CHAPTER ONE

INTRODUCTION

According to K. Scott Wood's review of DIAND efforts to improve social reporting in the Canadian North, the early 1970's brought a "new sensitivity to the 'fallout' from economic growth (that) was clearly reflected in the way policy priorities were stated." (Wood, 1974:3.) This new sensitivity resulted in large part from an abrupt change in the scale of economic and social impacts and from some unhappy experiences with the "unforeseen consequences of public policy" which had been intended to protect and/or benefit the local population, but which because of a lack of understanding of local situations, had had negative side effects. (Ibid:6.)

As with almost all other early attempts to create a social reporting and accounting system, the DIAND sponsored approach took the form of using a variety of social indicators which were designed to "complement the economic information." (Wood, 1969:iv.) However, as the list of potentially important indicators grew, so too did the confusion over their interpretation. It therefore became apparent that the application of simple social and economic indicator approaches to the "statistics of direct normative interest" (Wood, 1974:11.) was not so simple after all.

Wood identifies several apparent problems with the existing approaches. In essence, these problems arise from the confusion over levels of indicator application and interpretation, the "marginality fallacy", and the lack of a conceptual model of the whole social environment for which indicators were intended to supply meaningful verification and interpretation.

The first of these problems is essentially taxonomic, that is, there was often a considerable confusion about what should or could be measured in this way. Wood observes that there is a distinction between "informational", "predictive" and "evaluative" indicators. If inappropriate indicators are

used this will inevitably lead to analytic distortions in the subsequent analysis. However, this problem appears to be secondary rather than primary.

By contrast, the two other problem areas he identifies do appear to us to be fundamental. Although Wood does not explore it very deeply, the "marginality fallacy" refers to the fact that most of the established economic indicator models, which are taken as the basis for social indicator development, assume that analysis and sound decision making can be guided by the economists concept of marginal utility. Unfortunately, social preference decisions rarely reflect this homo economicus reasoning, and as Wood correctly points out, contemporary Northern development characteristically takes the form of the imposition of an enormous economic and social impact on small communities, or even the creation of communities where none had existed before. Thus the application of the marginal cost-benefit model of economic analysis, which assumes that a whole range of economic institutions and processes are already in existence, and that the impact is merely a modification of that system, is fallacious. In the case of pre-existing communities, Northern development initiatives all too often represent not a shift in circumstances at the established social and/or economic margin, but rather a hammer-like blow on the whole community that far exceeds the adaptive tolerance limits of the original population. The results have frequently been examples of dislocation, exclusion, and marginalization, which cause considerable concern.

By the same token, the many attempts at creating "instant communities" on the northern resource frontier have generally been evaluated in strongly negative terms. Although the case study literature identifies many problems here, the common theme appears to be a failure in the formal planning process which often involves both corporations and governments, to provide for the natural growth of locally responsive economies.

There is also frequently an inability, or unwillingness, to allow for the informal establishment of locally relevant social institutions, and, most critically, recruitment and sorting mechanisms for new potential settlers. Indeed, one of the greatest ironies to be found in the "instant community" syndrome is the attempt by planners to recreate in isolated and remote locations, with adverse weather conditions, what they perceive to be the most desirable aspects of urban industrial life, which are usually conceived of as a well planned suburbia not too close to the industrial plant. The result has almost inevitably been a disappointment from most points of view. Not only has it proved impossible to create some satisfactory approximation of urban existence but in attempting to do so, the more challenging alternative of attempting to design environments that would be compatible with the growth of viable rural community life is systematically excluded. Not surprisingly, the hoped for recruitment, and more importantly, the retention of workers with strong attachment to urban values, which are assumed to be essential to the mastery of industrial skills, has been in general a failure. The alternative possibility of recruiting (and if necessary retraining) those who have established rustic values and commitments is foregone because of an almost ritualistic insistance on the maintenance of the facades of urban institutions.

In both the "impacted COinffillnity" or the "instant community" situation, the application of conventional indicator approaches that grow out of southern urban industrial experience and assumptions appears to us to be more likely to distort than to uncover the variables that reveal the relevant reality.

The above comments, which go some distance beyond Wood's own observations on the marginality fallacy, lead directly to the problem that Wood saw as most serious, that is, the absence of an appropriate conceptual framework that would permit the abstraction of locally relevant socio-economic indicators in

the first instance, and then guide their later interpretative application within the realm of policy decision-making. In the absence of such a "social system model" randomly selected indicators run the risk of becoming the untested and untestable assumptions about reality rather than the operational tools by which to derive insights and data about the relevant reality. As such, they became at best arbitrary: at worst, meaningless. As Wood congently states it:

> There seem to be several conceptual problems involved in developing a system of social accounts . . . which can be used to guide policy. First, if what we want is an integrated social accounts model of the whole "relevant" social system, which generates indicators that illuminate causal relationships and have, therefore, predictive capability, we must be able to identify in a comprehensive way the component parts of the[relevant] social system. However, this identification will necessarily be rather arbitrary as long as we lack a sufficient general social theory. Second, the absence of a social theory, specifying components of the [local] social system and their relationships, has at least two repercussions for the construction and interpretation of a social information system: (1) we have no guarantee that it is more than partial and subjective since the system does not build on a body of scientifically validated theory, and (2) in many cases the social statistics used will not be capable of normative interpretation. (Wood, 1974:11.)

It is this lack of a conceptual framework through which the locally relevant variables and operationally valid indicators could be abstracted and then normatively interpreted that motivates our own efforts in the field and defines our critical point of departure. However, before proceeding to the articulation of our own "approach to social reporting in the Canadian North", it may prove useful to extend Wood's critique by reviewing his own pilot study.

We have already indicated, by our additions to Wood's passage, that we perceive a fairly serious problem in Wood's description of what is required in a general conceptualizing theory. Specifically, we added to the above quotation the bracketed words "local" and "relevant". These editorial

injections were consciously intended to reverse what emerges as a latent assumption, i.e., that the missing conceptual model should be nomothetic in character. That is to say, it should establish the primary indicator variables in such a way that these variables carry equal force in all situations. While this nomothetic assumption accurately reflects the widespread social scientific bias that views the introduction of modern economic activity as necessarily transforming virtually all pre-existing social and economic institutions into a homogeneous commonality (the "convergence" theory), we question this assumption's validity in its application to Northern hinterland venues.

As an alternative, we would argue that at a minimum, the ideographic approach to model-building should be tried. Specifically, we suggest that any predictive model-building intended to inform social policy decisions about the likely effects of impending impacts on Northern communities should be abstracted from this northern environment itself. Such a predictive model most definitely should not employ the established indicators and conventional wisdoms that have been abstracted from urban industrial contexts. Nor should such a model assume that all northern communities are homogeneous with respect to each other. On the contrary, the quest for a valid and reliable interpretative model capable of informing northern development policy formation must in the first instance focus precisely upon existing and locally unique, social, economic, and political institutional parameters. This is necessary because they represent a very full range of indigenous forms of reactive adaptations, objective and subjective, to past impacts, which have been both positive and negative in character.

It is important here to reiterate that in arguing for local studies as the beginning point for model construction we are seeking to build a general model with a wider potential for application in the north and not simply arguing for an endless accumulation of unique community studies. By

focussing this pilot study on a few carefully selected sample communities that seemed likely to reveal a range of essentially diverse possibilities, we hope to establish valid indicators and also a calculus of predictive inference that could be returned after further refinement to any part of the northern hinterland in the context of abstracting information relevant to a variety of policy applications. The function of a model so developed is to ensure that it is the northern operant reality itself that is abstracted rather than imposing through the research some alien criteria that makes no sense at the local level. In our design of this pilot study we anticipated that such a model would take the form of a typology at its most abstract level; that this typology would reflect a common set of polar variables; that the identification of the relevant variables (and their derived indicators) would be the principal aim of the pilot study design; and that this design would apply comparative field study techniques to a set of hinterland communities that had been carefully selected on the basis of prima facie evidence of having encompassed the relevant impact experience and adaptation.

It is, of course, with the advantage of five years of further experience that we are able to criticize Wood's own pilot study approach which takes as its point of reference a variety of Federal government policy statements on northern development goals. These are the externally articulated and highly universalistic statements about "National objectives for Canada in the North". They rhetorically pledge support for such things as "maintaining sovereignty over the north", improving the "viability of the northern economy", the "maintenance and enhancement of the northern environment" and "future development that would benefit all Canadians". While we accept such statements as indicative of a sincer_ commitment on the part of the Federal government to achieve some optimum balance between local protection and national benefit, we have to question their relevance as conceptual

guidelines in developing research models that might, with some reasonable reliability, identify local interests, needs and problems.

Indeed, the set of indicators which Wood develops as relevant to this conceptual guide are the same as those commonly employed as social well-being measures in the urban industrial context. They are:

1. Criminal Conviction Statistics (e.g., arrest rates)
2. Education Statistics (e.g., grade completion rates)
3. Income and Family Size Statistics
4. Migration Statistics
5. Political Participation Statistics (e.g., voting participation)

Indeed, Wood's himself questions the validity of such statistics in the remote northern communities from which he abstracts the data, but then defends them as having the advantage of being comparable to national averages. When Northern rates are in due course compared to national averages, it can hardly come as a surprise that the northern rates diverge significantly from the overall (meaning urban and southern) rates. But what does this divergence imply with respect to northern reality, and what is its importance to real as opposed to rhetorical policy formation? Does it mean that policy should attempt to reduce the differential, increase the differential, or ignore the differential? What do the residents of the North feel to be the meaning of such statistics when they are used by southern policy makers? Are the differentials between northern communities more or less significant than the differentials between all northern and all southern communities? And even assuming that all these interpretive problems could be sorted out, which is not possible from the standard statistical sources, what alternative indicators are perceived to be more relevant by the study populations?

The above is not, of course, meant as a condemnation of Wood, who clearly understands (or anticipates) all the points

that we are making. Rather, it is a measure of the extent to which his own observation regarding the lack of a relevant conceptual framework impaired his efforts at incremental improvement. It is therefore the aim of this pilot project to develop such a framework which can be applied to northern communities which are being impacted, or will be impacted, by various foams of industrial development.

CHAPTER TWO

PILOT STUDY - FIELD WORK

For our pilot project we required an accessible northern research venue in which a range of communities are located that will undergo, have undergone, or are undergoing impact from some form of industrial development. Such a venue should provide sufficient variation in community reaction to impact to allow for a wide range of observations. As we noted in our proposal, the research venue "should include instances of many patterns of community adjustment and disruption so that several values of each relevant variable can be observed".

We began our study with a preliminary conceptual model which had been developed from the experiences of some of the research team as residents of, or visitors to, communities in that part of northern British Columbia described as The North West, and geographically defined by the Provincial Districts of Bulkley - Nechako, Kitimat - Stikine, Skeena -Queen Charlottes, and the unincorporated district of Stikine. As we indicated in our original proposal to DIAND,

> In essence, it extends from the off-shore Queen Charlotte Islands easterly through and beyond the summit of the coastal mountains and into the central plateau; and from the Northern Trans-provincial Highway (H.W.16) north to the Yukon border. It contains some 75,000 people of which one-third are Natives and the remaining two-thirds are equally divided between long-term and shorter-stay EuroCanadian residents.

Within this geographical area the communities chosen for study in this pilot project are Masset, Skidegate, Kitimat, Stewart, Smithers, Haselton(s), Houston, and Aiyansh.

The research for this pilot project was undertaken in these particular communities because they had characteristics which we thought would be significant as we sought to explore and expand our tentative conceptual model. They are located in an area that has undergone a number of waves of development

ranging from early settlement and resource extraction, through the completion of the Grand Trunk Pacific Railway which sparked further resource development, to the latest wave of development based upon the forest and mining industries as well as the electrolitic smelter operation at Kitimat. They include economic activities ranging from subsistence activities and wage labour, as well as locally and externally controlled economic activities. Some of them are predominantly Native communities which have been subjected to varying types of Euro-Canadian contact over a relatively long period of time, i.e., Masset, old Haselton, and Aiyansh. Others have a predominantly Euro-Canadian population, i.e., Kitimat, Stewart, Smithers, and Houston. This choice of predominantly Native and Euro-Canadian communities provided a limited opportunity for an examination of the interaction between the two groups. Some of the communities have undergone large scale industrial development, one is an instant community in an area where there was no previous settlement, while others have been impacted by resource developments which have been opened up and closed down several times. This has resulted in the development of communities that exhibit different levels of industrial impact as well as different levels of economic viability, social vitality, and political efficacy. As we said in our proposal to DIAND,

> . . . North West British Columbia because of its past experience with impact from external economies and because of the variety of patterns of adjustment to or disruption by such impacts, provides an ideal venue for observing the full range of impact consequences and forming more adequate understanding of important local processes previously ignored in impact research.

We began the fieldwork for this project in June 1979 when field headquarters for the pilot project were located in Smithers, which is one of the principal research venues.

The first step in the field operations was to finalize a list of respondents who would be interviewed by the field staff during the summer months. These respondents were not chosen on any random sampling basis, but as representatives of the range of social and economic institutions in each of the communities. We selected, for example, Native and non-Native residents; those who had resided in the community prior to the impact of industrial development; those who favoured the development and those who opposed it; individuals who had spent their whole lives in the community versus those who were transient; and individuals representative of the major industry or industries and from various occupational levels. Each respondent was contacted prior to the interview and was given a brief summary of the aims of the project before permission for the interview was sought. In most cases, the response was affirmative. Some difficulty was encountered in fitting a timetable of interviews into the busy work schedule of some local residents, particularly ranchers, whose relatively short summer working season left little time for long interviews with social researchers.

In this interview situation it was important for the success of the pilot project for the research team "on site" to be accepted by the local coulinunity. Not only did the aims of the project have to be understood, but the individual researchers had to be trusted. Such trust could only be gained by a complete openness about the project, and a willingness to enter into the activities of the community as much as time and physical strength allowed. Thus, for example, during one day, one of the researchers found himself hoeing potatoes; this was followed by stooking bales of hay, driving a truck as others loaded it with hay, and finally helping to unload the hay. Despite this succession of exhausting physical demands, interviews proceeded as the work progressed. This sensitivity to local cultures is paramount always, but is of particular importance when seeking the co-operation of Native informants. Not only must the researcher be aware of the

relationships between Native and non-Native, but also between Natives of different bands who may live side-by-side, for example, the Gitksan and Carrier bands around old Haselton. An understanding of the central historical as well as current issues which affect those relationships is of great importance if productive fieldwork is to be undertaken. Also of major importance in this regard are the political issues of Native land claims and other more general demands. These issues are highly politicized and emotionally charged, and it behooves the fieldworker to be sensitive to the feelings involved. We were particularly aware of these problems during our fieldwork in old Haselton where we met a representative of the local Native band. It was obvious from this interview that if we wanted to interview band members our pilot project would have to be vetted by band representatives who would require some commitment on our part to provide them with the collected data, and they would then decide if they would release it to us. While we were able to interest the representatives of this band in our pilot project we failed to persuade them to leave control of the data to us. Representatives of other Native bands were more forthcoming and co-operated fully in the interview situation.

These interviews were a voyage of discovery in the sense that we had tentatively charted a conceptual course, but the conceptual landmarks had yet to be proven to exist in different types of communities. Our major effort was directed at the construction of a theoretical model, not an empirical test of the model. For example, before entering the field we had thoroughly analyzed in conceptual terms the idea of community social vitality which we hypothesized would be related to the degree to which members of a community participated in either economic or social collective activities. We further assumed that the degree of collective participation would be related to certain social psychological responses of individuals which might be classified according to the well known Mertonian typology of retreatism, conformity,

ritualism or innovation, Werton,1957,Ch.I0. In our interviews we tried to ascertain from interviewees' responses if this relationship existed. In fact, from the evidence we gathered in this pilot project it appears that it does. We should emphasize, however, that while our field interviews enabled us to reformulate our conceptual model in its application to a number of communities, only future impact investigations in other northern hinterland communities can determine the viability of our model for an understanding of these impacts in terms of policy issues. The crucial test of the model described in Chapter 9 will come when it is applied in future studies of impact situations.

Another intended consequence of our pilot interviews was to ascertain the feasibility of various forms of data collection, and if possible the validity and re1ibility of measures of some of the variables in our tentative conceptual model. For the most part the formulation and reformulation of concepts was undertaken on the basis of lengthy open-ended interviews, in which responses were elicited to questions related to the variables in the model. Since we were in a preliminary conceptual stage we considered this type of open-ended interview had greater flexibility than an interview based on a closed questionnaire, or the completion of a questionnaire by respondents. As the fieldwork proceeded the content of the interviews became more structured due in part to the gradual development of the model on which interview questions were based, and in part to the growing closeness of the connection between model variables and respondents' answers. This latter development was due to the increased familiarity of the field staff with the details of a model which was becoming less tentative as the interviews proceeded, and to the growing sensitivity of interviewers to cultural differences, and the particular political, economic, and social concerns evident in different hinterland communities. For example, it is only when subjective responses, in the form of values

and attitudes, associated with a particular industrial impact in their community are elicited from respondents that the interviewer can have some assurance that he or she is not ignoring these differences. Questions about impacts on communities generally would not elicit them, particularly if the researcher's idea of community structure and processes had an urban bias. For these reasons we think that the flexible, open-ended interview was the most effective means of obtaining data from community residents at this point of our research.

We believe that any test of our model and the accompanying methodology should include a pilot phase in which the open-ended interviews, based on a previously constructed tentative questionnaire, is undertaken. Such a pilot phase would enable researchers to test the reliability and validity of questionnaire items as well as providing an opportunity for eliciting information about the ways in which respondents' perceive the unique feature of their hinterland community.

We mention this concern about the appropriate methodology in this type of research venue, because so much of the literature on social impact assessment assumes that the methodology used in the contemporary urban setting can be used in research in hinterland communities. Although we think that that typical urban phenomenon, the sample survey, could be tried in this type of research venue, we think that it should be used in conjunction with other methods such as those we have mentioned.

Throughout our fieldwork we constantly attempted to recruit the necessary local field staff. However, we arrived in the field at a time when possible recruits had already made summer work commitments. Fortunately, however, we were able to recruit two research associates, both of whom had worked on the earlier model formulation and whose names appear on this document.

Concerning the training of Native field staff we were made aware of the project undertaken by the Gitksan-Carrier tribal council which has been devised in consultation with faculty members in the Department of Sociology and Anthropology at Carleton University in Ottawa. In this ten week project five Gitksan and Carrier band members attended Carleton University for training in basic social science research skills, including survey methods, in order to conduct research related to land claims and socio-economic development. If this venture is successful, and it shows every indication of being so, similar training programmes could be launched for other Native communities, one aim of which could be to undertake part of the fieldwork which is necessary to obtain the data required for a socio-economic impact study.

CHAPTER THREE

METHODOLOGY

Methodological underdevelopment is a major problem for those attempting to assess the socio-economic impact of industrial development (Flynn, 1976). Olsen and Merwin (1977:43.) are very clear about this state of affairs. As they say,

> Thus far, virtually all social impact assessments have been made on an ad hoc (and often haphazard) basis, with no attempt to ground the work on any kind of theoretical foundation or to employ a methodology that could be replicated by others. Two serious consequences of this condition have been the absence of any continuity among social impact assessments that would render their findings comparable or cumulative, and the lack of any attempts to perform social impact research on current or completed projects to ascertain their actual social consequences.

Our discussion of the methodology of social impact assessment should begin with a definition of the concept. Social impacts refer to changes in the economic and social life of a community or region that occur over a period of time and interact with the causal agent(s) in a reciprocal fashion. (Olsen & Merwin, 1977.) In this pilot project we have attempted to develop a methodology of impact assessment in northern hinterland communities. This is based on the tentative model of social impact specified in

the next Chapter. Future studies which use our developed conceptual model and its accompanying methodology will be able to evaluate their utility for the study of community economic viability, social vitality, and political efficacy. Concepts and Indicators

Within each of the communities which were the focus of our pilot study our aims were threefold. First, to examine economic conditions to determine the validity of the notion that economic behaviour could be analyzed in terms of its relation to the community's degree of economic dependence on or independence of the existing regional, provincial, or national economy. This we call community economic viability. Secondly, to study the community's patterns of social behaviour to ascertain the extent to which they could be described as "privatized" or "communitarian". This we call community social vitality. Thirdly, we explore the extent to which the community's economic viability and social vitality are associated with the mobilization of political power or processes. This we call political efficacy. We see these three areas of community activity as intersecting and interrelated in the manner which is described in due course.

One of the main purposes of our field studies in these communities was to develop further this tentative conceptual model. Another major aim was to develop indicators of the variables which reflected our theoretical concepts. From our review of the literature we were

aware of the indicators which had been used in other studies, many of which appeared to lack any such basis. Without a theoretical model many investigators of impact assessment rely on their experience in an urban environment to suggest the range of community institutional patterns and processes which could be impacted. As indicated in our literature review, this results in check lists of community characteristics and activities and indicators based upon them which it is assumed will be affected by the impacting agent.

Our methodology is grounded in the conception of community process and change in which the current objective economic, social, and political structures of the community exist in a subjective social psychological climate of attitudes and values. These existing community conditions, but particularly the prevailing economic conditions, are most likely to influence the type of industrial development that will be considered for implementation. The development will have economic, social, and political impacts which will interact and be both direct and indirect. These impacts will provoke social psychological reactions among community members which will determine the conununity's collective responses to the impact. In their turn, these collective responses may influence the way in which the consequent economic and social changes take place.

We have noted in our literature review that social impact methodology must take account of the amount of change that occurs between two time periods. We should attempt to determine how much of that change is the result of a particular industrial development as opposed to the other economic and social changes occurring in the community. Social indicators help us to meet this requirement because they can reflect change in measurable terms. The magnitude of impacts resulting from industrial development is based upon the comparison of the values of the different indicators before and after development. Olsen & Merwin, (1977) provide a formula which is constructed as follows:

$$\text{Impact} = \begin{matrix}\text{Indicator at time} \\ \text{2 with innovation}\end{matrix} \qquad \begin{matrix}\text{Indicator at time} \\ \text{2 without innovation}\end{matrix}$$

We should again stress the importance of indicators of community variables in this measurement process. Furthermore, such indicators should be capable of aggregation or disaggregation appropriate to the level of analysis. In effect we accept Land's (1975:17.) specification of social indicators

> as components in a social system model (possibly including socio-psychological, economic, demographic and ideological aspects) or some particular segment or process thereof. Thus, for any particular social condition, social indicators are specified when some conception of the relevant social process is stated. (Italics in original.)

In an earlier work, Land (1971) specified that social indicators should be collected as time series which could be aggregated or disaggregated as required by the conceptual model on which they were based.

The Need for Social Indicators

The need for social indicators reflecting social and economic conditions emerged in the 1960's. But this need appeared to be satisfied by the economic indicators which were available such as the gross national product, or per

capita income. It was not until the social upheavals of the late 1960's, such as minority rights movements, race riots, political extremism and militancy, along with widespread evidence of social and political alienation that it became clear that economic indicators alone were not reliable as predictive measures of social change or potentially volatile social issues. There emerged a realization on the part of policy makers that social, i.e., non-economic indicators should be developed and utilized as an additional tool to help in understanding societal change. However, these changes cannot be systematically analyzed through an array of social and economic indicators that are based on normative assumptions about acceptable social goals such as those included in the statement of National Objectives, Priorities, and Social Guidelines which Scott Wood (1974) describes. As Land (1971), Henderson (1974) and others have indicated social indicators should be in the form of a time series and based on a model of a social system.

In the United States and Europe, attempts have been made to construct a set of social indicators that would more adequately reflect existing social conditions than the presently available statistical series. Towards a Social Report (1969) published in the U.S. sought to bring together available data in a manner that would provide an accounting of social conditions in that country. Over the past few years the OECD has developed a uniform system for the reporting of a wide range of social indicators to be obtained from individual respondents. In Canada, Statistics Canada now periodically publishes Perspectives Canada which contains an array of data which is an attempt to bring together available statistics in the form of a social accounting for the country. As we noted earlier, in 1974, K. Scott Wood produced a report which proposed a framework for social reporting for the Canadian North. His arguments for promoting better social indicators in that part of Canada are threefold.

The first has to do with the growth of government spending in the North and the consequent need for an adequate social data base; the second is based on the need to monitor social change and the impact of industrial development; and the third is the need for data about northern Native peoples who are being impacted by industrial development. We need not discuss his work further except to say that it shows an urban bias and that in some respects his work is similar to that of Henderson (1974) in his work on social indicators for the Economic Council of Canada, and the work of the OECD previously referred to. Another example of an attempt to organize a social reporting system in the North is the report by Palmer & St. Pierre (1974) on Monitoring Socio-Economic Change which aimed to establish these factors that were relevant to an understanding of the socio-economic impact that would occur in the communities along the route of the proposed Mackenzie Valley gas pipeline, and to design a system for obtaining these data.

Objective and Subjective Indicators

The predominant characteristic of the social indicators noted above is that they are objective in that they measure some characteristic state or condition such as income, housing aensity, unemployment, and other objective measureable characteristics of the social order. Such gross standardized measures ignore the quality of the inaividuals experience. Land (1975) suggests a model of social indicators which consists of three domains of the individual's life-space; objective conditions, subjective value contexts, and subjective well-being. As part of the objective conditions of the person's life-space he includes roles and social relations. We recognize this point in our literature review, where we state that "social phenomena consist of human activities in space". It is these activities, what people actually do in their daily lives, which is central to an analysis of community change.

Attempts to construct indicators in the two other measurement domains specified by Land (1975), which we refer to as subjective indicators, have been stimulated by the gap, in many situations, between economic growth and satisfaction with the quality of life of people facing different economic circumstances and social conditions. For example, does industrial growth, higher incomes, more and improved housing and other improved life situations necessarily agree with people's values, expectations, and aspirations, and lead to people perceiving the quality of their lives as being improved? What is the relationship between economic growth in a community, people's economic expectations and aspirations, and their satisfaction with life in that community? Marvin Olsen argues in Towards a Social Report (1969) that these objective social indicators tell us very little about the state of society. They ignore concerns with health, education, family life, culture and so on. Even in the area of income, where time series data has long been available, measures of income distributions and levels exist but we do not have measures of the satisfactions that derive from income.

The values and attitudes, expectations and aspirations, which underlie the daily activities of human beings are critical in determining community reaction to the conditions of social life. They are an important element in community vitality; they affect the social relations between its members which may enable them to formulate local policies and actions and thereby to exert some control over the nature of the changes created by impacting industry.

The social life of a community consists of activities in a number of life domains such as family, employment, education, leisure, friendship, health, housing, and so on. In each of these areas the individual guides his or her behaviour according to the appropriate values, attitudes, expectations, and aspirations learned through socialization.

A person's level of satisfaction with the existing conditions in a specific area depends upon the extent to which he or she perceives them as conforming to expectations and aspirations. In other words, it is these subjective elements that govern his or her reaction to objective conditions within that community.

Our review of the literature on social impact assessment indicates the difficulties involved in developing a methodology of this type of impact using indicators of community change and people's subjective reactions. However, if these impacts can be monitored in a summary manner in the form of objective and subjective social indicators based on the specific social, economic, and political conditions which prevail in the northern hinterland, prior to, during, and after, industrial development, the policy maker has an invaluable tool at his disposal. As Blishen et al. (1975:6.) point out

> The evaluation of the effectiveness of policy and policy options is significantly enhanced by the existence of social indicators. The existence of baseline data on a range of carefully chosen social phenomena allows the detection of the effects of policy changes if the level of aggregation of the indicators is sufficiently detailed to support the development of models.

They go on to say that

> As long as social indicators are collected at the national or other large aggregated level, their use in policy evaluation will remain minimal.

In each of the areas of community life specified by these researchers an objective data base is set up consisting of the available statistics disaggregated by census enumeration areas wherever possible. In addition to this data base, additional objective data are obtained from each respondent in a national sample concerning the objective conditions of their life including their activities in each of these domains. For example, respondents report family size, family life activities, employment status, employment

activities, education level, type of leisure activities, and amount of leisure time, number of friends, health status, type of housing and a number of other objective indicators of their social and economic condition. In addition, each respondent provides information on life goals, values, attitudes, and expectations, and is asked to specify his or her reaction to these objective conditions in terms of the level of satisfaction, according to a scale of satisfaction, in each of the specified domains. The methodology for the measurement of satisfaction levels has been amply reported by social scientists in other studies as well as by the York University group. Of particular interest for socio economic impact assessment is the relationship between objective and subjective indicators. For example, we might expect a linear relationship between income and satisfaction with financial status. Such is not the case: satisfaction with financial status depends upon initial financial aspirations, the existing gap between aspirations and present income and other variables, such as age and education. Similarly, we might expect a linear relationship between age and satisfaction with health; that is, as a person grows older and is afflicted with an increased amount of illness, as well as more severe illness, satisfaction with his or her health would decrease. Such is not the case: satisfaction with health tends to decline as a person grows older until retirement age or thereabouts when satisfaction levels off at a fairly high level.

These examples show that the relationships between objective conditions a person experiences in a community, including the roles that person plays, and that person's level of satisfaction with those conditions, is sometimes quite complex and unexpected. In all probability this would be the case in northern communities particularly those being impacted by industrial development or undergoing economic growth for some other reason. For the policy maker with some responsibility for the economic and social welfare

of these communities, a knowledge of these relationships as they affect economic viability, social vitality, and political efficacy would be invaluable.

The Subjective Indicator Debate

The argument against subjective indicators is based upon claims concerning difficulties in their measurement and their questionable utility. The difficulties in measurement have been thoroughly studied by Bradburn (1965), Wilson (1967), Andrews & Withey (1974), Andrews (1974), Campbell, Converse & Rodgers (1976), Andrews & Withey (1974), and McKennell& Atkinson (1978). As Blishen et al (1975:9.) point out, these investigators have found

> that (a) people do know (or at least think they know) what they think or feel; (b) they will answer questions about these feelings and do so in a reliable way; (c) their reports are slightly biased in the positive direction but their bias has no major effect on the results and can be corrected, and (d) perceptual indicators remain fairly constant over periods of up to six months (there are no data available to assess longer periods), and a good deal of the change in these indicators over time can be attributed to changes in the circumstances of an individual's life.

The assertion that subjective indicators lack utility, particularly with respect to informing public policy fails to see the link between the individual's subjective reaction to objective conditions, and the actual objective conditions. To quote Blishen et al (1975:10.) once again, public policy

> is not designed to affect perceptual phenomena in a direct manner. Rather, policy is intended to alter certain objective circumstances of people's lives, e.g., their standard of living, educational opportunities, available health care facilities, etc., in order to improve the quality of their lives. The crucial element in relating perceptual indicators to policy formation is the link between perceived quality of life and specific objective indicators. Put simply, perceptual indicators could tell policy makers what effect changes in objective indicators will have on the quality of life as experienced by the population.

For example, Atkinson (1979:16.) has shown that differences in income are related to differences in levels of life satisfaction. He points out that:

> Over the ten-year period 1968-1977, the satisfaction levels of the lowest quartile of income distribution improved, those of the highest quartile worsened, while the levels of the two middle quartiles remained remarkably constant. This means that it is becoming increasingly difficult to predict levels of life satisfaction from income characteristics. In short, income appears to be losing its effect as a conditioner of life satisfaction.
> (Italics in original.)

This is surely an important finding for policy makers who are associated with income policy and economic growth. If income is losing its importance in relation to other factors as an explanation of differences in perceived life satisfaction, then it behooves the policy maker to ascertain the nature of these other factors, In Canada's north where industrial development is impacting hinterland communities, the policy maker must be aware of the relationship between objective economic and social conditions and people's subjective reaction to them. If incomes rise because of industrial development, it does not necessarily follow that people's satisfaction with their financial position or the quality of their lives would rise also.

Some Objective Community Indicators

In order to ascertain the levels of economic viability, social vitality and political efficacy in any community, we must specify the variables and their accompanying indicators that reflect these conditions. Our conceptual model provides us with a range of variables and indicators for each community, for which a limited amount of data are available from local, municipal, provincial and federal sources.

We should caution the reader that the limited amount of economic, social and political data that are presently available from existing statistical series, such as statistics

on income levels or educational levels reflect some of the formal institutional arrangements of the community. But little, if any, data are available which deal with individual behaviour - what people actually do - which reflects the less formal but often more important range of actual economic, social and political arrangements in a real community. We will have more to say about these data later. In addition, it is necessary to emphasize that an understanding of the development of a community, including its reaction to past economic impacts, requires an historical perspective so that the objective data base should include time series wherever possible.

(I) Economic Viability:

There is a range of community economic indicators which are related to economic viability, and for which a limited amount of data are available. These are: - economic base, industry ownership and control, market scope, income, and occupational structure. Each of these indicators may be specified in terms of a number of measures of objective conditions as indicated in the following list, but if we are to construct the full range of indicators noted here additional data would need to be obtained at the community level.

Objective Indicators of Community

Economic Viability

1. Bases of community economic activities
   - trapping
   - mining
   - logging
   - fishing
   - agriculture
   - retail trade
   - government service
   - etc.

2. Ownership and Control of Community Enterprises

- source(s) of capital: individual, local group, provincial, national, multinational ownership
- form of management
- range of managerial decisions
- type and extent of community consultation

3. Size

- capital investment including local capital
- size of labour force
- capital per employee

4. Market Scope

- location of markets
- linkages with other marketing enterprises
- supplies and services purchased locally
- extent of local market
- linkages with other local enterprises

5. Occupational Structure

- occupational categories
- source of labour force
- economic sector
- geographic area
- target groups, e.g., Indian, women, ethnics, unemployed, etc.
- ratio of male/female employment
- recruiting mechanisms
- productivity
- skill levels, e.g., dependence on certified vs. uncertified skills
- extent of occupational pluralism
- labour - management relations
- pension benefits
- days lost due to industrial conflict

6. Salaries and Wages

- levels of salaries and wages
- amount of salaries and wages paid by enterprisesin the community
- hours of work and seasonal fluctuation.

(II) Social Vitality:

The objective indicators which are related to social vitality for which a limited amount of data are available are: population, education, housing, health, welfare, protection, social pathology, fiscal status, communications, and leisure. Each of these indicators may be specific in terms of measures of a range of conditions existing in the community as indicated in the following list. To construct the full range of indicators additional data would be needed at the community level.

Objective Indicators of Community

Social Vitality

1. Population Characteristics
   - age
   - sex
   - marital status
   - family size
   - migration status
   - religion
   - ethnic group
   - place of birth
   - immigration status

2. Education
   - number of schools
   - levels of education
     - primary
     - secondary
     - post-secondary
   - school enrollment as proportion of appropiate age group and sex

- average number of pupils per classroom
- number of teachers
- student/teacher ratio
- per capita expenditure on education
- number of books in school and public libraries
- number and type of adult education programmes
- enrollment
- other, non-official, forms of education and training
  - types and utilization

3. Housing

- distribution by age, family, size, income and ethnic group
- sale prices of old and new houses
- rental cost
- average number of rooms per community resident and families per house
- percentage of dwellings with basic utilities
- number of "self-constructed" houses
- extent of "self repairs"
- patterns of community shelter other than officially recognized housing
  - types and utilization

4. Health

- health facilities and services
  - hospital and number of beds
  - out-patient clinics
  - mental health clinics
  - number of doctors and dentists
  - number of nurses
  - other health professionals
- average days stay per in-patient in hospital
- bed occupancy rate
- number of persons with activity limitations

- nursing stations
- number of beds
- number of in-patients
- average stay of in-patients
- bed occupancy rate
- number of nursing visits
- total births in nursing station or at home
- community network of medical support other than official agencies
- types and utilization

5. Welfare and Income Support Programmes

- number on unemployment insurance
- number on make-work projects by project
- number on other income support programmes
- number on welfare programmes
- other community patterns of welfare support
- types and utilization

6. Protection Services

- police
- fire
- other forms of community protection
  - types and utilization

7. Social Pathology

- crime
- alcoholism
- child neglect
- ward care
- non-ward care

8. Fiscal Status of Community
   - tax assessment
     - commercial
     - other
   - debt load
   - fiscal subsidy
     - government
     - other

9. Communications
   - telephone
   - postal service
   - other

10. Leisure
   - radio, T.V.
   - community organized leisure groups

(III) Political Efficacy:

The objective indicators which reflect political efficacy are more limited, in range and availability, than those reflecting economic viability, and social vitality. They are political organization, participation in political activities, community voluntary organizations, government decision making bodies, voting patterns. As we pointed out with respect to the indicators of the other two community variables, each of the following indicators measure a range of community political activities. In view of the limited availability of data concerning political efficacy, additional data would be needed at the local level.

Objective Indicators of Community

Political Efficacy

1 Voluntary political organization

- types of activities
- staff
- membership
- recruitment

2. Participation
   - frequency of involvement
   - influences on participation

3. Community voluntary organizations
   Service Clubs
   - types of activities
   - staff
   - membership
   - recruitment

   Business organizations
   - types of activities
   - staff
   - membership
   - recruitment

4. Local and Provincial Government Agencies
   - types of activities
   - degree of autonomy at local level
   - staff recruitment
   - size

5. Other community decision making bodies
   - types of decisions
   - participation

6. Community leadership
   - sources of leaders
   - recruitment processes

Sources of Data for Objective Indicators

The foregoing provides some indication of the types of data on which objective indicators can be constructed. We now turn to the sources of these data of which K. Scott Wood (1974), mentions a number. The most obvious at the Federal government level include Statistics Canada, for which some 1976 quinquennial Census data are available on tape for enumeration areas which can be aggregated to

approximate individual communities. In the case of Indian communities, one enumeration area includes an Indian reserva - tion.

Besides these Census data the Department of Indian Affairs and Northern Development has published an annual statistical series on band membership since 1965 and on annual events since 1968. According to a deparLmental report, these two series plus the Census data already listed, are the most reliable annual series available on the Native population. The band membership data are disaggregated according to age, sex, and residence.

In addition to these continuing annual series, the Department undertook a housing needs analysis in 1977 for each Indian band which included an assessment of the housing stock, occupancy, facilities, and housing needs. These data are considered to be generally reliable by the Department.

At the Provincial government level, data are available in each province from a number of provincial government departments. In British Columbia, in which the research venue for this pilot project was located, the Ministry of Economic Development has recently published the 1978 British Columbia Regional Index (1978) (the previous edition was published in 1966) which contains some of the data required for the con struction of objective indicators for regions and communities.

Unfortunately many of these data are not current in that they are derived from 1971 and 1976 Census materials.

Another important source of community data is the community profiles published by the Ministry of Lands, Parks and Housing of the Government of British Columbia. These profiles contain a description of the community economic base and economic development potential plus other social data.

In these profiles the population and household data are derived from 1971 and 1976 Census materials. Additional profile data can be obtained from other provincial government

reports such as the annual report of the Ministry of Municipal Affairs and Housing and that Ministry's Annual Report of financial and other statistics of municipalities and regional districts of British Columbia, as well as the Annual report of other Ministries.

Besides these provincial government data, some community profile data can be obtained from the Planning Directors of the various Regional Districts in the province who periodically undertake studies of local industries and community services and conditions.

In their study of the statistical needs of a government monitoring system to assess the impact of the Mackenzie Valley gas pipeline, Palmer and St. Pierre (1974) examined the availability of data from present government reporting systems in the North West Territories which could be used to assess the socio-economic impact of the pipeline. These statistics concerned the employment of Native people, population change, housing, dependence on social assistance, average incomes, local community business, demand for government services, and traditional activities as well as social indicators of alcoholism, venereal disease, crime rates, child welfare and family breakdown.

Other provinces have annual or periodic statistical series which can be used to construct objective social indicators for northern communities.

Problems with the Available Data

There are four major problems associated with these data from various levels of government. The first of these concerns their reliability. Since it is difficult to obtain a clear picture of the various data collection procedures involved, we cannot comment on this important issue. This difficulty also precludes a discussion of their comparability. It is also difficult, and in most cases impossible, to use these data at the local community level. The fact that

community boundaries may not agree with those used by the social impact assessor raises difficulties in interpretation. Also, the level of aggregation of the available statistics is such that they frequently cannot be used reliably at the local community level. We also know that the currency of some of the data leaves something to be desired. In a period of social change in a community when it is being impacted by economic development, rapid changes in the community characteristics will probably occur. These changes must be monitored by a more current data collection system. Surveys based on random sampling methods may be one possible vehicle for the collection of current data, both objective and subjective.

The objective social indicators reflect some of the formal institutional patterns of a community. However, they seldom reflect, even indirectly, the informal behavioural patterns that are also indicative of economic viability, social vitality, and political efficacy, and their social psychological correlates which become evident in values, attitudes, expectations, and aspirations. These behavioural and subjective conditions can be ascertained by observation, and by the responses of community informants to questions regarding the reactions of individuals to situations of normative conflict. It is these responses that are the basis of the behavioural and subjective indicators which we discuss later.