence and change without which prediction of any aspects of the social dynamics of resource communities is impossible.
4. The study will provide a record of the intensity of various social and personal problems at points throughout the period of study.

5. The research will provide insights into the motivations for migration into resource communities as well as for leaving them.
6. The research will pinpoint the degree to which preventive and rehabilitation measures focus upon the problems of people as viewed by residents of communities, government, and industry. Are the programs addressing real problems?
7. The research will provide an indigenous assessment of the quality of life.
8. The study will indicate many of the variables which can be manipulated to construct and to control the nature of the human environment.
9. The study should reveal the plight of native and other indigenous peoples as their human environments are encroached upon by the superimposition of our human environment.
10. The research will demonstrate that the character of resource development is not controlled by immutable natural laws, but is the product of arbitrary cultural values, beliefs, attitudes, and behavior. As such it is subject to change in relation to arbitrary policy decisions.
11. The total program of research should be able to remain within very reasonable parameters of cost.

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7. APPENDICES

7.1 BACKGROUND RESEARCH

In 1974 and 1975, Applied Research Associates Ltd. participated in a study sponsored by the Northern Development Group. The central problems addressed by the study were similar to those confronted by the present study. The major difference in the two studies is that the former attempted very broad and relatively superficial enquiry throughout northern Alberta while the latter is able to focus upon more deep enquiry over a relatively long period of time.

The initial study indicates that at least in northern Alberta, resource development and more specifically, resource communities, share nine major characteristics:

1. Relatively large scale and intensive economic activity;
2. More or less planned economic activities carried out by large corporations or governments;
3. Areas of activity recent in origin which are away from population centers. Thus, the areas are isolated from other communities;
4. Massive or large scale movements of goods and people;
5. Establishment of communities which frequently lack physical amenities and/or a stable social structure;
6. A high percentage of broken homes;
7. A local government which does not have the freedom to facilitate local self-determination and development of the community;
8. Intensification of personal and social problems, most of which have been imported from other communities by people looking for solutions to personal and social problems; and

9. Displacement or assimilation of native communities and disruption of traditional patterns of life.

Using the above information as examples of some of the specific characteristics of resource development (though many others could be suggested), some of the associations (between resource development and social and personal problems) which would be of further research interest may be stated as follows:

1. The economic affluence of resource communities is associated with personal debt. An inverse relationship appears to exist between the apparent affluence of the community and the incidence of personal debt experienced by residents of the community.
2. Government and company planning in relation to resource communities is associated with a lack of social expertise. Social planning tends to concentrate on physical amenities rather than people problems.
3. Development of single industry resource communities is associated with government and company planning.
4. Fear of the wilderness is related to isolation in resource communities, because a large segment of the population of resource towns has been imported from non-isolated areas.
5. Large scale movement of people into resource communities is associated with problems of mixing incompatible groups of people from diverse cultural backgrounds.
6. The economic opportunities offered by resource communities seem to draw people who have been unsuccessful in other types of communities.
7. Massive movements of people into resource communities intensify the problem of transience.
8. Transience is associated with community apathy and lack of participation in community affairs.

9. Lack of physical amenities is associated with the rapid construction of resource towns, or with older resource towns.
10. The high incidence of family breakdown in resource communities is associated with sexual promiscuity, removal from kin groups, men working away from home for long periods of time, and the fact that resource towns are constructed to cater to the needs of men rather than women.
11. Problems in resource communities are associated with the activities of government in emasculating the autonomy of the local community.
12. Media activities in relation to reporting on resource communities are associated with intensification of social and personal problems in the community.
13. Attitudes characterized as the Great American Dream are associated with importing problems into resource communities.
14. Alcohol abuse serves as a catalyst to intensify social and personal problems.
15. Resource development displaces native communities and prevents native communities from normal economic participation in the larger society.

While none of the above-mentioned associations could be proven to be causal from an ontological perspective, from an operational point of view causation might be more readily inferred. However, the important point for the moment is that these associations illustrate how the concepts of resource development and social problems must be broken down into specific components before one may deal with a meaningful research problem.

7.2 LITERATURE SURVEY

As suggested in the proposal submitted by Applied Research Associates Ltd., the literature survey was structured in the form of a card index system capable of being maintained on an ongoing basis throughout the 10-year life of the project. Each item included in the survey is represented by at least three cards, filed by subject, author, and title. Annotations have been included where possible. We believe that the constant maintenance of a card index system is more advantageous for research purposes than to conduct literature surveys or to produce bibliographies only at specified intervals.

All subject entries are presented in abbreviated form with the complete entry cross-referenced under the author entry. A complete list of subject headings used for the index system is available if required.

The bibliographer has pointed out that in an effort to focus upon the immediate topics at hand, and to avoid duplication of existing bibliographical material, the following categories of material were omitted:

1. Community Development Literature. While some aspects of this literature had to be included because of its subject nature, several completed bibliographies already exist in this field.
2. Town Planning Studies. Area economic development plans and similar types of material have been omitted unless they specifically address some aspect of social or personal problems.
3. Newspaper Reports and Articles. As this type of material is already available in catalogued form from the Edmonton Journal Library as well as from local newspapers, such articles are not included in the bibliography.

Specifically, the types of materials upon which the bibliography focuses includes the following categories:

1. Material relevant to resource development in Alberta, Yukon, Northwest Territories, and the remainder of Canada, in this order of priority.
2. Significant literature related to similar development in other areas of the world.
3. Literature relating to various theories of economic and social development in general.
4. Most materials are extracted from the time period from 1960 to 1975.

With few exceptions, the materials included in the card index system are available from at least one of the following sources:

1. The Library of the University of Alberta;
2. The Boreal Institute Library;
3. The Legislative Library; and
4. The Library of the Native Secretariat.

A few entries have been added from private collections.

7.3 STRUCTURE OF FIELD INTERVIEWS

7.3.1 Community Residents

1. Study Zone?
2. Community?
3. Occupation?
4. Length of time in community?
5. Non-grade school training?
6. Marital status?
7. What types of social problems do you perceive in your community?
8. What types of personal problems are you experiencing?
9. What are the causes of the social problems?
10. What are the causes of the personal problems?
11. What are your reasons for believing that the causes are as you state them?

12. What are the positive aspects of living in your community?
13. On a scale of 0 to 10 (bad to good, respectively) how would you rate the quality of life which you are experiencing in your community?
14. How may the above-mentioned problems be solved?
15. Who should be responsible for solving social problems?

7.3.2 Representatives of Government

1. Study Zone?
2. Department, branch, or agency of government?
3. Area of jurisdiction?
4. What types of social problems does your agency perceive in the communities within its jurisdiction?
5. Who is experiencing these problems?
6. What are the causes of the problems?
7. Does your agency maintain statistical records of the nature or intensity of these problems?
8. Does your agency attempt to solve these problems or actively to liase with public or private agencies who do attempt problem solution?
9. Who should be responsible for solving social problems?
10. How may these problems be solves?

7.3.3 Representatives of Industry

1. Study Zone?
2. Type of industry?
3. Length of time in community?
4. What types of social problems do you perceive in your community?
5. Are these problems similar to those you have experienced in other communities where your company has operated?
6. Who is experiencing these problems?

7. What are the causes of the problems?
8. How can these problems be solved?
9. Who is responsible for solving these problems?
10. Is there a dollar cost to industry which may be attached to these problems?

7.3.4 Preventive and Rehabilitation Agencies

1. Study Zone?
2. Area of jurisdiction?
3. Name of agency?
4. Public or private?
5. Source of funding?
6. Number of employees?
7. Purpose of program?
8. Content of program?
9. Cost of program by jurisdiction?
10. Number of people served annually?
11. What types of social problems do you perceive in the communities which you serve?
12. Who is experiencing these problems?
13. What are the causes of these problems?
14. Who is responsible for solving these problems?
15. How successful is your agency in solving the problems to which it addresses itself?
16. What are the reasons for success and failures?

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A comparison of social tensions that are faced by the earlier industrializing western European and Anglo-American countries and those that are presently the concern of the recently modernizing non-western and semi-western societies.

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of members of the society to the attempted innovations. This must be more than an intuitive feeling for the culture or an awareness that it is somehow different from western culture.

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10. AOSERP RESEARCH REPORTS

1. AOSERP First Annual Report, 1975
2. AF 4.1.1 Walleye and Goldeye Fisheries Investigations in the
 Peace-Athabasca Delta--1975
3. HE 1.1.1 Structure of a Traditional Baseline Data System
4. VE 2.2 A Preliminary Vegetation Survey of the Alberta Oil
 Sands Environmental Research Program Study Area
5. HY 3.1 The Evaluation of Wastewaters from an Oil Sand
 Extraction Plant

6. Housing for the North--The Stackwall System
7. AF 3.1.1 A Synopsis of the Physical and Biological Limnology
 and Fisheries Programs within the Alberta Oil Sands
 Area
8. AF 1.2.1 The Impact of Saline Waters upon Freshwater Biota
 (A Literature Review and Bibliography)
9. ME 3.3 Preliminary Investigations into the Magnitude of Fog
 Occurrence and Associated Problems in the Oil Sands
 Area
10. HE 2.1 Development of a Research Design Related to
 Archaeological Studies in the Athabasca Oil Sands
 Area

11. AF 2.2.1 Life Cycles of Some Common Aquatic Insects of the
 Athabasca River, Alberta
12. ME 1.7 Very High Resolution Meteorological Satellite Study
 of Oil Sands Weather: "a Feasibility Study"
13. ME 2.3.1 Plume Dispersion Measurements from an Oil Sands
 Extraction Plant, March 1976

15. ME 3.4 A Climatology of Low Level Air Trajectories in the
 Alberta Oil Sands Area

16. ME 1.6 The Feasibility of a Weather Radar near Fort McMurray,
 Alberta
17. AF 2.1.1 A Survey of Baseline Levels of Contaminants in
 Aquatic Biota of the AOSERP Study Area
18. HY 1.1 Interim Compilation of Stream Gauging Data to December
 1976 for the Alberta Oil Sands Environmental Research
 Program
19. ME 4.1 Calculations of Annual Averaged Sulphur Dioxide
 Concentrations at Ground Level in the AOSERP Study
 Area
20. HY 3.1.1 Characterization of Organic Constituents in Waters
 and Wastewaters of the Athabasca Oil Sands Mining Area

21. AOSERP Second Annual Report, 1976-77
22. HE 2.3 Maximization of Technical Training and Involvement of Area Manpower
23. AF 1.1.2 Acute Lethality of Mine Depressurization Water on Trout Perch and Rainbow Trout
24. ME 4.2.1 Air System Winter Field Study in the AOSERP Study Area, February 1977.
25. ME 3.5.1 Review of Pollutant Transformation Processes Relevant to the Alberta Oil Sands Area
26. AF 4.5.1 Interim Report on an Intensive Study of the Fish Fauna of the Muskeg River Watershed of Northeastern Alberta
27. ME 1.5.1 Meteorology and Air Quality Winter Field Study in the AOSERP Study Area, March 1976
28. VE 2.1 Interim Report on a Soils Inventory in the Athabasca Oil Sands Area
29. ME 2.2 An Inventory System for Atmospheric Emissions in the AOSERP Study Area
30. ME 2.1 Ambient Air Quality in the AOSERP Study Area, 1977
31. VE 2.3 Ecological Habitat Mapping of the AOSERP Study Area: Phase I
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