

SOCIAL IMPACT RESEARCH IN PLANNING:
TOWARDS A PROCESS

by

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ABSTRACT

This study was concerned with the problem of anticipating the social impacts of large planned development projects and the problem of evolving methods to minimize the negative consequences to those affected.

In recent years many people have expressed concern about questions relating to the environmental effects of unregulated economic growth. Concern has also been expressed that the social results of development planning may be important in terms of the changes that growth produces in the communities or localities in which the projects are undertaken.

In a situation where economic and urban growth has opened many of the last frontiers, there may be a reduced capability of the social and ecological environments to absorb the mistakes of narrowly conceived projects. This demands that planning be equipped to deal with possible problems which may arise.

A literature survey was utilized to explore a number of approaches to assessing social impacts. Examples were taken from studies on urban design, economic development planning, transportation, northern development, relocation and urban renewal, water resources, economics,

and environmental impact. The findings elucidated a broad range of concerns that should be included in an interdisciplinary analysis of the impacts of any proposed project.

An analysis of three specific cases was undertaken; the first being a highway location study, the second an environmental impact study and the third the process of New Towns development in Britain.

The review of the literature provided a basis for a model outline for a social impact study of the proposed Tilbury Island Industrial Estate on the community of Delta. A comparison was made between the goals of the agency sponsoring the project and the attitudes of various groups in the community. The degree to which the two sets of values conflicted was considered to be an important indicator of the magnitude of the disruption which the project might be expected to produce.

The model proposed the following list of social impacts for inclusion in an analysis: employment, sense of community, population, transportation, interaction, taxation, service facilities, land values, housing, relocation, loss of future options, pollution, historical sites, nuisance, and recreation. In addition, the consequences of not pursuing the project were raised.

It was noted that social systems do not exhibit easily discernible cause and effect relationships. This discovery indicated that prior studies utilizing technical approaches such as check lists of possible consequences are insufficient in themselves to meet the needs of the planning process.

Participation by those affected and flexibility in the planning and development stages were seen as necessities. The fact that social impacts do not occur instantaneously but are dispersed over time reduces the utility of a prior analysis in a dynamic situation. For this reason a flexible planning process incorporating a broad range of considerations was required. Information alone about the possible social impacts of a project is seen as being secondary to the need to develop a planning capability for dealing with negative social consequences as they occur.

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I. THE RATIONALE FOR SOCIAL IMPACT STUDIES

Introduction

The purpose of this study is to investigate the techniques by which the social and community consequences of planning decisions, particularly large development projects, can be addressed. This objective will be pursued by a review and analysis of several different approaches to the problem of elucidating the various consequences of planned changes in our communities and rural regions that have been utilized in the past. Ultimately, an outline for a sample case study will be proposed which will endeavour initially to outline the scope of the areas of concern which a social impact study should consider. In addition, a planning process to weld together the information and guide the application of the knowledge will be put forward in order to provide the opportunity for planners to meet the increasing demand for not only a better physical but also a better social environment.

The Problem

The historical development of Canada has been characterized by the exploitation of natural resources to serve the needs of the English and French mercantile interests.¹ Given the natural abundance of minerals, forests, fur and fish, it was only logical to put these

to human use wherever possible. Resource exploitation, therefore, is one of the traditions of our frontier history. The evolution of government sometimes lagged behind settlement or rapid growth of new regions but eventually was established and helped facilitate the economic development of the land, while maintaining order. A general assumption developed in the minds of most people that economic growth was not only good because it provided opportunities for people, but that it was an absolute necessity to ensure a good future. Some natural environmental problems were also observed such as the disappearance of certain species of birds as well as vast reductions in the number of bison, beaver and codfish in some areas. Essentially, this did not interrupt development, nor was there any apparent general concern.

The native people of Canada were profoundly affected by disease and the loss of resources upon which they depended. Attempts were made to educate these people and to allow them to share in the benefits of the new order, but failure was more common than success.

This process or trend continued essentially up through the 1950's and '60's when world technological advances and international co-operation following the Second World War enabled very rapid development of Canadian resources to meet the hungry needs of the world.

Agricultural goods, and minerals such as iron, coal, uranium, nickel, copper, to name a few, were harvested from the earth and exported. Ontario, Quebec and British Columbia built large dams and sold large amounts of hydro electricity to the United States. A few manufacturing facilities were constructed, but the main base of the Canadian economy was built on the extraction of natural resources. This had far reaching effects in places like Kitimat, Uranium City, Yellowknife, Cape Breton, Cornwall, Sept Isles, Leduc, the Arrow Lakes and countless others.

Technical expertise was improved to meet the needs of an expanding economy. Economists developed such tools as cost-benefit analysis to evaluate the feasibility of large development projects. Programs such as the Agricultural Rehabilitation and Development Act (ARDA) were set up to improve the utilization of one of our largest resources, arable land. Resource management most often meant organizing the most efficient methods of production. Conservation was practised but the popular myth that the future lay in continued expansion of the economy was the prevailing conventional wisdom. Implicit in this was that a growing economy would improve the distribution of income and promote the "good life". By and large, there was a lot of truth in this. Many, but by no means

all people today in Canada do have a good standard of living; our living standard, measured in material terms, is one of the highest in the world.

Once the basic needs of the body have been met, people turn to more abstract or non-material aspects of life.² In the late 1960's, some people became more and more interested in the non-material or qualitative component of life. The environmental movement began to grow as some of the ecological results of a century of population growth and economic development began to produce polluted rivers and eutrophic lakes, vanished woodlots and farms, too obvious to ignore any longer.³ The Club of Rome published a book warning that at the present increased rate of consumption of energy and minerals, we could possibly exhaust the earth's supply in two more generations.⁴

General concern among people as well as among experts such as planners has introduced catch phrases such as "livability" and "quality of life" into discussions about goals for our future. It is becoming increasingly clear that as our population increases, more care will have to be taken in the development of our economy. As Fuller has pointed out, in the final analysis, the earth is a spaceship; if we are not careful where we dump our wastes, they are likely to end up in our neighbour's lunch.⁵ Environmental consequences that may have gone quite

unnoticed 50 years ago, now become important because of our concern and our increased ability to measure pollutants and their effects. The "cowboy economy" is symbolic "of the illimitable plains and also associated with reckless, exploitive, romantic and violent behaviour, which is characteristic of open societies."⁶ Boulding contrasts this with the closed space-man economy of the future:

"...in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution and in which, therefore, man must find his place in a cyclical ecological system..."⁷

He further warns that "our obsession with production and consumption to the exclusion of the "state" aspects of human welfare distorts the process of technological change in a most undesirable way."⁸

As our environmental tolerances become finer, information about not only the economic effects of development projects but also the possible environmental impacts, must now be considered prior to the decision to go ahead with any given undertaking.

Similarly, more sophisticated information will be required about the social consequences of our actions. Planners will bear part of the responsibility for providing the requisite amount of insight into the consequences of their actions;

"...in comparing their alternative plans, policies and programs, city planners are now faced with such questions as: How many people will have to travel how far and at what cost to enjoy the various kinds of recreation facilities and open spaces proposed? What is the "price" of preserving open spaces to the community, to the social and economic patterns of urban growth...? How many and which people (interest groups) will have their taxes increased, and by how much, as a result of a proposed urban renewal project? ...How will the proposed industrial development affect the population's income and which people (interest group) will be affected more and which less and by how much?"⁹

As our society has increased in complexity and size, physical space between people has become less, while in some cases social distances are remaining the same. Stresses develop in urban environments as was discovered by the dismal failure of the urban renewal program in Canada. It was found that renewal was not merely replacing old housing with new but also obliterating the social patterns and community fabric of the people involved.¹⁰ The "social ecosystem" was upset beyond apparent repair. The large scale production of the automobile and concomitant highway construction has had consequences that have permeated many aspects of our society.¹¹ Large development projects such as the St. Lawrence Seaway were preceded by fairly intensive economic analyses and were often carried out with some degree of social concern.

It would have been useful, however, if in cases similar to these, prior information regarding not only the economic but the environmental, distributional and social impacts of these types of projects had been available to the decision-makers.

While fairly sophisticated economic tools were developed to meet the demands of a growing economy, there has been a general neglect of the development of methodologies to identify the potential social consequence aspect of the problem.¹² It would appear at this time that further efforts, however groping, must be undertaken in the direction of this need. It is to this issue that this study will address itself.

The assumption of architectural determinism, i.e., that better buildings or physical environments alone make better communities was frequently proven to be wrong through the lessons of urban renewal. Another important concept, economic determinism, or the idea that the general trend of economic growth is going to benefit everyone in the long run, has been brought into question as well. It would appear that the assumption that because something cannot be cut and dried or nicely weighed or measured, it does not exist, must be laid to rest. The process of grappling with the social effects of our development projects is not likely to be dealt with

adequately for all situations in the near future, however, efforts must be made. Planners, as well as other social scientists must address themselves to this issue.

The Purpose

This study will investigate the development of a framework by which social consequences of development projects can be evaluated for consideration in the decision-making process. It is assumed that in many situations an environmental impact statement is a necessity for providing sufficient information to interpolate the effects of a dam project. Indeed, such information is required by statute in the United States. In the case of native peoples, for example, or fishermen who earn their living by harvesting the wealth of natural ecosystems, environmental impact studies may suffice as the results are fairly direct. On the other hand, an analysis of the changes in the man-made or urban systems in which most of us live must be anticipated as well. The effects of changes in the natural environment upon those not directly affected in the economic sense will need to be considered where possible.

The social impacts of proposed developments upon the communities or regions which they affect could include analysis or changes upon employment and educational opportunities, changes in population composition,

community interaction patterns or public services, possible relocation of population, housing requirements, distribution of benefits and burdens of the proposal and other factors which can be identified as being relevant to life in the affected areas.

The social impact study may improve upon the situation where the burden of social costs of economic growth falls largely on the poor classes in society who must face "ever higher gateways to life and freedom of choice."¹³ Frequently the economist's "external costs" have been distributed to the poor in the form of housing in industrial areas and seasonal employment.

Social impact studies could possibly provide a basis for a forum for analysis of the distribution of costs and benefits of a planning proposal. This could be as important to welfare rights, minority and downtown citizen's groups as the environmental impact study is important to the suburbanite, who having his basic housing and service needs met is concerned about an improved level of amenities in the way of a clean environment, greenbelts, and similar facilities.

The objectives of a social impact study will be to assist the planning process by providing a wider amount of prior information about effects of alternative development projects, and to reduce the number of unexpected

consequences.

Planners today must recognize the absence of unitary "public interest" and an attempt will be made to consider consequences to various effected groups and to grapple with the possible changes to the social fabric of our communities. Indeed, many people are no longer willing to pay the "external costs" of economic growth. Planning methods must be modified and tools refined to meet the needs of a new sense of values which stresses the quality of life as well as the economic well-being.

Public participation in planning can guide the incorporation of "external costs", which were most frequently ignored in the past, into plans for development. In addition participation will further a democratic principle, which people are increasingly demanding, that all persons must have an equal influence upon and access to the decision makers. Only in this manner and by a process of on-going dialogue and consultation between planners and their clients can the form of society be developed which reflects the aspirations of society.¹⁴ People should have the right to participate in the preparation and implementation of goals and objectives which affect their lives particularly when other groups' interests are not involved.

The Scope

The results of the evolution of public and planning concern from the economic (growth), to the environmental (ecological) to the social environment, is the area of interest in this study.

A sufficient number of plans has been shelved and more frequent confrontations and objections to proposed projects have been made to make it clear that planning and development must first start with the social system.¹⁵

A useful analogy can be made between natural ecological systems and the man-made system with which planners are most often concerned. Complex interdependencies have been identified:

"Certain remarkable similarities can be found between the concerns of ecologists and planners. Like complex urban systems, ecological systems appear to be characterized by four distinctive properties. These include their functioning as interdependent systems, their dependence on a succession of historical events, their spatial linkages and their non-linear structure. Both systems appear to have considerable internal resilience within a certain domain of stability. However, programs such as insecticide spraying or urban renewal that disturb the complex balance of either system can generate unexpected or undesirable results. Use of an ecological framework for planning suggests new principles based more on recognition of our ignorance than presumption of our knowledge about the systems in which we try to intervene."¹⁶

This study will endeavour to examine some of these systems that compose the social fabric of the community concerned which may be affected by major planning decisions.

Methodology

Following a general review of the range and types of social impact studies that have been used in planning, a series of questions will be developed which will then be used as a framework for the evaluation of three different examples of studies whose common feature is a concern for the social effects of the project in question. These examples will in turn be compared and used as a basis for the formulation of a modified framework to deal with the next step - a brief outline case study. This will involve postulating the social impacts, by identifying the possible range of effects or consequences of a proposed large industrial development upon a growing community near Vancouver.

Definitions

For the purposes of this study, the term "social" will be defined in general terms as "pertaining to society: relating to man or the public as an aggregate body".¹⁷ A. I. Kahn defines the "universe of the social in pragmatic terms

as all that is not pre-empted by or assigned to economic and physical policy-makers".¹⁸ Examples of the more concrete social aspects will be developed in the course of the analysis. The terms impacts and consequences will be used interchangeably, however, the latter is more strictly correct but the former is most common in the literature.

The term "impact" means to touch or strike or communicate a direct force while according to an ecological systems view of society, there is not usually an unidirectional causality as in physics but a series of interactions.¹⁹ Thus, there may appear to be a fairly clear impact of a new highway on the landscape, however, many other consequences or secondary effects will continue to react over time. Central to this study will be the search for the identity of these repercussions and their effects upon the subsystems involved.

This study shares some goals expressed by Bauer in his book Social Indicators²⁰ in that the inadequacy of mere economic indicators demands attention. Social accounting adopts the premise that better information will enable better decisions to be made.

Gross argues that social indicators are a symptom of a rebellion against what has been called "economic philistinism"²¹ Information alone may not be a

weighty enough stone to break down this tradition or expand the range of considerations in the decision-making. Data made available by a centralized social accounting system may well provide an improved opportunity for better decision-making, however, if the planning process remains unchanged, primary inputs such as data may not effect the final product.

The first step in a social impact study is to consider the possible range of consequences and for this indicators would be of assistance. In addition, the institutional framework for decision-making must be dealt with as an integral part of a social impact analysis in order that plans, policies and methods of implementation can be seen together.

Limitations

This study will attempt to outline some of the social impacts of development projects and propose a planning process for dealing with the second order more complex consequences which may be produced over time. No attempt will be made to quantify or weigh the social impacts upon the various groups in society which may be affected, as it would seem presumptuous without a greater degree of experience in the field. On the other hand, an effort will

be made to identify and deal with the related or affected systems and interest groups, and elucidate some of the effects of developments upon the communities and their component parts.

Ultimately, the degree of change brought about by the provision of information in this form will be determined in the political sphere. It is hoped that the data generated would promote dialogue between those involved so that the opportunities to shape our environment to our present and future needs could be better pursued. The point seems to be that man must become aware of and learn to manipulate through an open, accessible planning process, some of the subtleties in his environment which may be critical to his ultimate success. The path will not be easy. Burke states that the provision of information may make social choices even more difficult to make:

"However, it is an effort which must be undertaken since the requirement for making social choices will not disappear even though existing tools are inadequate for that purpose."²²

Footnotes

- ¹H.A. Innes, "The Fur Trade", in W.T. Easterbrook and M. Watkins, Approaches to Canadian Economic History, McLelland and Stewart, Toronto, 1967, pp.20-27.
- ²David Popenoe, The Urban-Industrial Frontier: Essays on Social Trends and Institutional Goals in Modern Communities, Rutgers University Press, New Jersey, 1969, p.X.
- ³M.M. Hufschmidt, "Environmental Quality as a Policy and Planning Objective", pp.231-242, A.I.P. Journal Vol.37, July 1971, p.232.
- ⁴Donella H. Meadows, et.al., The Limits to Growth, Universe Books, New York, 1972.
- ⁵R. Buckminster Fuller, Operating Manual for Spaceship Earth, Southern Illinois University Press, 1969.
- ⁶Kenneth E. Boulding, "The Economics of the Coming Space-ship Earth", pp.3-15, Environmental Quality in a Growing Economy, Henry Jarret, (ed.), Resources for the Future, John Hopkins Press, Baltimore, 1971, p.9.
- ⁷Ibid., p.9.
- ⁸Ibid., p.10.
- ⁹Ira M. Robinson, "Introductory Note", p.178, Decision-making in Urban Planning, I.M. Robinson (ed.) Sage Publications, Beverly Hills, U.S.A., 1972, p.178.
- ¹⁰Barrie B. Greenbie, "Social Territory, Community Health and Urban Planning", pp.74-82, A.I.P. Journal, Vol.40, No.2, (March 1974) p.75.
- ¹¹Raymond A. Bauer, "Detection and Anticipation of Impact: The Nature of the Task", pp.1-16, Social Indicators, Raymond A. Bauer (ed.), M.I.T. Press, Massachusetts, U.S.A., 1966, p.2.
 Bauer notes that in the conduct of human affairs our actions inevitably have second order consequences which in many instances are more important than the original action.

- ¹²Asit K. Biswas & Robert W. Durie, "Sociological Aspects of Water Development", pp.1137-1144, Water Resources Bulletin, Vol.7, No.6, (American Water Resource Assoc.) December, 1971, p.1137.

This article argues that sociological feasibility of projects must be considered along with their impacts on the quality of life, if planning is to be "for the people."

- ¹³Richard M. Titmuss, Commitment to Welfare, George Allen & Unwin Ltd., London, 1968, p.156.

- ¹⁴For a discussion of the role of dialogue and on-going public participation in planning see: John Friedman, Retracking America: A Theory of Transactive Planning, Anchor Books, Garden City, New York, 1973.

- ¹⁵R. Burke, J. Heaney, E. Pyatt, "Water Resources and Social Choices", pp.443-447, Water Resources Bulletin, Vol. 9, No.3, (June 1973) p.435.

- ¹⁶C.S. Holling and M.A. Goldberg, "Ecology and Planning", pp.221-230, A.I.P. Journal, Vol.37, No.4, (July 1971) p.221.

- ¹⁷New Webster Encyclopedic Dictionary of the English Language, Consolidated Publishers, Chicago, U.S.A. 1971.

- ¹⁸Alfred J. Kahn, Studies in Social Policy and Planning, Russell Sage Foundation, New York, 1969, p.298.

- ¹⁹Magoroh Maruyama, "Cultural, Social and Psychological Considerations in the Planning of Public Works", pp.135-143, Technological Forecasting and Social Change, Vol.5, No.2, (1973), p.135.

- ²⁰Raymond A. Bauer, (ed.), Social Indicators, M.I.T. Press, Cambridge, Massachusetts, 1966.

- ²¹Ibid., p.1x.

- ²²R. Burke, Op.Cit., p.445.

II. A REVIEW OF THE LITERATURE

The purpose of this section is to provide a background to and examples of types of information which have been gathered in the research for the social consequences of several types of developments. While the term 'social impact study' is a relatively new one brought into usage by the popularization of the environmental impact studies, similar data has been gathered in several disciplines and analysed in a number of identifiable areas. In order to understand the context of this analysis, and to examine the scope of research in the field of social impact planning, a review of ten different but related areas of planning studies will be outlined. This will be followed by the development of a series of criteria with which to evaluate three cases in more depth. This was seen as a more practicable alternative than a review of the very diversified literature purporting to deal with social impacts per se, for in many cases the goals, results and methods are very general. Some of the research has been carried out post facto to a development, but it is those which attempt to grapple with the consequences in advance which will be of central interest to this study.

Classes of Social Research in the Field

Man's environment has always been the central concern of urban planners although they have not had a monopoly on the field. There has long been a concern among economists about the distributive effects of various aspects of the economy. Sociologists and psychologists have investigated the societal and personal realms of our behaviour. Social development workers and social planners have begun to undertake increasingly complex evaluations of the growing public expenditure in the area of social programs.

A myriad of studies have also been prepared in the area of traditional concern to planners; the results of development of our primary resource - land. Other fields, geography, ecology and resource economics, for example, frequently study the interaction between man and the land. Planners however, have frequently been charged with this responsibility in the institutional framework.

It will be useful to sketch a range of types of studies related to the use of land and the social impacts of these actions. These studies vary in scope, objectives and approaches (from economic to environmental), however, this review may serve to show how social impact research may be developed further, or

where it is headed.

A. The Social Consequences of Urban Design

One of the results of the industrial revolution was the construction of very high density housing conditions where people were brought together in cities such as Birmingham, Sheffield, Dusseldorf and many others. People migrated from poor conditions in rural areas, however, the problems in these urban areas were often worse. Civil engineering, public transportation, control of pollutants, health and social care were only rudimentary. Workers were regarded as a factor of production and little concern was demonstrated for their needs in the development of the industrial cities. Mumford illustrates:

"Considering this new urban area on its lowest physical terms, without reference to its social facilities or its culture, it is plain that never before in recorded history had such vast masses of people lived in such a savagely deteriorated environment, ugly in form, debased in content. ...never before had human blight so universally been accepted as normal: normal and inevitable."¹

At long last, sunlight and basic health precautions such as sanitary sewers, stimulated the concerns of some early urban designers. Men such as Ebenezer Howard in his book Garden Cities of Tomorrow²

planned towns in which industry, people and commerce could co-exist in conditions more similar to the rural villages which were considered to be the more natural environment for people. The idea that the physical form or the aesthetic aspect of cities was critical to the resultant social milieu was long one of the axioms of town planning. Broadly expresses the theory of architectural determinism:

"The architect who builds a house or designs a site plan, who decides where the roads will and will not go, and who decides which directions the houses will face and how close together they will be also is to a large extent, deciding the pattern of social life among the people who will live in these houses. It asserts that architectural design has a direct and determinant effect on the way people behave. ...It suggests that those human beings for whom architects and planners create their designs are simply moulded by the environment which is provided for them."³

This concept was further evolved by early geographers who argued that climate and environment were the determinants of levels of social developments. This became known as environmental determinism and stated essentially that the climate of north-western Europe was the most conducive to human development. There remains some utility in the idea that physical environments affect human interaction, however, one

must also recognize other related factors for example, education, class, interests, family and social structure. In the analysis of the social impacts of projects it is important to consider the relationships in society that could be altered by the planned change, as well as the physical changes. Gans comments:

"There is considerable evidence that the physical environment does not play as significant a role in people's lives as the planner believes. Although people reside, work and play in buildings, their behaviour is not determined by the buildings but by the economic, cultural and social relationships within them."⁴

Examples of this theme in recent years are publications such as the Hidden Dimension⁵, Man and His Urban Environment⁶ and the Social Impact of Urban Design⁷, which explore the relationships between residential density (sometimes referred to as human ecology) design factors and human interaction. These studies are a result of the desire for information about the effects of high density living, the need for which was pointed out by the apparent relationship between high density living and social problems in some cities:

"Urban design has a profound, though often subtle influence on our lives. It plays a major role in how we think about ourselves and others. To a large degree, it shapes or mis-shapes our relationships with each other and solves or creates problems central to the health of the

urban environment. Ultimately, it is a major factor in deciding whether our cities enhance the dignity of the individual or brutalize and alienate him."⁸

The urgent need for social impact analysis is emphasized by the inadequacy of the concept that physical design alone determines patterns of behaviour. Social impacts result from people's relationships and it would appear that these are affected by governments, institutions, groups and individuals who play a role in people's lives. Perhaps the environmentalists are oversimplifying the problem by expecting a better physical non-polluted environment to produce better living conditions alone. What appears to be needed is an analysis which considers more elements of people's lives, including the economic and social, as well as the physical relationships.⁹

B. The Impacts of Large Industrial Implacements Upon Small Communities

Many studies have been done to anticipate or evaluate the results of the provision of industrial facilities on the local economy, service facilities and employment levels of the small or developing towns in which they were situated. Examples include socio-economic feasibility studies for developments in "depressed" regions of Canada under the Department of Regional Economic Expansion (DREE) programs. The con-

struction of the St. Lawrence Seaway and some of the consequences are recorded by Richardson.¹⁰ Most often these studies were undertaken to determine economic feasibility rather than to develop social information for consideration prior to the decision to proceed. The general assumption appeared to be that a new power plant, sawmill or factory would improve the local economy and thus improve life in that community. As was outlined earlier, this assumption went unchallenged for many years inspiteof occasional unanticipated environmental or social side effects.

One rather more detailed analysis was prepared by D.M. Paterson in 1953 titled "The Impact of Large Scale Industrial Development, with Special Reference to the Ford Plant Near Oakville, Ontario."¹¹ The article urged that experienced advice and detailed research were required to prevent "bad mistakes and severe disappointment" if the plant was not planned in an integrated fashion. A wide variety of secondary effects were identified for consideration and discussion among groups affected by the influx of 5,000 new workers into a small but growing community. The thrust of the article was to assist in the accommodation of growth. These studies may be characterized as being essentially

concerned with economics, not only in terms of profits to the plant being constructed but also in terms of the costs of providing an infrastructure to meet the needs of the new inhabitants. Housing, schools, utilities and their financing were seen as main considerations in the desirability of new growth. More recently, studies on the effects of industrial development on local agriculturally based towns have attempted to identify social as well as economic effects although the decisions in many situations are frequently based mainly on economic considerations.¹²

C. Transportation Impact Studies

If anyone asked at the time what the popularization of the automobile by Henry Ford would do to the social patterns of North America, it is unlikely that they would have been able to foresee the multitudinous range of effects that have resulted. Similarly, the construction of the railway across Canada was seen not only as an economic link but also as a social and psychological connection across the country which affected the patterns of living. Modern highways which changed the relative locations of towns either by bringing them in effect, closer to cities or in other cases, by-passing former regional centres had profound effects.

In 1964 the U.S. Department of Commerce published a report titled Highways and Economic and Social Changes which was an attempt to evaluate the impacts of the massive U.S. inter-state highway program which was started in 1956.¹³ The report reviews the results of 100 economic impact studies prepared by government agencies and universities, on the changes in areas near highways and interchanges. The goal of the report was to provide information for "transportation research, community planning, land acquisition and economic development." It concludes that highways produce a wide range of planning consequences.

A critique "Information Requirements for Evaluating the Social Impacts of Transportation Investment" attempts to identify some of the reasons for the economic bias of many studies and goes on to outline some of the outputs of highway construction.¹⁴ Examples given are changes in activity patterns, aesthetics, distributional effects, and nuisance effects. The case was made for minimizing the adverse social consequences of highway construction by integrating the highway plans into local regional plans, an obvious but frequently over-looked point when different levels of government are involved. In addition, a system of social accounting was seen as a

useful component in a feedback system, to monitor changes and permit informed decisions upon the changes to take place.

Positive benefits of highways and urban freeways may include increased opportunities for mobility which in turn could enable the poor to have access to more employment opportunities. Several negative impacts could also result. Firstly, the lowest paid unskilled workers may not afford automobiles and tend to live near the urban cores where housing costs are low. Secondly, the construction of freeways may lead to the degeneration of public transit upon which these workers depend. In addition, low cost housing and downtown neighbourhoods may often be disrupted by freeway construction projects.

It has long been recognized that just as the railways and streetcars programmed the growth patterns of Canadian cities, the automobile has been a large determinant of the form of later growth. McKain illustrates the prevailing attitude to highway planning:

"...if a new road happened to bring benefits to an area, this was considered to be an unexpected bonus. And if a highway improvement brought economic hardship, this was dismissed in the name of overall progress..."¹⁵

In an article titled "Some Aspects of the Social Impact of Urban Transportation" a plea is made for the development of "objective techniques whereby the concern with aesthetic and social values could be objectively measured and added to the traditional benefit/cost ratio.¹⁶

The writer goes on to list a series of goals that ought to be included in highways programs: community identity, aesthetics, choice, economic base, convenience, administration, community facilities and accommodation for future growth and "optimum life-style."

It is perhaps surprising that in view of effects of highways and access to the urban and indeed regional patterns that planners have had relatively little involvement in the development of these facilities. Possibly the critical eye of the public as demonstrated by the Spadina Expressway controversy in Toronto and the Chinatown freeway and Third Crossing Debates in Vancouver, indicate that design of highways according to engineering criteria alone is a thing of the past.¹⁷ Planners should equip themselves for dealing with this challenge more effectively in terms of community goals and needs in the future better than has been the case in the past. An attempt to do this will be analysed further in the next chapter.

D. The Social Impacts of Development in Northern Canada

In recent years, there has been a debate developing over the future of the north; whether it should be developed as the West was, simply denuded of its resources in the most economic fashion, left to stand as a large park-like preserve to protect the delicate ecosystems or given self-government to be administered by the residents. One of the recurrent questions about northern development is the effects that the importation of industrial technology and resource development will have on the native people who for many generations developed a system of living as an integral part of the delicate natural balance of these lands. The thrust of economic development mind set which has pervaded the development of this country has produced problems and unanticipated consequences in the North as well.

In the case of native people, the obligatory change from a hunting and gathering economy to a market economy where villages and towns are established represents so drastic a change as to upset the natural resilience of the "social eco-system" or the pattern of living in which they are socialized to live. The results are a few short term jobs for some, loss of animals from the resource developments, loss of hunting skills, frustration, powerless-

ness, and ultimately dependence upon welfare.¹⁸ Economic development is still seen as the solution to poverty rather than the cause.

The two pronged thrust illustrated in the name of the Department of Indian Affairs and Northern Development has produced a vast number of studies which attempt to evaluate in advance, some of the features and feasibility of resource development projects in the north. These studies vary in approach, depth and perceptiveness.

A recent example is one titled "The Socio-economic Impact of the Pointed Mountain Gas Field" prepared in this case by a staff member of the Department of Indian Affairs.¹⁹ In a report 44 pages long, one chapter, of five pages, is devoted to the "social impacts" of the pipeline activity. Basically, it is a subjective review of the historical changes in the communities. Specific concerns include; the change of pace, changes in employment, increased expenditures, changes in attitudes, population shifts, alcoholism, and scheduled (airline) flights. The conclusion is that "in general, the social changes of Fort Liard caused by the Pointed Mountain Project were not drastic" but goes on to observe on the same page that "prior to the project, Fort Liard was one of the few well preserved traditional villages."²⁰ No indication is given as to how the information was gathered or even if the author visited the place in

question. It would appear that the conclusion may be somewhat premature.

In any event there are literally hundreds of similar studies which are prepared by the Northern Development staff or consultants which are basically similar. The fault lies not only with the authors of these studies but also with the department for not pursuing this problem with greater care. The problem here is partially a moral one and the determination of whether or not proposed projects should be approved is a very difficult one for the politician to make. In the interim better prior information and incorporation of participation in the studies by those involved with the results may improve these analyses by promoting the inclusion of social considerations in the discussions about these developments.

Naysmith points out that "it must be recognized that northern peoples and particularly the Indians and Eskimos have needs which may not necessarily be met by the development of a viable industrial base."²¹ The importance of this statement is central not only to the north but also to the area of concern of this study as well. He also points out that "a positive sense of well-being is found in some individuals who can maintain their traditional way of life."²² It would appear obvious that a better socio-economic impact study should address itself not only

to the economics of projects but also to the effects upon traditional pursuits. Information about the degree to which the indigenous residents live off the land, and an analysis of the possible costs in monetary and social terms of destroying wildlife or fish resources should be included.

Assume for example that proper environmental studies had been prepared prior to the construction of the Bennett dam on British Columbia's Peace River; the costs of the resultant loss of fisheries and trapping to people in the 1,000 square mile Peace-Athabaska Delta might have affected the decision.²³ In the event that it was approved, these costs might have been included as part of the budget and through discussion, some of the effects of the loss of livelihood might have been avoidable.

Presently, the proposal to build the Mackenzie Valley pipeline, the Churchill Falls and James Bay hydro projects have been obstructed by political and legal actions by native peoples. Co-operation and discussion involving the possible social consequences and the degree to which they can be dealt with in a fashion acceptable to all concerned is needed.

In the Nass Valley region of northwestern British Columbia, a massive railway and development project

in an area primarily inhabited by Indian people has been proposed. The consequences of the proposed industrialization on the native communities will prove difficult if more sincere attempts to demonstrate social concerns are not made.²⁴

Rapid social change in any community can often produce social disintegration and there are many examples of this in northern settlements. In small communities crime rates per capita often reach rates that the environmental determinists would, in urban situations possibly attribute to density.²⁵

This aspect of social impact analysis is important to northern development however, in addition to the preparation of better information the thorny problem of moral questions remains. More carefully developed policies reflecting a different philosophy may be a prerequisite to valuable research in this field in the next few important years.

Lotz, a well informed critic of social science programs in the North points out:

"This new wealth (from Pine Point Mines) will not solve the social and human problems that are arising with the industrialization process. The firm belief that mechanical science and technology will bring endless benefits and lead to a "happier life" has proved chimerical everywhere."²⁶

The value to society of economic growth must be considered along with a broader social consideration.

E. Social Consequences of Relocation Projects

One of the most far reaching changes that can occur to an individual or a community is forced relocation. Voluntary movement of people results from the search for better opportunities or more attractive places to live. Public decisions, on the other hand, can often make the need to move a necessity. The construction of new highways, bridges, utility lines, airports and other public works often causes this problem. Urban renewal similarly produces drastic effects in urban areas while in rural areas, the construction of large dams for hydro power or irrigation often displaces farming communities.

One of the key reasons for dissatisfaction among people affected by urban renewal is relocation. Looking at a community as an ecosystem for a moment, one can appreciate the difficulty in attempting to move an ecosystem (as opposed to the components) from one habitat to another without drastically altering it. Human beings are the most adaptable creatures on the earth; however, there may be certain costs associated with the adaptation. Patterns of interaction, visual identity, sense of place, often important to older people, may be upset. The result of forced relocation may be alienation resulting from a sense of powerlessness about the change and estrangement from a

once familiar social milieu.²⁷ Often the resilience which enables a natural ecosystem to change and adapt to changes in temperature or introduction of new organisms is not great enough to absorb a shock and the system breaks down and a new, usually less developed and less complex system eventually replaces the old. The pollution of a stream by a small amount of effluent might be an example of staying within the resilience while a heavy pollution load may replace the trout with only various algae and few fish.

Similarly our social systems are constantly changing but a relocation which breaks with historical development may change the make-up of power and social relationships or create an entirely different pattern of behaviour. Greenble warns that:

"...mass relocations of poor people, as a result of urban renewal and relocation in hi-rise public housing projects, have been disrupting intricate social relationships which contribute to the stability of the various groups affected.The degree to which such policies have contributed to the unrest, crime, violence and general social breakdown can only be guessed at, but the social cost of failure to understand the relationship involved must be staggering."²⁸

The disastrous failure of the Pruitt-Igoe housing project in St. Louis is given as an example. The effects of relocation vary in all likelihood with the manner in which

the move is handled by the authorities, the degree of support provided and the psychological make-up of those affected. It is unlikely, it would seem, that any objective method of analysis of these consequences is about to be discovered. The only alternative, it appears, is to ensure that relocation be executed as slowly as possible and with the maximum degree of participation of and support to those affected.

In Vancouver, the proposed expansion of the International Airport has resulted in the expropriation of nearly 100 homes which has resulted in significant social disruption and public controversy.

The construction of the St. Lawrence Seaway across southern Ontario resulted in the displacement of 6,500 people in eight communities. In spite of a good deal of initial bitterness, social patterns were disrupted as the price of progress.²⁹ One wonders whether people today would be willing to pay this price. An interesting fact of this case is that no apparent analysis was done either before or after in an attempt to prevent the repetition of errors or contribute a prior social input into the decision-making. A notable exception was a study of the people affected by the Columbia River Project titled: People in the Way.³⁰ A glimpse is provided into some issues

associated with the relocation necessitated by the raising of the level of the Arrow Lakes which flooded 40,000 acres of land. An attempt is made to grapple with the difficulties of the process and steps that were followed by the government and the utility company in land acquisition and relocation. A clear conception of the stress experienced by the people involved is communicated, as well as the illustration of different problems in different communities. Follow-up research on the Arrow Lakes may improve the information available for future hydro-electric projects, and provide the feedback necessary to permit better evaluation prior to the development of future projects.

In modern industrial societies' relocation often produces some of the community consequences which have been demonstrated. In a culture where the people live more closely to the natural environment, either by harvesting its natural productivity in the case of Northern Indians in Canada or by cultivation in developing countries, changes may occur at different levels.

Lagler writes about developing countries where the changes brought about by man-made lakes have profound effects on the way of life of local residents.³¹ This can occur at two levels; firstly, in a stable society unaccustomed

to change, as is common in non-industrial societies, relocation to new areas may produce confusion and an inability to make a living due to the adjustments required by new or different agricultural techniques. Secondly, in a society where most of the food comes from local agriculture, environmental impacts can have major effects.

The Aswan Dam on the Nile has reduced the fishing on the Mediterranean coast, reduced the fertility of the soil, and provided an increased habitat in the irrigation canals of a parasite-carrying snail.³⁷ Relocation of newly irrigated areas may be fruitless in every sense if consequences such as these are not anticipated. Forced relocation may disrupt living patterns to such a degree that people may lack the new skills to exploit the irrigated land.

These examples illustrate that while the analysis of relocation projects does provide some information regarding the social impacts, it would appear difficult to draw a sufficient number of generalizations to provide prior information to the decision-makers concerned. The need to consider some of the secondary social effects must be considered. One wonders if the Egyptians had the information they have today prior to construction of the Aswan Dam whether they would have proceeded in the same manner.

Feasibility must be measured in broader terms than the economic or technical point of view.

F. Water Resource Development Projects

Some of the largest scale economic and social changes that can occur in regions even when relocation is not involved may be produced by water resource development projects. Dams on river systems have long been recognized by people as methods of reducing flood dangers, producing electricity or providing water storage for agriculture and irrigation as well as industrial uses. Recreation on the man-made lakes and improved fisheries were often included as secondary benefits. All these points have in common the improvement or development of the local or regional economy through increased employment opportunities. Major developments of this nature have long been considered an important tool for economic progress.

The Tennessee Valley Authority was set up in the United States to utilize the hydro-electric potential of the river in a co-ordinated fashion and thus provide a stable economic base for a hitherto relatively poor region. There were social ideals included in the goals for this project and to some extent may have helped establish a tradition that water resources are a key element in regional growth.

The large capital investments required for the construction of projects of this nature are usually only available from the highest level of government in the form of shared cost programs. In order to obtain the "best" expenditure of these funds and determine where they should be allocated in order to maximize the returns to the national purse, carefully adapted studies were evolved to meet this specific requirement. Cost-benefit and cost-effectiveness studies performed analyses of the benefits which would accrue, in dollars, in view of the expenditure. Cost-benefit studies are very sensitive to the interest rates used and are not well equipped to evaluate non-monetary costs and benefits, although attempts are made.³³ Essentially, if a project is going to stimulate more economic growth (benefits) than is spent, the cost-benefit ratio will be larger than one. For example, if the expenditure of 1 million dollars results in 1.3 million in benefits the ratio is 1.3. The higher the ratio the higher on the list of priorities the project would become. It is not difficult to understand the frailty with which a process such as this would be able to deal with what economists call external or social costs.³⁴ Biswas and Durie point out that in a bibliography of the Socio-economic aspects of Water Resource studies prepared in the

U.S. only 18 of the 700 entries dealt with the social aspects. They go on to point out that:

"Cost effectiveness suffers from a philosophical weakness. It holds that one factor - economic - is fundamental and that all other factors - the social and cultural and political - are derivative. This is a fallacy known to students of philosophy as the fallacy of reductionism; it reduces the complexity of reality to one of its elements, and offers that one is sufficient reasoning for the whole."³⁵

The writers go on to conclude that social assessments have not been prepared because of a lack of methodology "to identify and evaluate the potential social and environmental consequences of water developments." It might be more useful to realize that, in the past, there was neither demand from the public nor the policy makers for this information, thus it is natural that methodologies remained undeveloped. Sewell states:

"...studies of the external, social and political impacts are also required. Policy makers need to know, for example, what effects of a proposed irrigation scheme are likely to be on the social structure of communities in the region affected by the scheme."³⁶

The effects of projects of this type are often very large and widespread. "External" effects will have to be considered more carefully than simply permitting economic efficiency to be the sole criterion in an evolving "spaceship economy" referred to in Chapter One.

The Bennett Dam on the British Columbia section of the Peace River provides several interesting examples of unforeseen social consequences. Had this type of information been available in advance, the decision about the location, staging and schedule of construction may have been able to be adjusted to minimize these externalities. It was found that as a result of the spring floods being held back by the dam, the water levels in the downstream Peace-Athabasca Delta were lowered which reduced the habitat for fish and fur bearing animals which had enabled the Delta Indian people to be self-reliant prior to this time. As well, the lower levels hinder navigation and reduce the accessibility and future growth of some of the river communities. In the town of Hudson's Hope, 13 miles downriver from the dam site, the population swelled from a few hundred to 7,500 in 1967. The rapid social changes obliterated the fabric of the old community, then after the construction produced what one of the residents called a "hangover effect"³⁷ The community power structures, an important aspect of the town, may also be changed.³⁸ The gearing down of the population from 7,500 to its present level of 1,000 also created hardship on the town. The pressure on moose and fish from the recreational pursuits of the construction workers also reduced hunting

opportunities for the Indian people in the Region of Hudson's Hope who, prior to the "boom" still lived to a large degree by traditional pursuits.³⁹ These people were often forced onto social assistance, into temporary wage employment, which permanently affected their living patterns. Alcoholism and prostitution resulted in some cases as well. This is in addition to the effects upon the several small Indian bands that had to be relocated as a result of the formation of British Columbia's largest lake of 680 square miles.

The lesson from this must be that prior studies and integrated social planning must be made an integral part of their development if after an informed discussion, the decision to go ahead is made, and reducing the uncertainty among those affected.

Participation is also an important issue.

Bocking observes that it was assumed in the Prairies that the importation of water into dry areas would cause an economic boom in spite of the fact that many more attractive areas of Canada have adequate water supplies and do not experience growth.⁴⁰ The erroneous assumption is made that water is the "limiting factor" in economic growth. An important point is that if an irrigation project is planned for an area, without the participation of the farmers affected, it may be possible that they will not wish to

change their methods of agriculture or cannot afford new machinery. Prior discussion would enable the planners to determine to what degree the people involved would like to see their region changed. Similarly the Indian people in the Peace case may have been able, with money and information, to evolve programs in advance to better deal with the changes that were going to occur.

The lesson must be that environmental and social impact studies reflect the fact that while benefit-cost analyses are still useful and indeed necessary, in some cases finer and more detailed information regarding the project as well as the incidence of the costs must be prepared as well. The literature in the area of water resource development contains some definite concerns in this area in terms of: relocation, ecological changes, living pattern changes, public participation, external costs and their distribution, and recreation opportunities.

G. Distributive Impact Studies

In the past, planners attempted to produce plans that were in the best interest of the public. It has been recognized that projects such as irrigation confer benefits and costs to different groups in society. The idea represented in the "master plan" was an example of the assumed

unity of public interest. Today this has been questioned in the planning literature as planners attempt to provide information about alternative plans of courses of action from which the politicians can then choose the most acceptable. The next logical question one would expect would be to ask for specific information about the incidence or effects of the plan or project upon the different classes and interests in society.⁴¹ Alfred Khan in a discussion of social planning states: "In one sense at least, all planning may be seen as a process of resource allocation."⁴² In the past the statement that so many new houses a year were planned for, would have been considered an acceptable way of housing new population growth. Today it is important to consider not only the number of units but the costs and forms of tenure of the new buildings. Suburban homes on large lots or another single dwelling type may not meet the needs of young working people as interests and needs vary in heterogeneous large cities.

The increasing emphasis on "quality of life" and demand for a better environment has sometimes resulted in confrontations between affected communities and planning agencies.⁴³ One of the major trends in planning would appear to be toward a decentralization of decision-making, increased participation in the process by the affected parties. An example of this approach to planning, which

utilizes local expertise and knowledge, as well as drawing people into a participatory process, is outlined in what Friedman calls "transactive planning".⁴⁴ The stress is on dialogue between the planners and those affected by the decision. The results may be plans which are far better suited to local needs because the goals of those affected are reflected in the results, as opposed to the imposed or assumed goals of planners in a central planning agency, a situation which has produced many problems and often results in tension between the citizens and the plans. The cost of this open discussion is a more complicated method of decision-making. Broader areas are opened for consideration and more alternatives reduce the chances of discovering a single right answer.

The popularization of the environmental movement is also having interesting social consequences that some writers are beginning to consider; and there is little doubt that planners will have to deal with this situation more frequently as decentralized planning and participation become the rule. While the cry for a better environment seems universal, the environmental impacts of a project may differ greatly in their economic incidence, both among individuals in any given area and between separate regions.⁴⁵

One of the difficulties resulting from the popular environmental movement and the resultant participatory style of planning is the problem of interests. Those in opposition to plans and who may have something to loose, are usually vociferous in their expression. The people who are likely to benefit, often indirectly, tend to be more complacent. Middle class groups whose basic needs are met tend to demand better environmental amenities while working class people or single parents for example may have their lives filled with immediate concerns of day to day existence. The more wealthy tend to have the time, political access and eloquence to make statements about protecting local natural amenities. This is a difficult position to criticize for those to whom a better environment means better housing or who need the industrial jobs.⁴⁶ Downs points out that "The elite's environmental deterioration is often the common man's improved standard of living" and provides examples such as Hawaii, automobile use and suburban development.⁴⁷ Babcock explains "It is not that the poor do not care about the environment, environment means to them finding a decent shelter reasonably accessible to a job."⁴⁸

What is the role of planning in this situation? In some areas where urban development is spreading at a rapid rate, local resistance to growth frequently develops as people view with disdain the loss of natural amenities in their region. The result is sometimes "exclusionary zoning", where local jurisdictions refuse to allow densities more than two acres per dwelling for example and demand a high level of amenities. The costs of housing land are thus maintained at levels which are beyond the reach of most people. This was done for example in Shaughnessy Heights in Vancouver in the 1920's. Zoning in fact, was born out of people's desire to conserve the "character" of neighborhoods and prevent intrusion by industry or high density housing. Information gathering, one of the tasks of the planner, may provide a partial solution to this essentially philosophical situation. A study in California recommended that regional social impacts of exclusionary zoning policies should be evaluated.⁴⁹ Babcock goes further to point out that the U.S. National Environmental Policy Act (NEPA) may have precisely these kinds of negative social effects.⁵⁰ His suggestion is that prior to any housing project being rejected for ecological reasons, a housing impact statement be required setting forth:

- a) the effect such a restraint would have on the supply, cost and quality of local housing.
- b) what attempt was made to find alternative methods of preserving the environment that would lessen the effect on the housing supply.
- c) to indicate what segment of the community is bearing the burden of an environmental protection measure.⁵¹

The point is that the provision of a broader spectrum of information regarding the social as well as the environmental effects of a project should enhance the possibility of an environmental compromise being reached as more considerations will enter the analysis prior to the decision. These thorny decisions can then be made, as indeed they should, by well informed politicians conversant with the people affected and informed as to the consequences of their actions. In the same way planners, in their evaluation of alternative plans must attempt to deal with the distributive effects of the alternatives. As difficult a matter as this may be, it must be undertaken since the requirement for making social choices will not disappear even though existing tools are inadequate for that purpose.⁵²

Some economists and other social scientists are discussing the position that the core of many of our social

problems is related to the unequal distribution of income. It has been suggested for example that the cause of slum housing is low incomes and the solution lies in the area of subsidizing people rather than providing low cost housing.⁵³ The Central Mortgage and Housing Corporation assisted home ownership program appears to follow this philosophy. If, in the future, manipulation of the distribution of income becomes a more prominent public policy, the prior consideration of the distributive effects of planning decisions especially in the housing field would become an important part of the policy analysis of this nature. Information of this sort could be useful in determining the utility of central government grants to local areas for land banking, redevelopment or borrowing funds. Bonner warns that:

"Past decisions made without adequate distribution knowledge now appear often to lack economic and social wisdom. ...we must now collect the data and do the analysis of the distributional impacts that are needed for today's decision."

The distributional aspects of planning decisions would appear to constitute an important social concern which is frequently overlooked not only by planners but by other professionals and policy makers. It may be useful to this type of analysis to ask which groups in society are affected by plans or policies in terms of housing or other amenities. Given the list of considerations in a social impact study, each

should be analysed in terms of the consequences to the various affected groups that can be identified in a given situation.

H. The Environmental Impact Statement, NEPA and the Human Consequences.

A stimulus to research in the general area of environmental and social impacts of projects has been an act signed into law in the United States in 1969, The National Environmental Policy Act. Sec. 102 of this Act stipulates that:

"A...All agencies of the Federal Government shall utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision-making which may have an impact on man's environment.

B...unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations."⁵⁵

The definitions, adequacy, procedures and institutional arrangements for the impact studies have created major legal controversy which may be insurmountable.⁵⁶ The point of interest to this study is the methodology utilized in these types of reports. Jack Davis, the former Canadian Minister for the environment, announced in April, 1974, that similar legislation was under consideration for Canada to aid the formal consideration of environmental issues

in the development of large government projects. Under NEPA, reports have been prepared for highways, watershed protection and flood control, airports, navigation works and power generation. The problems with these statements themselves are significant as White points out:

- "1. Incomplete information on the likely biological, physical and economic effects of the proposed work.
2. A complete description of the impacts of all the alternatives is difficult.
3. Difficulty of attaching weights to the numerous impacts in order to permit social evaluation. Such evaluation requires agreement on social aims and on the value system to be used in assessing the effects of a given action in achieving those aims." 57

In spite of the difficulties of the NEPA several important changes in the process by which planning has been carried out have resulted. Firstly, there is a collection of basic background data. The criteria for evaluation are enumerated and prepared in a draft report which is submitted to interested agencies and individuals. This point may be the most significant aspect of this legislation. The planning process is brought into the open, public view and demystified so that assumptions, facts, and interests reflected can be observed and discussed. There will be shortcomings as well, for some interests may be more eloquent, or influential than others. There is a risk that too narrow concern for the opinions of local area

groups may result in a balkanized anarchy developing.

Babcock points out that one group has applied under NEPA to prevent the development of racially mixed housing. Better social information and a greater effort to seek the alternative views to those of the environmentalists would appear to be a necessity in this type of situation. The more easily identified physical effects also may tend to introduce a bias against socially useful projects.

One of the advantages to an open planning process such as this is that it may assist the elucidation of the social impacts of a project. The draft report will provide the people affected with some detailed information about the project. The delay while the draft report is being circulated and prior to the preparation of the final report, upon which the decisions will be made, provides a delay in the planning process and decision taking.

During this period people involved can not only have the opportunity of improving upon the reports by considering impacts the developer may have ignored, and making representations; they can also discuss among themselves the consequences and the steps the people in the community wish to take.⁵⁹ This awareness about the range of consequences may give the community a warning and tend to reduce the

"future shock" which might result if people were uninformed but likely to be affected.⁶⁰ The opportunity for participation may also reduce the alienation of the individuals which often results from a feeling of powerlessness and may improve the community cohesion so that if a change is approved, for example the location of a power plant, the community can take steps to cope with the situation.

Babcock notes that NEPA reflects mainly the middle class environmental interests but suggests that better analysis of the housing impacts be prepared by planners to provide a more balanced level of information. The problem will still remain a difficult one although it remains an improvement over the traditional process whereby planners prepare information often without opportunity for public criticism, and present it to the politicians who not only have to consider the information but the degree to which it reflects the values of the community. The rapid increase in environmental concern in the physical ecological sense may produce a back-lash among those who are adversely affected by the social aspects of environmental legislation.

The American legislation has resulted in the development of guidelines for the assessment of impacts

being prepared by many agencies. It may be useful to sketch some of the criteria identified for these analyses by the Army Corps of Engineers and the U.S. Atomic Energy Commission.

The Department of the Army in a report titled: "Guidelines for the Assessment of Economic, Social and Environmental Effects of Civil Works projects" (1972) states that the purpose is "to ensure that all significant adverse and beneficial effects of proposed projects are fully considered ...such effects not included in benefit-cost analysis are the subject of the guidelines."⁶¹ The sequence of steps outlined may provide an example of the methodology involved under NEPA:

- "1. Assemble a profile of existing conditions in the planning area;
2. Extend the profile to make projections of "without project" conditions through the expected life of the project;
3. Make "with project" projections, identifying causative factors and tracing their effects for each alternative;
4. Identify significant effects;
5. Describe and display each significant effect;
6. Evaluate adverse and beneficial effects;
7. Consider project modifications where adverse effects are significant;
8. Seek feed-back from other sources;
9. Use effect assessment in making recommendations;
10. Prepare a statement of findings;
11. Use effect assessment in preparing the Environmental Impact Statement."

The Army guidelines provide an interesting illustrative list of social effects. They include: noise, population, (mobility, density, relocation of people), aesthetics, housing, archeologic and historic remains or structures, transportation, educational opportunities, leisure, cultural and recreational opportunities, community cohesion, community growth, institutional relationships and health.⁶² In the consideration of the economic effects of the project the following considerations are raised: national economic development, local government finance (taxation revenues and property values), land use, public facilities, regional growth effects, income distribution, employment, business and industrial activity, displacement of farms and food supply.

One of the developments occurring in the U.S. about which there is increasing environmental concern is the preponderance of nuclear power stations. In 1973, a Regulatory Guide for the Preparation of Environmental Reports for Nuclear Plants, was prepared by the U.S. Atomic Energy Commission.⁶³ The purpose was to make available to the public methods acceptable to the regulatory staff of the AEC of implementing regulations and policy. These guidelines have been discussed and often adopted by other agencies in the preparation of many types

of impact studies. In the consideration of the economic and social costs resulting from a proposed nuclear facility, a series of external costs and their effects on people are raised for examination and evaluation.⁶⁴ This analysis should include "the probable number and location of the population group adversely affected, the estimated economic and social impact, and any special measures taken to alleviate the impact."⁶⁵ Examples of consequences are divided into short term external costs: shortage of housing, congestion of highways, noise and construction nuisances, overloading water and sewer systems, crowding of schools, hospitals, public facilities and community services, and disruption (relocation) of people's lives or the local community caused by land acquisition for the site. In recognition of the need to provide balanced information the guidelines also suggest that an analysis of the social impacts of not building the plant be included that might result from power shortages.

Examples of the long term economic and social costs listed for consideration include: impairment of recreational values, deterioration of aesthetic and scenic values; restrictions on access to areas of historic, natural or archaeological value; loss of land from present and future (opportunity costs) alternative uses; creation

of locally adverse meteorological conditions; noise; reduction of regional product due to displacement of people from the land occupied for the site; lost income from recreation or tourism that may be impaired by environmental disturbances; loss of income to commercial fishermen; decreased real estate values in the area; increased costs to local governments for the services required by the permanently employed workers and their families.

It is important to note that through the range of social impact studies that have been discussed in this study this is the first case where the temporal aspects of the problem have been analysed. Once a social impact study is in the hands of those who are attempting to minimize the effects, assuming the development has been approved in principal, it is necessary to have the information as the time element within which action will be required.

The lessons from the NEPA in the U.S. are worth following as they continue to evolve. Several points have been touched upon. The bringing together of interdisciplinary teams of engineers, biologists and archeologists for example will ensure a wider consideration of the social consequences of a project than would be otherwise

developed, by engineers, for example. Secondly, the public presentation of the draft reports enables the public to indicate any weaknesses in the presentation, perhaps as a result of their local specialized knowledge. In addition, public discussion enables people to participate and if necessary, provides the time required to acclimatize to changes which may result. The participation may reduce alienation and permit those people who wish to, to become involved in important decisions. In some cases community identity may be improved and thus tend to reduce the negative effects of disruption in the traditional life styles. Goals are introduced only insofar as they are dealt with by the draft reports, (i.e. if people disagree they may respond to draft report.) It would seem unnecessary to attempt to deal with all the issues when some, historical preservation, may not be considered important by those in the affected region. The consideration of goals and impacts are related and must be viewed together.

The studies under NEPA have been done for all ranges and scope of development, from the Alaska oil pipeline to urban redevelopment projects on a few lots. In addition, the States have passed similar legislation requiring impact statements of private developers as well as state government agencies.⁶⁶

One of the difficulties of including the social impacts along with the environmental impacts is the results from the fact that the social considerations are treated somewhat mechanically and the intangible factors appear weak in comparison to the environmental effects which can often be ascertained with reasonable precision. The weighting of the two aspects must also not be assumed to be equal in all cases, an impression produced by an impact study which covers both the ecological and social effects of a given undertaking, for example by use of a checklist or matrix which includes both ecological and social factors.

Summary

The purpose of this chapter has been to elucidate the general areas of concern and the issues involved with several different approaches to the problem of gathering social information. The main issues within this problem which emerged repeatedly were the problem of the varying quality of information between economic, environmental effects, the more difficult to deal with social effects and the bias that often results in the decisions being made on the basis of the more concrete information. Secondly, the problem of relating environmental changes to social changes appeared. Part of this difficulty

results from the fact that even less is known about man's social adaptability than that of natural ecosystems. Thirdly, and related to the last area, is the time aspect of social consequences. Fourthly, the distributional aspects of developments were repeatedly raised. The tacit assumption of cost-benefit analysis that the present income-distribution pattern should be maintained was questioned. Fifth, the need for goals which can be utilized as criteria with which to evaluate a proposed change was considered. Finally, the role of participation by those affected in the decision-making process and the utility of this element was queried.

Prior to the development of an outline model to evaluate a case study, the next chapter will analyse three past experiences in this field in greater depth. The purpose of these critiques will be to obtain a better understanding of some of the above core issues which have been raised. One experience will deal with the problem of providing concrete social data (McHarg), the second with the social effects of environmental change in the case of a plan evaluation (An Environmental Impact of the Sacramento Plan) and the last will deal with participation in the case of the development of some of the British New Towns.

Footnotes

- ¹Lewis Mumford, The City in History, Penguin Books, Harmonds-worth, Middlesex, England, 1961. p.540.
- ²Sir Ebenezer Howard, Garden Cities of Tomorrow, Edited by F.J. Osborn, Faber, London, 1965. First published in 1898 as Tomorrow: A Peaceful Path to Real Reform.
- ³Maurice Broady, Planning for People: Essays on the Social Context of Planning, Bedford Square Press, National Council of Social Service, London, 1968. p.14.
- ⁴H.J. Gans, "Planning for People not Buildings", in The City Problems of Planning, M. Steward (ed.), Penguin Books, Middlesex, 1972, p.365.
- ⁵Hall, Edward T. The Hidden Dimension, Garden City, New York.: Doubleday, 1966.
- ⁶William Michelson, Man and His Urban Environment: A Sociological Approach, Addison-Wesley, Reading, Mass. 1970.
- ⁷E.N. Williams (ed.), The Social Impact of Urban Design, University of Chicago Press, 1971.
- ⁸Ibid., p.9
- ⁹This raises the possibility of defining social impacts as changes in the relationship within an individual person's life. It could be possible to identify the main relationships by interviewing then comparing which of these would be affected by the proposed change. The difference could be defined as the social or psychological impact.
- ¹⁰R.E. Richardson, Walter G. Rooke, G.H. McNevin, Developing Water Resources, Ryerson, Toronto, 1969.
- ¹¹D.M. Paterson, "Impact of Large Scale Developments..." in RAIC Journal, Vol.30, No.6. (June 1953), pp.166-168.

- 12 Joseph S. King, "The Impact of an Aluminum Complex Locating in a Rural Agricultural Region", Unpublished M.A. Thesis, University of Texas, Austin, 1969.
- 13 U.S. Department of Commerce, Bureau of Public Roads, Highways and Economic and Social Changes, Washington, D.C., 1964.
- 14 Joseph L. Schofer & E.N. Thomas, "Information Requirements for Evaluating the Social Impacts of Transportation Investments", in Transportation: A Service. J.S. Coutinho (ed.) New York Academy of Sciences, New York, Vol. VII, 1967, pp.102-116.
- 15 Walter C. McKain, "Community Response to Highway Improvement" p.19-23 in Highway Research Record, No. 96, (Jan.1965) p.19.
- 16 Edman L. Kanwit, "Some Aspects of the Social Impact of Urban Transportation", p.81 - 89, in Transportation: A Service, J.S. Coutinho (ed.) New York Academy of Sciences, New York, Vol. VII, 1967.
- 17 Vancouver Urban Research Group, Forever Deceiving You: The Politics of Vancouver Development, (LIP Grant) Vancouver, 1972, pp.20-21
- 18 During the summer of 1973, the writer, while employed by the Department of Indian Affairs visited several Indian communities in British Columbia where nearby industrial developments such as railways, hydro-electric dams and similar projects had produced destructive consequences upon ways of life that were more or less "traditional". It would appear that if construction projects damage natural environments or the workers over-hunt the areas, animals upon which the Indians depended may disappear. Additionally, once people have been drawn into a market economy (one of the objectives of the Economic Development program of I.A.N.D.) it is very unusual that the people will revert back to their traditional means of living when the employment opportunities disappear.

- ¹⁹Michael Scott, "The Socio-Economic Impact of the Pointed Mountain Gas Field", Northern Policy and Program Planning Branch, D.I.A.N.D., Ottawa, October, 1973.
- ²⁰Ibid., p.37.
- ²¹John K. Kaysmith, Canada North: Man and the Land, Northern Economic Development Branch, D.I.A.N.D., Ottawa, 1971, p.16.
- ²²Ibid., p.21.
- ²³W.E. Phillips & G. Hetland, "The Socio-Economic Value of Biological Resources: The Case of the Peace-Athabasca Delta in Alberta" p. 241-248, in The Proceedings of the Peace Athabasca-Delta Symposium, University of Alberta, 1971. p. 242.
- ²⁴In 1973 the writer was told by an Indian Band Council member in the town of Aiyansh that the railway construction would be obstructed if the Government of B.C. pursued the railway construction without due consideration for the Indian people affected.
- ²⁵J.J. Honigman, "Social Disintegration in Five Northern Canadian Communities", The Canadian Review of Sociology and Anthropology, Vol.2, 1965, pp.199-214.
- ²⁶Jim Lotz, "Social Science Research in the North", The Canadian Forum, Vol.XLX, No. 586 (November, 1969), pp.188-189.
- ²⁷T.L. Napier, "Social-Psychological Response to Forced Relocation Due to Watershed Development", Water Resources Bulletin, Vol. 8, No. 4 (August, 1972)p.784-794.
- ²⁸B.B. Greenbie, "Social Territory. Community Health and Urban Planning", J.A.I.P. Vol.40, No.2 (March, 1974), p.74-82.
- ²⁹R.E. Richardson, Developing Water Resources, 1969, pp.26-28.

- ³⁰ J.W. Wilson, People in the Way: The Human Aspects of the Columbia River Project, University of Toronto Press, 1973.
- ³¹ Karl F. Lagler (ed.), Man-Made Lakes: Planning and Development, F.A.O., United Nations Development Program, Rome, 1969.
- ³² Ibid., p.89.
- ³³ Allen V. Knesse, "The Faustian Bargain", Resources (Resources for the Future), Washington, D.C., No. 44 (September, 1973) pp.1-5.
Knesse states:
"It seems clear that there are many factors which a benefit-cost analysis can never capture in quantitative, commensurable terms. ...Unfortunately, the advantages of (nuclear power) are much more readily quantified in the format of a benefit-cost analysis than are the associated hazards."
- ³⁴ In economists' parlance, external costs are those costs which are not borne by the industry in question. Internal costs are those which the industry or firm must actually pay. An example of an external cost would be the dumping of pulp wastes into a river. The costs of polluting the river are borne not by the pulp mill but by the society as a whole. Pollution regulations can force the plant to treat these wastes and thus they become an internal cost of production.
- ³⁵ A.K. Biswas and R.W. Durie, "Sociological Aspects of Water Development", pp.1137-1143, Water Resources Bulletin, Vol. 7, No. 6, (December, 1971), p.1139.
- ³⁶ W.D. Sewell, R. Judy, L. Ouellet, Water Management Research: Social Science Priorities, Canada Department of Energy, Mines and Resources, Ottawa, 1969, p.62
- ³⁷ The Vancouver Sun, February 12, 1974, "Hudson's Hope Greets New Dam Plan".

- 38 Karl F. Lagler (ed.), Man-Made Lakes: Planning and Development. F.A.O., United Nations Development Program, Rome, 1969. p.149. He also observes the changes in life-styles that may result, "Seasonal patterns of employment in traditional life patterns may be altered."
- 39 Personal communication with a member of the Indian Band at Moberly Lake, B.C. in August, 1973.
- 40 Richard C. Bocking, Seminar Paper, "The Relationship of Water Development to the Canadian Identity," Seminar Proceedings, University of Manitoba, 1972, p.21
- 41 James T. Bonnen, "The Absence of Knowledge of Distributional Impacts: An Obstacle to Effective Policy Analysis and Decisions", pp.246-270, in Public Expenditures and Policy Analysis, R.H. Haveman and Julius Margolis (Eds.) Markham Publishing Co., Chicago, Ill., 1970.
- 42 A.J. Kahn, Theory and Practice of Social Planning, Russell Sage Foundation, New York, 1969, p.9.
- 43 R. Burke, J. Heaney, E. Pyatt, "Water Resources and Social Choices", pp.433-447, Water Resources Bulletin, Vol. 9, No. 3. (June 1973), p.435.
- 44 John Friedmann, Retracking America: A theory of Transactive Planning, Anchor Press, New York, 1973.
- 45 Marion Clawson, "Economic Development and Environmental Impact: International Aspects", pp.23-43, in Social Science Information, Vol.10, No.4, (August, 1971), p.25.
- 46 A survey of 40 interest and neighbourhood groups in Greater Vancouver prepared by the writer and Douglas Stewart in October 1973 found that attitudes towards the development of the 1,700 acre University Endowment Lands were significantly more defined and eloquent among those groups that believe they perceived a loss of amenity. The groups such as tenants' organizations of various types and local associations were reluctant to take

any position as it appeared that the benefits to them of housing construction were perceived to be very indirect and not worth actively pursuing.

- 47 Anthony Downs, "Up and Down with Ecology: The Issue Attention Cycle", pp.38-50, The Public Interest, No.28, (Summer, 1972) p.44.
- 48 R.F. Babcock & D.L. Collier, "Ecology and Housing: Values in Conflict", pp.205-220, Modernizing Urban Land Policy, Marion Clawson (ed.), Resources for the Future, John Hopkins University Press, Baltimore, 1973, p.216. (This is an excellent article which deals with some social consequences of the popular environmental movement, in terms of its effects upon the poorer classes in society. The article points out that NEPA could result in too great a stress being placed upon environmental considerations with the costs being inadequate provision of decent low cost housing, to provide one example.)
- 49 The Impacts of Growth: An analytical Framework and Fiscal Example, Gruen and Gruen Associates, by the California Better Housing Foundation, Inc., Los Angeles, 1972.
- 50 Babcock, Op. Cit., "Ecology and Housing...", pp.215-216. He warns that ecological panic must be avoided:
 "The point is that certain other goals of a social nature are also important - such as housing. Ecology insists upon not only the centre stage but the whole stage, on the grounds that survival is at stake."
- 51 Ibid., p.216.
- 52 R. Burke, et.al., "Water Resources and Social Choices", pp.433-447, Water Resources Bulletin, Vol. 9, No.3, (June, 1973), p.445.
- 53 Residential Living Policy Committee Report, presented to the Greater Vancouver Regional District, Vancouver, October, 1973.

- ⁵⁴J.T. Bonnen, "The Absence of Knowledge of Distributional Impacts", 1970, p.268.
- ⁵⁵Quoted in: Gilbert F. White, "Environmental Impact Statements", pp.302-309 in The Professional Geographer, Vol. XXIV, No. 4, (November, 1972), p.303.
- ⁵⁶See NEPA in the Courts, Resources for the Future, Baltimore, 1973.
- ⁵⁷White, Op. Cit., p.307
- ⁵⁸R.F. Babcock & D.L. Collies, "Ecology and Housing: Values in Conflict", pp.205-220, Modernizing Urban Land Policy, Marion Clawson (ed.) Resources for the Future, John Hopkins University Press, Baltimore, 1973, p.216.
- ⁵⁹Kevin Lynch, "Performance Zoning", Planners Notebook, Vol.3, No. 5 (October, 1973), A.I.P., p.4.
- ⁶⁰Alvin Toffler, Future Shock, Bantam, New York, 1971.
- ⁶¹"Guidelines for Assessment of Economic, Social and Environmental Effects of Civil Works Projects," Dept. of the Army, Office of the Chief of Engineers, Washington, D.C., December, 1972, p.A-1.
- ⁶²Ibid., p.A-11.
- ⁶³"Preparation of Environmental Reports for Nuclear Power Plants," Regulatory Guide 4.2, U.S. Atomic Energy Commission Directorate of Regulatory Standards, Washington, March, 1973.
- ⁶⁴Ibid., pp.4.2-34.
- ⁶⁵Ibid., pp.4.4-34.
- ⁶⁶This was done in California to plug what were considered loopholes in the National Environmental Policy Act.

III. THREE CASE STUDIES

This section will endeavour to develop further some of the themes that were indicated in the previous chapter. The central focus will be on the development of a planning technique and planning process which may be useful in the improvement of the planning for social consequences. While the literature reviewed in the previous chapter was often written with the benefit of hindsight, the three examples in this section that will be reviewed have in common the goal of attempting to provide information and deal with social impacts in advance of the project being considered for development. These points will be used in the preparation of a model for the analysis of the case study in the next chapter which will deal with a planned industrial development in urbanizing suburban district.

In the preparation of a series of reviews it is useful to state the criteria against which the subjects will be evaluated. These criteria were gleaned from the core of the themes which were raised in the previous review of the literature in Chapter II. These are as follows:

Methodology: What type of approach, social, environmental or economic was utilized? How were the environmental effects equated to the social consequences? How were the intangibles evaluated? How were the temporal

aspects dealt with?

Objectives and Goals: How and from what sources were these obtained for the purposes of the report? Were they assumed by the planners, imposed by them, developed from public discussion, or some combination of methods? Were the assumptions of the study clearly stated?

Participation: To what degree did those affected by the decision assist in the formation of the problem or research concern? What role did they have in the preparation of the information? Were efforts made to provide an opportunity to make plans adaptable to and acceptable to the people affected?

Distributive consequences: How were the effects of the development among different groups evaluated? Were various interests weighted equally? Was social efficiency, or the greater good of all people assumed? In whose interests is the project being undertaken?

Level of Information: Was there an adequate level of information generated to analyse the consequences that were identified. To what

degree did the studies meet their stated objectives? What opportunity was the affected public given to contribute to or comment upon the information prior to the decision?

A. Ian McHarg: The Design of a Highway Route

In his book Design with Nature, McHarg provides a criticism of "economic determinism as an imperfect evaluation of the biophysical world."¹ He argues that we must alter our mind set and ultimately our institutions in such a manner that we embrace nature rather than continue to dominate the waters, the land, and our other natural endowments. The abuse of our environment is also reflected in poor living conditions, pollution, lack of aesthetic amenities and other socially undesirable features of the urban environment.

In a chapter of McHarg's book titled "A Step Forward" he attempts to offer an alternative to the "insensitivity and philistinism" of the highway engineer.² His argument revolves around the fact that the view of one type of technical expert results in a narrow consideration of the problem and makes less sense than asking a plumber to design a city or building. Cost-benefit analyses of alternative routes which consider savings in time, operating costs and

reductions in accidents are criticized as being incomplete in his view.

McHarg adopts a more comprehensive set of criteria which include resource values, social and aesthetic values in addition to engineering considerations which in short should "reveal the best highway alignment having the maximum social benefit and the minimum social cost."³ The highway must be viewed in the context of its physical, biological and social processes within its area of influence and coordination with public and private objectives.

In addition to the financial and engineering criteria that can be evaluated in monetary terms, McHarg proposes a more extensive list of costs and benefits which include a series of non-price criteria.⁴ These are convenience, safety, pleasure, health hazards, community values, institutional values, residential values, historic values, recreational values, surface and ground water resources, forest and wildlife resources. These can be either negative or positive in each case. Following the identification of the processes involved, McHarg suggests that the value of different housing areas be ranked and that water courses, forests and the other criteria be ranked as to quality, in terms of species, numbers, age and health. Historic buildings and recreation facilities are similarly listed in order of value. The objective is to find the highway path of

maximum social utility where it will destroy the least valuable man-made and natural aspects of the landscape.⁵

Economic considerations are introduced by equating areas of poor foundations and other physiographic barriers or valuable structures to areas of high social cost as presumably it would be relatively more expensive to construct in these areas. The impossibility of comparing the different categories, for example, wildlife and land value is noted. It is here that McHarg offers a unique solution to the problem of comparing disparate values:

"All that can be done is to identify natural and social processes and superimpose these. By so doing we can observe the maximum concurrence of either high or low social values and seek that corridor which transects the area of least social value in all categories..... It is immediately conceded that the parameters are not co-equal. In a given area, considered by itself, existing urbanization and residential quality are likely to be more important than scenic value or wildlife. Yet it is reasonable to presume that, where there is an overwhelming concentration of physiographic obstruction and social value, such areas should be excluded from consideration; where these factors are absent, there is a presumption that such areas justify consideration."⁶

An important point is not merely the identification of social values but the delineation of these features upon the landscape which can be used for specifying a reasonably precise location for a highway along its entire route. McHarg recommends that the highway be used as a conscious public policy to create new and productive land uses at the

appropriate locations.

The values of the land for each social consideration, such as historical, scenic, forest and residential are indicated on a map and shaded in three shades, the darkest representing the most socially valuable. The three zones in each category may be derived from land prices, habitat, suitability, or subjective criteria. The maps of all the different categories are photographed and the transparencies are overlaid. Those areas which are most valuable appear the darkest and those least damaging appear lighter like an X-Ray photograph. Thus instead of attempting to balance or weight competing demands, the overlays serve to present a vast range of data and illustrate where possible compromise routes may lay. Different criteria, for example, physiographic and natural or any combination of alternatives may be viewed together for evaluation. Various alignments of the proposed highway can thus be evaluated according to the component criteria. The aggregate map of all the criteria will be illustrated in the lighter tones, the least-social-cost corridor. Alternatives will also be illustrated as slightly darker areas.⁷

Methodology: McHarg's approach is a technical one in that it attempts to manipulate data in such a way so as to disclose aggregates of "social value" then illustrate their spatial inter-relationships. In some cases the method-

ology is economic, for example in the land-value category and this is equated with the social value. Each category is evaluated in what McHarg sees as the most suitable manner in each case, some are completely subjective for example historic values while others such as slope, are purely technical. The policy-makers are faced with what appears to be, at first glance, a purely technical evaluation. The problem of weighting the different categories in the social area is not dealt with very well as McHarg admits that "residential value was derived from land and building values that give high social value to the wealthy and too little to the poor".⁸ If this category is a significant one to this method, the results may not be very different from the frequent situation in urban areas where freeways follow the least cost route. This often means the maximum disruption of low cost housing as property values in older areas is usually relatively lower.

Implicit in the system is the assumption that the ecological consequences of the highway are to be minimized at all costs. This strong bias toward the local environment may in some cases be in opposition to national or regional needs and it is difficult if not impossible to introduce this consideration in McHarg's method of analysis.

The temporal aspects of the change were not specifically dealt with apart from the recommendation that the highway be integrated with regional policies and plans. McHarg appears to assume that the one step process involved in the selection of the best route will minimize the social impacts. It may be possible that more detailed policies and follow-up will be required to avoid overlooking the important social subtleties within McHarg's framework.

A further methodological difficulty results from the mapping and shading technique. Only the areas where negative effects would occur are shown up. If the highway were to result in positive benefits to some areas, for example, the encouragement of growth in a designated regional town centre, it would be excluded from this analysis. McHarg admits that his goal is the discovery of the least social-cost route.⁹ Perhaps this reflects the trend to planning in the future as visualized by Hollings and Goldberg where instead of project directors being asked to substantiate the success of their projects, they will be asked to ensure that the disastrous consequences be minimized.¹⁰

Relocation of population is overlooked by McHarg, a seemingly important example of some of the omitted social considerations. A map of population density could be added

to this process.

Objectives and Goals: The values and goals of this analysis are exclusively those of McHarg and appear to be in no way related to those of the people or the communities affected. The existence of a plan for the region is never mentioned in the analysis. The value of this method may be that the various criteria are openly stated and the steps are relatively simple. It would appear that in view of the stated goal of obtaining the least social cost route, this might be more easily accomplished by utilizing the local opinion which will ultimately have to co-exist with the highway. McHarg's method remains a vast improvement over the commonly used purely economic and engineering criteria, however, it would appear to be difficult to incorporate diverse interests and local goals in this method of analysis, once they have been established, as his approach is essentially a technical one.

Participation: The approach utilized by McHarg does not include any opportunity for the participation in planning by those affected. No mention is made in his analysis of the outcome of his method, however, the hazard of its being divorced from the needs of the people of the area may exist. Participation may be demanded by those affected and secondly may contribute better information

about the effects of this and similar developments by utilizing the local knowledge and expertise of environmental groups for example.

Distributive consequences: McHarg's analysis is concerned with the identification "that corridor which transects the area of least social value".¹¹ The social costs which he discusses appear to relate, in a general way, to the broadest environmental interests. Certainly there is little discussion regarding the differential incidence of the benefits resultant from his method of analysis. It is possible that this method is best suited to interests of the middle and upper classes who, having their basic needs met, aspire to improve the quality and aesthetic character of their environment.

It would seem that a more detailed analysis of the effect of the route upon local communities might be a useful addition to the analysis. McHarg admits that high social value for the residential values was influenced by the location of the wealthy rather than the poor. A good environment in societal terms must consider the social climate as well as the physical one. In terms of relocation, it may be socially desirable to displace less dense middle class homes where the mobile residents would have less difficulty adapting than removing apartment structures in a more established area.¹² His analysis provides little information

for the consideration of relocation, but the consequences affecting the communities in the path of the highway could be significant. Mishan points out that the external diseconomies of projects such as airports and highways often have a regressive nature due to the lack of choice and lower mobility of low-income groups.¹³

Level of Information: It has been demonstrated that McHarg's method utilized a fairly comprehensive collection of data, relative to most simple cost-benefit highway evaluations. The manner in which the information is collated by the overlay technique is most useful and reduces the necessity for trading off values by selecting the least important areas in terms of all the criteria used. The aim of this type of analysis is to find the least social cost route according to the criteria and McHarg's analysis and level of information appears to justify the results. A better explanation of how the value judgements involved were made, for example in the grading of institutional values might be useful.

The information regarding the secondary social impacts at the local level however must be viewed sceptically as it would appear somewhat insufficient for use by decision-makers. What McHarg calls social costs are often simple economic costs. Residential values would be an ex-

ample.

Summary: The methodology utilized by McHarg to select the least social cost route for a highway represents an advance, in that broad societal interests, as viewed in his terms are included in the analysis. It might be more appropriate to attempt to obtain better information about the social impacts at the local level to guide our planning in a manner which is flexible and adaptive not only to an illusory single societal goal such as the unity of man with nature, but acceptable to local communities as well. Environmental preservation at the national level may be pointless if plans for the locales in which people actually live and work are not developed by planners and people in a sensitive and co-operative fashion.

McHarg's method is valuable in that most of the criteria and assumptions are stated, and possibly with participation by those affected as well as a representation of broader environmental goals, a compromise more acceptable to all interests may be reached. This compromise could contain a broader level of information and might provide the basis for better decision-making.

Public participation would introduce the matter of local goals and better evaluation of the criteria used in the analysis. This would make it possible to improve upon the situation where an assumed single public interest,

which McHarg seems to depend upon is the central consideration, and define his concept of the general "social cost" to include broader social considerations.

B. Environmental Impact Report for the Proposed Revision to the Sacramento County General Plan¹⁴

The U.S. National Environmental Policy Act of 1969 requires that federally funded projects be preceded by environmental impact studies prepared according to a format which is written into the act. Similar legislation was passed in California at the State level to require that impact statements be prepared for state projects and a variety of other situations. It is in this context that the impact study of the proposed Sacramento County Plan was prepared.

The proposed plan includes an area of 997 square miles and is intended to meet the needs of the county until it reaches a population of 880,000 persons, which is expected in 20 years. The format of the impact statement is to identify and describe the existing physical and social features of the county and following each feature, postulate the impacts which the plan might be expected to produce. The first half of the statement addresses itself to air quality, foundation conditions, water resources, and natural biological features and the ecological changes which would accrue as a result of the implementation of the proposed plan.

Several areas of concern in the "socio-physical" section of the report are also dealt with:

- (i) the impact of the plan on the "historical development" trends of the region is noted and the report concludes that the general trend towards urbanization will continue.
- (ii) "Land use and public facilities" are reviewed in terms of the plan. Problems of groundwater supplies, costs of the loss of agricultural land and open space utilization are seen as negative long term impacts. The report states:

"Analysis of this planned development shows it will involve additional costs for water and sewage utilities, fire and police protection, garbage collection, library and postal services. Additionally, significant impact on school facilities could result."¹⁵

The vague, obtuse reference above to the "impact" contributes only a general identification of the possible range of effects. The abstract nature of these impacts would make the task of planning for or improving the negative consequences a difficult one.

- (iii) "Aesthetic and nuisance conditions" are concerned with the impact of the plan upon the

natural beauty of the Sacramento River.

This point is an interesting one. In many communities there are man-made features or natural features which played a role in the historical development of the area. The preservation of these amenities may be useful in the maintenance of the historical identity of the community as well as being aesthetically pleasing. Town squares, historic buildings such as churches or riverside parks might be examples of such amenities.

Social nuisances such as traffic congestion and noise, health hazards such as smog and possible nuclear radiation from power plants are given as illustrations of the negative social impacts of growth and further urbanization. One of the goals in the plan is apparently to preserve the city of Sacramento as the employment centre for the county. The congestion resulting from further growth is considered.¹⁶ It might have been useful to identify other social impacts in the fields of housing and transportation for example which could have resulted from this decision.

(iv) "Property value and Tax Base". No attempt is made in the study to analyse the impacts upon the tax base which will result if the planned growth occurs. Urban sprawl is seen as a general social cost which the county plan seeks to restrict. Unemployment is discussed, however, the impact statement concludes that the "proposed plan cannot be expected to have measurable effect on the level of unemployment in the county."¹⁷

One of the issues which is addressed is the question of land prices and the degree to which they are affected by the plan. The goal of curbing urban sprawl laid down in the plan resulted in the down zoning of some of the land in the county. The impact statement does not attempt to analyse the social impacts or distributional consequences of this policy.

(v) "Demographic and Housing Characteristics".

The impact report states that, "the effect of the General Plan upon housing characteristics is fairly limited." One must question this assumption for in many cases consequences may be significant. The distribution of permitted

land uses may result in exclusionary zoning, lack of mixed housing types or higher prices and in general produce important social effects which planners must not overlook. Regional plans should take into careful consideration the housing conditions of the area and a more detailed presentation of the information than is found in the impact report would be required to improve the "limited social impacts of the plan".¹⁸ If intervention in the present housing trends is required, a social impact study should identify these needs in a specific manner.

One of the alternatives considered to the proposed plan is one of "No Growth".¹⁹ The consequences of this may have significant impacts upon several groups, for example those people who may wish to purchase or rent new accommodation. The Report states merely "adverse economic impacts would probably occur on those businesses and industries reliant upon physical growth for profits."²⁰ There is a consistent lack of analysis in areas pertaining to social needs such as housing, schools, health care, recreation and other concerns which a social impact investigation of a proposed plan should reveal.

Methodology: The methodology employed in the "Environmental Impact Report for the Proposed Revision of the Sacramento County General Plan" is essentially an ecological one. The impacts of the proposed plan on the natural environment are dealt with in a comprehensive manner. The socio-physical impacts are treated in a similar fashion, by listing the existing conditions and by commenting or often speculating on the possible consequences. Impacts were identified in a broad area of concern, however, little attempt was made to undertake any analysis which might have been useful in improving the quality of the county plan insofar as it relates to social matters. Little attempt was made to deal with intangible social consequences other than aesthetics. Community structures and features were not mentioned. The impacts over time resulting from increased urbanization and the need for additional transportation facilities were not discussed.

Participation and Distributive Consequences: In the preparation of the draft Environmental Impact Report, there was no indication that the views of the public were sought. The twofold purpose of participation according to the criteria above is to permit those affected by plans to respond and to aid in the collection of data which can then be used in the preparation of plans which are as well

adapted as possible to the needs of the community. The opportunity for criticism of the Impact Report is provided for by the public distribution of the first draft copy. It is interesting to observe that representations are made on behalf of the owners of 107 acres of land formerly industrially zoned but frozen as agricultural in the new proposed plan.²¹

Another brief is presented by a land owner who requests that the Impact Report deal with the impacts "on the entire population as well as those on various groups."²² This essentially is a request for more information on the distributive consequences of the plan. The fact that the Impact statement does not deal with the impacts upon farmers and the viability of farming as an economic pursuit in the county would appear to be a significant oversight in a report purporting to reveal the socio-physical impacts of the plan. Better information about the viability of agriculture as well as an analysis of the consequences of preserving land might have enabled the decision-makers who ultimately must approve the plan make the best possible decision under the circumstances. This inclusion of citizen reaction illustrates the importance of this source of critical comment.

Level of Information: Many of the areas of social concern are identified in the report, however it was apparently

not deemed necessary to provide a more in-depth analysis of some of the issues which have been raised. It has been noted that there is insufficient information about the role of agriculture to the county and the social loss which urbanization of the farmland may produce. In some cases, people may be forced to relocate off their farms by higher taxes for example. The social impacts at the local scale in terms of housing and community facilities lack the degree of information necessary for balanced and well informed decision-making.

Summary: The Environmental Impact Report for the Proposed Revision of the Sacramento County General Plan identifies many of the long range and sometimes irreversible consequences of the development of the region. The main focus or bias of the report is environmental, that is, it adopts the view that the intrinsic value of nature is to be preserved for its own sake. The social impacts of the plan are dealt with in a generalized manner and the specific goals of the region do not appear to have been used as a basis for evaluation of the proposed plan. Many social concerns such as community centres, day care, health facilities and housing for special groups such as the elderly are never raised. Information regarding the supply of housing as indicated by vacancy rates for example is not presented. The

implicit assumption appears to be that essentially the market is functioning in an adequate manner to meet the needs of all the residents of the county. Perhaps this is a reflection of the historical tradition in many of the States in the U.S.A. that health or social housing and other public facilities are not the responsibility of government, at least to the degree they are developed in Canada or Europe.

The indication appears to be that while this impact report generates a rather sophisticated level of technical environmental information in areas of concern such as water resources, atmospheric conditions and the impacts upon plant and animal communities, the information about the social consequences of the plan are not in equal balance. The Report evaluates the environmental consequences in much greater detail which could tend to build in a bias into the decision-making. The hazard which McHarg observed of allowing highway engineers alone to make decisions affecting social needs may be repeated in this case where the heavy physical environmental bias of this type of report may result in a lack of due regard to social consequences.

Equally important is the question of how and where social information is to be included in the planning process. In this case, a land use plan for 20 years was proposed.

This was then followed by an Environmental Impact Statement. It would appear that consideration of social and environmental quality goals for a region must precede, rather than follow, the development of a regional plan. The following example may provide a different approach than that illustrated by the Sacramento Plan Impact Statement.

C. The British New Towns Development Process.

The previous two cases dealt essentially with endeavours to gather information in a scientific manner about the environmental and social consequences of a highway project and a county plan. The purpose of the following analysis of the British New Town development process deals with the problem of social consequences resulting from the location of the New Towns. The role of public participation and the dialogue between the planners and those whom the plans produce social consequences will be explored. Information will be gleaned from a variety of sources rather than a single case or report. The obvious difference between the two previous sample studies and the British example is the stress upon technical planning tools and expertise in the former studies, and the utilization of a planning process, introducing the role of public participation in the British case. In Britain, an attempt to establish social mechanisms to deal with social consequences as they develop is adopted as opposed to endeavour-

ing to identify social impacts in advance as in the former American studies.

This example is useful to planners in North America because awareness in Britain of the need to husband land development with broader social concern has long been a tradition as it has in other European countries. The "frontier economy" which was discussed in Chapter I appears to be drawing to a close in North America and observation of the planning processes in other countries with limited land resources such as Britain, may provide some useful insights. The different backgrounds are elucidated:

"Land use zoning in the United States has traditionally been used to protect the money property values of land and the developments on it, while land-use planning in Britain has been an enterprise of much wider scope and social purpose, including...efforts to protect the countryside...conserve natural resources, preserve the treasured villages and city townscapes from indiscriminant redevelopment."²³

It may be possible that the present increase in environmental concerns and pressure for more planning in North America as demonstrated by the growing popularity of citizen's groups both in the area of conservation and participation in welfare rights may provide the public impetus to move the present style North American planning into some of the areas that are associated with planning in Britain.

Broady states:

"Planning has to be thought of not only as a matter of physical design and economic policy but also as a social process of an educational kind which seeks to encourage the contributions which people themselves can make to the improvement of their own social environment."²⁴

One of the most interesting aspects of postwar planning in Britain has been the New Towns program. The objectives endeavour to develop planned, self-contained and balanced communities, in order to provide better alternatives to the larger congested cities such as London.²⁵

The imposition of more than twenty new communities on the landscape or country towns of Britain has produced the potential for significant social consequences and disruption of traditional patterns. In addition over 50 "expanding towns" have been designated to help accommodate growth in less intensively developed areas.²⁶

The largest New City in Europe will be Milton Keynes, located between London and Birmingham, with a projected population in 1990 of 250,000 people.²⁷ The 1967 population of the area was 48,000, most of whom were in the present town of Milton Keynes. Also included in the designated area were 11 small villages.²⁸

While the purpose of an impact study should be to provide prior information about the consequences of alternative proposals, the British New Towns sites are not selected

in this manner. Decisions about the sites for towns are sometimes made in response to political pressure rather than economic or social assessments.²⁹ The decision is the result of dialogue between central and local governments, lay pressure groups, and technical advisors in some cases.³⁰ A public inquiry is held following the decision on the location of the New Town. Following the inquiry the secretary of state makes, amends or abandons the order designating the area.³¹ The designation may mean that all the land may be subject to expropriation. Relocation of some people may be necessary.

Social consequences of projects such as New Town developments are within the realm of man's control provided that the mechanisms and institutions exist to deal with problems which were identified in advance or have just developed. The British appear to adopt the view that that the best interests of the whole society are served by the New Towns, thus it is necessary in some cases to overrule local views.

The development processes of the New Towns attempt to deal with some of the social concerns that may develop in an interesting manner. In the case of Milton Keynes where a large New Town was to be imposed on the existing town and several surrounding villages, attempts were made to minimize the impacts.³² The villages were each provided

with a plan to preserve their physical and social fabric and an effort was made to insure that integration within the city is accomplished to mutual benefit.³³ The method utilized to do this was largely through physical planning, by providing open space around the villages, preserving the buildings, prohibition of construction or through traffic and the prohibition of infill housing.³⁴ The villages are seen as a link between the old and the new, and the report states that the spaces will be left around the villages "so that the existing population will not feel swamped." A sense of place will be preserved.³⁵ Stress is also placed on the planting of trees to insulate the residences from the disturbance of motor traffic.³⁶ The emphasis appears to be on the type of architectural determinism that Ebenezer Howard espoused in Garden Cities of Tomorrow.³⁷

Serious consideration is given to social problems as well. The attitude appears to be that the design of the New Town should attempt to minimize the negative impacts, however, it is also deemed necessary to provide at the same time a generous amount of social services and personal care to remedy problems as they develop.

Discussion and participation are incorporated in the development. In one of the existing towns in the Milton Keynes area, opposition was voiced to community health centers as people stated their preferences for the old family

doctor. The planners attempted to educate people about the advantages of the health centres.³⁸ The chance to be heard, to put one's case forward, in all probability also helps groups to accommodate themselves to the disappointment of not getting all they would want.³⁹ In another village the New Town Development Corporation, the central development agency, worked with the local officials and people to assist in the rehabilitation and preservation of some of the village's older housing.⁴⁰ Fears of increased taxation, often a result of the upgrading of facilities in this country, are not encountered in the New Towns areas as the burden is borne by the Development Corporation.⁴¹

The role of participation is stressed in one of the Milton Keynes Corporation pamphlets:

"...the future of the villages depends upon the people living in them, and there is no lack of interest or initiative here. Meetings are constantly being held between the villagers themselves, the district councils, and the parish councils...This is where the real work of preservation is being done - through co-operation between the people concerned. Because in the end people are always more effective than planning controls."⁴²

The suggestion seems to revolve around the assumption that the negative consequences of the construction of New Towns can be reduced by involving the people, the planners, as well as the local politicians. The idea of providing

people with the tools necessary to enable them to participate may be a very useful one if the sense of powerlessness and alienation that people could develop in this situation is to be avoided. The challenge of dealing with the problem of integrating a small English village which has probably remained more or less the same in hundreds of years within the area of a New Town is a very difficult one and the methods employed in this situation must be carefully developed.

For the incoming population similar social concern is evident on the part of the planners. Activity centers, each serving 30,000 people, are intended in the new communities for education, health and personal social services staff.⁴³ In another expanding town, Peterborough, the "Cresset" or community area with facilities such as shopping mall, do-it-yourself-shop, potters place, discoteque, handicapped centre, hostel, toy library, sports hall and an old peoples centre are provided.⁴⁴ Social development is seen as an integral part of the New Towns process.

Methodology: In the case of the development of a British New Town, it has been shown that less emphasis is placed upon systematic information about the social impacts or suitability of developing different alternatives.⁴⁵

Rather, a process is utilized to make decisions of this nature. The site location is chosen by the central government following discussion and the approval in principle

by the local politicians. Public inquiries are provided for prior to the final designation of the site.

Objectives and Goals: The goals of the New Towns Act in Britain are threefold: (1) to provide alternatives to "megapolis" or the excessive concentration of people, (2) to provide ways of organizing the vast volume of new development which will occur naturally along more beneficial lines, (3) to provide socially balanced communities as self-reliant economical social entities.⁴⁶ The goals of the New Towns therefore are essentially national ones. The above description of the development process demonstrates that attempts are made to mitigate the social consequences of the projects on existing towns and enhance their livability. In a regional context, goals such as the provision of more housing may be realized through the designation of new or expanding towns. An effort is made to organize and control change in such a way that continuity and stability are maintained in an effort to avoid disruptive change and social conflict.⁴⁷

Participation: While participation by the public in the determination of the sites for New Towns is minimal, local politicians engage in discussions with the central government. The general public is provided with the opportunity to react to the designation of a New Town area

at a public inquiry.

In the course of the development of the town, it appears that local interests are permitted to have an input into matters of local concern, such as social services, health, libraries and recreational facilities. As much of the planning is undertaken prior to the arrival of the new inhabitants, options for the future must be left open as far as possible. The case involving the villages in the designated area of Milton Keynes was given as an example. The common law rights to be heard are met by the public inquiry. There is little indication that participation is used to obtain information, at least in the initial stages of the designation, although presumably information brought forward in the public inquiry could be utilized in the final decision on the site and design of the new community. Small scale problems, where participation would not conflict with the national goals, appear to lend themselves to public involvement during the development process. The difficulty of having participation during the early development of the towns when the residents have yet to arrive necessitate that many decisions are made by the Development Corporation.

Distributive Consequences: While the complex political process of New Town designation is not preceded by a research into this area, the implicit assumption of the

program is to provide better environments for working people at reasonable cost. The loss to the farmers who once owned the land or who in some cases would be forced to relocate are not analysed in view of the assumption that the New Town is in the greater interest.

Level of Information: It has been shown that the level of prior information about the consequences of the New Town appear somewhat minimal. The discussion between the Development Corporation and the local governments probably raises many of the local concerns while the public inquiry at the last stage, permits conservation groups and other interest groups to contribute their point of view prior to the actual construction.

It appears that the British prefer to adopt a type of institutional structure in the New Town corporation which permits a monitoring of the process and enables a relatively rapid response to areas of difficulty which may arise. The dialogue which is maintained with the local people in the case of the renewal of housing in one of Milton Keynes existing villages demonstrates an effort to reduce the social consequences, such as alienation which might otherwise be felt by the people were they excluded from any involvement. It appears that the less formal British approach, relative to mechanisms such as NEPA in

the U.S.A., utilize dialogue between interested groups affected by planning to determine the best course of action. Hall points out that traditionally in England, the preservation of a way of life counted heavily above economic consideration, unlike America.⁴⁸

Perhaps the fact that Britain has more or less been fully developed, in terms of land utilization, for several centuries has enabled her to evolve a system of planning which incorporates social and other concerns rather than simply stressing economic development. This difference between America and Britain would be expected to diminish as the last frontiers of untouched land in North America become more developed and it may be possible that increasing concern for the social consequences of our development planning will result.

Summary

The approach of Ian McHarg to the problem of the social consequences of a highway route through part of the Eastern North American Megolopolis presents an essentially technical approach to the need for considering social impacts in the decision-making. The environmental, man-nature point of view essentially reduces the opportunities for public participation but stresses the need for keeping future options open. Social impacts are dealt with in the abstract, from the view of an expert and without due regard for the diversity of goals which should be considered in a social impact analysis. The identification of the various areas of social concern which McHarg elucidates are useful and do improve upon the situation where experts, such as highway engineers made decisions on simple economic and physiographic grounds alone.

The Sacramento County Plan Environmental Impact Report recognizes the need to consider not only the ecological consequences of urbanization but also the need to identify some of the social impacts as well. The more easily quantified presentation of the physical environmental effects and the mere identification without evaluation, of the areas of social concern presented in the study may not provide a balance of information which would be acceptable

to all the diverse interests affected by the plan. The decision-makers are provided with the views of experts essentially, rather than a broader cross-section of attitudes. Public participation was only permitted through the process of the publication of the Draft Study and it appears from the briefs presented as an appendix to the final Environmental Impact Statement, that only the more sophisticated and financial interests were able to respond to this format. Those interests in the country such as farm workers who may not have been well enough organized to respond about their housing needs for example, were for all practical purposes, excluded from the discussion on the social impacts. In addition, this approach separates social concerns from the planning process.

Perhaps planners must provide reasonable opportunities for the views of more interests in the preparation of a social impact statement. In addition, an indication of the steps which may be required to deal with the social impacts might be useful for use by the policy makers.

In Great Britain the construction of New Towns provides the opportunity for significant social relocation and dislocation in the densely populated "tight little isle."

Hall points out that change as such is not opposed; rather an effort is made to organize and control it in such a way that social continuity and stability are maintained.⁴⁹

In this brief sketch of the social aspects of the New Towns development process it can be seen that there is less effort put into the prior identification of the multiple order of social impacts by the experts relative to McHarg or the Sacramento case. This information is provided at the political level through dialogue between the various levels of government and ultimately through a public inquiry prior to the final designation of the New Town, and the establishment of a development corporation. During the course of the project, institutional arrangements are established to permit dialogue and participation by the people involved, in an effort to mitigate the negative social consequences by providing for the exchange of information necessary to work out satisfactory solutions to problems as they arise.

The contribution of this chapter has been to identify two approaches or methods in the area of social impact research. The first is typified by attempts to identify from an expert or technical point of view, the range of consequences or social impacts of a project in a similar fashion to the ecological effects. This method may involve participation by those affected but in the

two cases presented here, McHarg's and the Sacramento study, public input was not utilized as a source of information about the possible future social impacts of the projects. Participation may be useful not only in providing information which can be used in an open or flexible planning process to improve the plans in terms of making them more acceptable to the ultimate consumers, it can also act as an aid to the accommodation of change.

The second approach is the one used in Great Britain where, as far as possible in the planning process, options are kept open to provide those in the paths of the New Towns, with the opportunity to participate in the planning. A process of dialogue and involvement is fostered to enable the designs or programs to be amended where required. This community development approach as utilized in Britain may enable a more adaptive method of dealing with social impacts because it recognizes the fact that social changes or dislocations brought about by planning decisions can also be regulated, manipulated by man in such a way as to prevent, or regulate the consequences in many instances.

Footnotes

¹Ian McHarg, Design with Nature, Doubleday, Natural History Press, Garden City, New York, 1969, p.25.

²Ibid., p.31.

³Ibid., p.32.

⁴Ibid., p.33.

⁵Ibid., p.34.

⁶Ibid., p.34.

⁷Ibid., p.35.

⁸Ibid., p.35.

The illustration which is produced by the system of overlays may not reflect the varying priorities associated with the different criteria. Similarly, if, for example, two ecological criteria such as quality of forest growth and animal habitat are used while only one social criterion such as value of the land for housing is used, the shading illustrating the two ecological factors will appear darker, and on the composite overlay, visually weight the ecological factors over the social ones. It must be pointed out that it is possible to analyse the criteria separately in whatever patterns may be required.

⁹Ibid., p.35.

¹⁰C.S. Holling & M.A. Goldberg, "Ecology and Planning", A.I.P. Journal, Vol.37, No.4, (July, 1971), p.229.

¹¹McHarg, op.cit., p.35.

¹²R. Burge & K. Johnson, Social Costs and Benefits of Water Resource Construction, University of Kentucky, 1973, p.11.

¹³Ezra J. Mishan, The Costs of Economic Growth, Praeger, New York, 1967, p.73.

- ¹⁴Environmental Impact Report for the Proposed Revision to the Sacramento County General Plan, prepared by Environmental Impact Section, Sacramento County Community, Development and Environmental Protection Agency, Sacramento, California, April, 1973.
- ¹⁵Ibid., p.70.
- ¹⁶Ibid., p.72.
- ¹⁷Ibid., p.76.
- ¹⁸Ibid., p.81.
- ¹⁹Ibid., p.85.
- ²⁰Environmental Impact Report..., op.cit., p.85.
A study purporting to analyse the "socio-economic effects" of a plan must endeavour to provide a more detailed analysis as to the effects of a policy on all those affected; not merely the local industrial interests. Economic and social impacts of "no growth" may be significant in terms of the future shape and composition of the community. Plans which adopt this policy must consider the consequences, rather than permitting the social chips to fall where they may.
- ²¹In the appendices of the report, reactions and briefs which have been presented to the County in response to the draft Environmental Impact statement are reproduced. pp.93-127.
- ²²Ibid., p.109.
- ²³Peter Hall, H. Gracey, R. Drewett, & Roy Thomas, The Containment of Urban England, Volume Two: The Planning System: Objectives, Operations, Impact, George Allen & Unwin, 1973. "Some Functions of the British Planning System", Harry Gracey, pp.363-375, p.363.
- ²⁴Maurice Broady, Planning for People, Bedford Square Press, London, 1968, p.9.
- ²⁵Peter Hall, op.cit., p.329.
- ²⁶Ibid., pp.355-356.

- 27 The Times, London, March 24, 1972.
- 28 Architectural Design, June, 1973, Special issue on Milton Keynes, p.355.
- 29 Lady Sharp, "The Government Role", New Towns: The British Experience, Charles Knight and Co., London, 1972, p.42.
- 30 Sir Henry Wells, "Agencies & Finance", in New Towns, 1972, p.31.
- 31 Ibid., p.32.
- 32 "How the Identity of the Existing Villages is Being Preserved", Milton Keynes Development Corporation, pamphlet, 1972.
- 33 Architectural..., op.cit., p.361.
- 34 Milton Keynes, op.cit..
- 35 Ibid..
- 36 The Times, op.cit..
- 37 Sir Ebenezer Howard, Garden Cities of Tomorrow, F.J. Osbourne, (ed.), Faber, 1965, (First published in 1898 as Tomorrow: A Peaceful Path to Reform).
- 38 The Times, op.cit..
- 39 Peter Hall, H. Gracey, R. Drewett, & Roy Thomas, The Containment of urban England, Volume Two: The Planning System: Objectives, Operations, Impact, George Allen & Unwin, 1973, "Some Functions of the British Planning System", Harry Gracey, p.367.
- 40 Architectural..., op.cit., p.361.
- 41 Ibid., p.398.
- 42 Milton Keynes, op.cit..
- 43 The Times, op.cit..
- 44 The Times, November 17, 1972, "Peterborough".

⁴⁵Peter Hall, H. Gracey, R. Drewett & Roy Thomas, The Containment of Urban England, Volume Two: The Planning System: Objectives, Operations, Impact, George Allen & Unwin, 1973, "Some Functions of the British Planning System:", Harry Gracey, p.356.

⁴⁶Peter Self, "New Towns in the Modern World", New Towns: The British Experience, H. Evans (ed.), Charles Knight & Co., London, 1972, p.208.

⁴⁷Ibid., p.368.

⁴⁸Ibid., p.374.

⁴⁹Ibid., p.368.

IV. AN ANALYSIS OF THE SOCIAL IMPACTS OF A PROPOSED INDUSTRIAL DEVELOPMENT: THE TILBURY ISLAND PROJECT AND THE COMMUNITY OF DELTA

The purpose of this Chapter is to propose a method of identifying in advance the possible social impacts of an industrial development utilizing the criteria and specific social concerns that have been raised in Chapters II and III. The objective of the study would be to provide information regarding the range of social impacts of the project, for the decision-makers as well as those people affected by the project. This could permit an analysis of the social feasibility of the proposal and could serve to identify those areas of concern which must be included in the on-going planning to enable the project to proceed in the least disruptive manner.

A social impact study could be undertaken by an external interdisciplinary team of experts or a government planning agency. Concomitant studies of the environmental, economic, engineering and transportation aspects of a major project of this nature should be provided along with the social information.

The need for such a study could be written into law as is the case with the National Environmental Policy Act in the U.S. although this may prove cumbersome. A social impact study could be initiated alternatively by community concern about the proposed project, or in

response to a perceived public need for more information.

Participation in the study would be a key element in promoting public discussion of the subject. The presentation of a draft report of the findings of the social impact study would provide the opportunity to test the accuracy and completeness of the analysis. This could be distributed to interested groups and discussed at public meetings or studies by citizen's advisory groups. The social impact study may provide a basis for dialogue between the planners and the affected individuals and groups which may, through discussion, reduce the uncertainty and the negative aspects of the proposed project. In addition, a basis may be provided for action on the future longer term social consequences which will arise as the project proceeds.

The planning function is seen, for the purposes of this study, as a means of providing the broadest range of information possible along with the evaluation of the alternatives. Information generated in the course of a social impact study may in some cases prove conclusively that the project under consideration may have such massive consequences that it must not be permitted to proceed. The MacKenzie Valley oil pipeline or the NAWAPA continental water export scheme may fall into this category. In many

cases, the preparation of a social impact study will identify those areas in which care must be taken. The identification of areas of possible social difficulty could establish the terms of reference for use by the engineers and technicians in the design or the construction of the industrial complex or other installation. If it is determined that the proposal will proceed, the goal must be to provide the information necessary to minimize the disruption to the community resulting from the project.

It has been pointed out that the public discussion of the development project, which is in part facilitated by the social impact study, will provide people with the opportunity to adapt to the changes that will occur to the community. Thus social impact reports are not seen as a replacement for cost-benefit or environmental impact studies but as a supplementary type of information focussed on people in their local community milieu. As more people become concerned about the consequences of our continued economic expansion in the pursuit of the elusive "quality of life", social impact studies may facilitate broader discussion of societal goals and inclusion of interests (i.e. local) which were often not considered in the past when decisions were made about the industrial development of the country.

This study is not an attempt to prepare a comprehensive social impact study of the proposed Tilbury Island Industrial Park on the Community of Delta. It is, rather, an attempt to project the stages to be followed and the areas of concern which such an analysis might require. The first stage of the social impact process, the identification of areas of concern, will be dealt with here. A process for dealing with the on-going problems as they evolve with the actual construction will be put forward in the following chapter. For purposes of this study, it is assumed that the main impacts will occur within the boundaries of the Municipality of Delta.

The Delta Area

In 1961, the population of Delta was 14,597 persons, a 66.8% increase over 1956.¹ By 1971, the population reached 45,860, a 320% increase between 1961 and 1971. Many of the area's residents are employed in other parts of Metropolitan Vancouver. The principal shopping area and centre of municipal government is Ladner, formerly a fishing and agricultural centre.² Ladner is located 13 miles south of the Vancouver business district. There are new residential developments in the Tsawwassen upland area further south and in North Delta, on the opposite bank of the Fraser River to New Westminster. Major

stimuli to the residential and industrial development of the area resulted from the construction of the Deas Thruway, along with the tunnel under the Fraser to Vancouver in 1958. The construction of a ferry terminal for Vancouver Island traffic on the Roberts Bank foreshore in 1958 and the later development of a bulk loading facility in 1967 for coal with a new Canadian Pacific Rail line resulted in the loss of some farmlands to the area.

Manufacturing is mainly concentrated on the 1,200 acre Annacis Island Industrial Estate, an important manufacturing and distribution centre for a wide variety of industries including metal and steel products, plywood, paint and food processing. Approximately 1,600 persons were employed (1961) by 43 firms.³ This estate is being developed by a private company, Grosvner-Laing. It should be noted that Annacis Island is not directly connected to the municipality of Delta but is connected by bridge to New Westminster. Workers at the Annacis complex, therefore, would be more likely to reside in Richmond, Burnaby or New Westminster.

Delta had 275 farm operators in 1961 and the farm population totalled 1,085 persons on 23,982 acres.⁴ Dairying is of first importance but truck farming is also

significant. The rich alluvial soil on the floodplain provides good opportunities for agriculture. The average annual precipitation at Ladner is 36 inches which also makes the area more attractive for residential purposes than Vancouver with 60 inches.⁵

Fishing, in the Fraser estuary and recreational facilities such as hunting for birds, and water oriented facilities such as Beach Grove on Boundary Bay are available in the area. There are 10,000 acres of peat bog in north central Delta, from which commercial peat moss is harvested.

Delta was the second fastest growing region in British Columbia between 1956 and 1961 with a 66.8% population increase. On the average 275 dwelling units were built annually.⁶

Serviced industrial land totals 1,694 acres and is principally located along the Fraser River.⁷ The river is navigable by ocean going ships of less than 40 foot draft up to New Westminster. Road and rail service make the river area attractive for port and industrial development. The Tilbury area is presently high quality farmland but is mainly zoned industrial.⁸

The Proposed Project

On November 26, 1973, the Provincial Minister of

Industrial Development, Trade and Commerce announced the Tilbury Island Industrial Land Assembly involving 726 acres of land to the south of Tilbury Island in the Municipality of Delta.⁹ The objective was to provide reasonably priced, serviced industrial land on a lease basis for industrial use, "To provide real and ongoing assistance to the business community in B.C."¹⁰ The desire to bring industries "that will provide many alternative forms of employment to the people of the area" was mentioned.¹¹ The benefits were seen to include advantages to businesses which could now locate without "massive expenditures on land" and the opportunity for relocation of manufacturing industries from "Vancouver, West Vancouver (sic) and North Vancouver."¹²

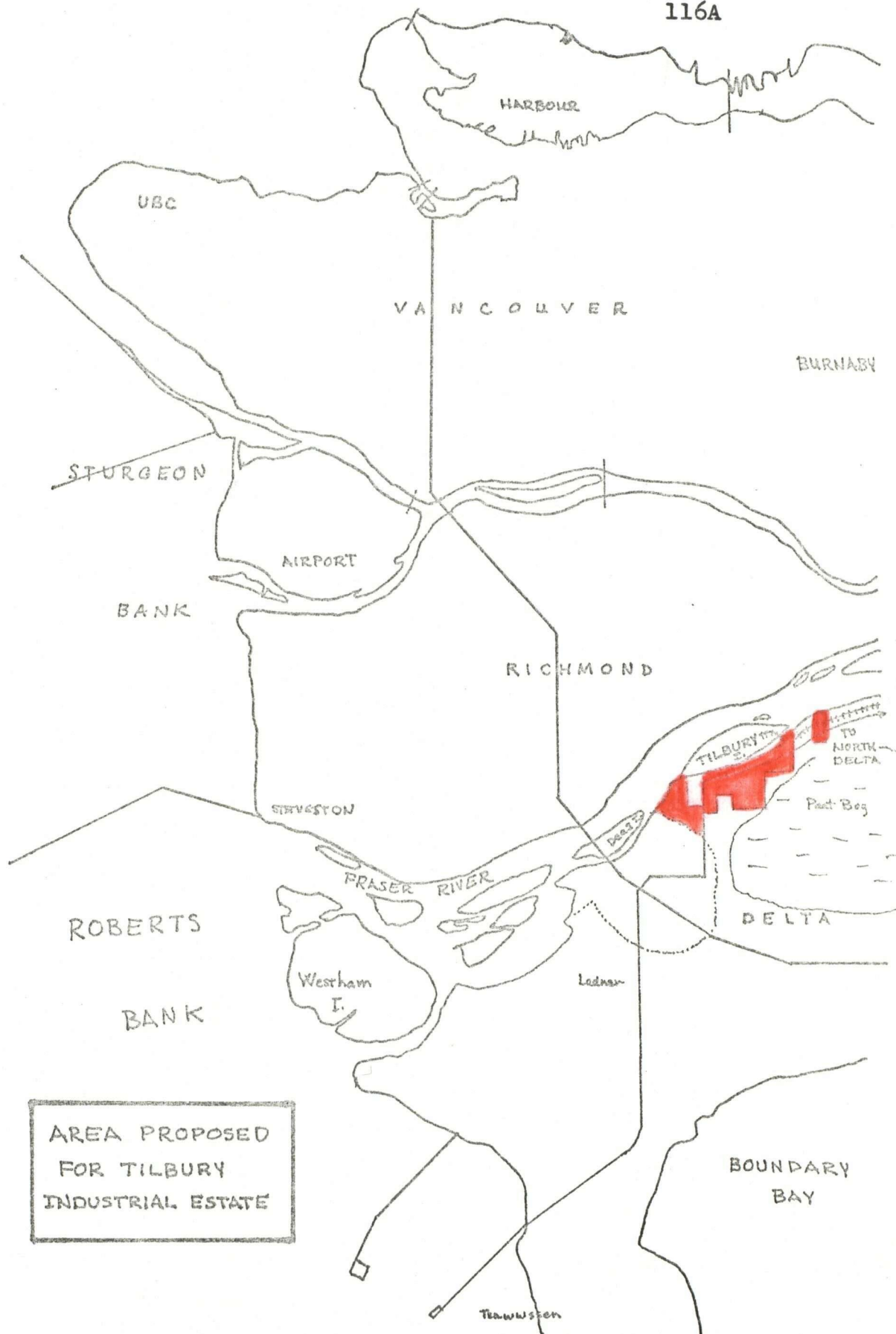
The objectives of the proposed development appear to be aimed at one group in society; the industrialists. It would appear that the objectives of the Tilbury proposal, as outlined in press release, were economic. Perhaps it is possible to assume that ultimately the benefits in terms of jobs and salaries will filter down to the residents of British Columbia. The assumption that the provision of less expensive land will benefit the consumer is erroneous as prices in a market system are established by competition rather than the costs of production. Thus the objective of

"providing on-going assistance to the business community of B.C." may simply produce an increase in profits.

It may be more efficient to deal with social needs in a head-on fashion and allow the market system to determine the economic viability of various industries. In a land-short region such as Vancouver, high land prices for industrial purposes may discourage land extensive industries in preference to labour intensive ones, which is in fact a goal of the regional government.

The project proposal includes a deepsea port facility, extension of the Canadian National rail line into the area with \$250 to \$350 million dollars worth of plant construction over the life of the project.¹³ While the main use of the land in the area is still agricultural, the 1966 regional plan has the area zoned for industrial development.

The costs of the project proposed will be borne by the provincial government for the land acquisition and site preparation including the construction of deepsea docking facilities and utilities. The private companies who lease the land will undertake the construction of those facilities they require. The municipality is not able to tax provincially owned land, however, the Minister responsible for the project has stated that the municipality



will receive an annual grant from the government in lieu of taxes.¹⁴

The Decision-making Process

There is no indication that the benefits of the development have been carefully evaluated. The press release states that the objective is to provide reasonably priced land for the business community.¹⁵ It is also stated that it is the government's policy to encourage "labour intensive industry and to provide alternative forms of employment to the people in the area."¹⁶

The decision to proceed with the project appears to have been a unilateral one rather than a product of discussion between the province, the municipality and the regional district. This is indicated by the fact that following the announcement of the proposal the Delta Council moved to set up meetings with the provincial ministers of highways, agriculture and trade and commerce to have them explain the government's policy on the industrialization of farmland.¹⁷ In February, 1974, the G.V.R.D. appointed a similar delegation to meet with the Agriculture Minister to discuss the impact of the proposed Tilbury Estate upon farms in the area.¹⁸ Criticism has been leveled at the government for purchasing agriculturally zoned land for industrial purposes at "artificially low prices."¹⁹

The decision to locate the proposed industrial estate in Delta was not based upon social considerations. According to Mr. K. Chauncey, the Director for Land Acquisition and Development in the B.C. Development Corporation, the decision was based upon economic criteria such as the desirability and proximity to the Canadian National Railway Trackage and barge facility and the proximity in temporal terms for the shipping of goods to Vancouver.²⁰ The consideration of the goals of the municipality of Delta or the Regional government were not involved. It may be more likely that decisions which are undertaken without due consultation and discussion about social goals are more likely to produce negative social consequences.

Public Participation

It does not appear that those affected by the Tilbury project were provided with the opportunity to participate in the formulation of the proposal. The conflict between the need for confidence to avoid the inflation of prices in large land assembly projects such as this one and the need for participation creates a difficult contradiction. It would seem possible however to acquire the land, then to engage in public discussions in the formulation of plans for the area, rather than proceeding

unilaterally as was done in this instance.

Public and Government Attitudes Towards the Tilbury Industrial Development in Delta.

In general a social impact may be defined as a consequence upon a community of a planning decision insofar as it affects various aspects of life in the community, and the degree to which the change conflicts with the prevailing goals and attitudes in the community. The scope of this study is mainly a local one, that is, it is an attempt to determine the effects of the Tilbury Industrial Estate upon the community of Delta.

Social impacts can be positive if the actions result in the accomplishment of goals desired by those affected. On the other hand, the difference between the attitudes and goals of one group and the probable consequences of the action constitute the negative social impact. For example, the provincial or national goals or attitudes towards housing could be compared with the proposed policies or projects and so on at each level of societal interest.

It has been assumed in the past that economic growth has been a desirable national goal at any cost (e.g. resource depletion, environmental loss or aggravation of inflation.) It has further been assumed that economic growth would reduce inequalities of income and benefit the poor. One of the challenges of a social impact analysis

must be to take these assumptions to task and attempt to analyse and provide more detailed information about development projects.

A. Attitudes of the Province and the Regional District.

One of the prerequisites to a social impact study would be to obtain information about the attitudes of the people in the Delta area towards industrial development, as well as the attitudes of other groups affected by the proposal. At the most general level, the provincial one, the press release prepared by the Minister of Industry, Trade and Commerce on November 26, 1973, indicates a desire to provide "benefits to the economic development of British Columbia."²¹

It is indicated that the provision of new industrial land will provide alternatives for firms wishing to relocate away from False Creek and thus improve the urban environment elsewhere in the region.²² In addition, it is stated that the industrial estate will attract labour intensive industry in line with provincial and regional policies. Finally, it is stated that opportunities for "many alternative forms of employment for the people of the area" will be provided.²³

It is stated that "discussions have been held with the Fraser River Harbours Commission and it is my

understanding that they approve of this project."²⁴

The question of the validity of this support may be raised by virtue of the fact that the Harbour Commission is composed of appointed officials and may not necessarily represent the attitudes of the residents of the region. Nor is the commission accountable to the public.

The next level of government is the Greater Vancouver Regional District. In November, 1972, a "Report on Livability" was published by the G.V.R.D. which listed a series of policies for public discussion as possible components of the new Greater Vancouver Regional Plan.²⁵

In relation to the Tilbury Proposal, the present Official Regional Plan (1966) designates the island itself and the Fraser River shore in the area as industrial. The "Report on Livability" proposes several policies which although tentative, cast some light on the regional goals:

"G.V.R.D. should discourage the location in this region of large land-consuming industries and port facilities which have low employment densities." (May not conflict with Tilbury proposal).

"Policies to keep development from occurring in flood plain areas should be continued and strengthened." (Would conflict with proposal).

"Controlling the growth rate of Greater Vancouver should be a function of all three levels of government." (Would appear to conflict with proposal)

"Recuperate for public use unintensively used industrial (zoned) areas of foreshore". (Would conflict.)

"Seek to preserve as much farmland in production in the region as is possible, by the existing policies of the official Regional Plan." (The Tilbury Proposal would contravene not only this regional policy but that instituted by the Province in the example of the Land Commission Act.)

"The Livable Region Program/Plan should contain policies to provide maximum opportunities for people to live close to where they work." (Tilbury proposal may promote this policy although the development of a "new community" in the farming areas of Delta may not be in accordance with other policies).

"Control and develop "Regional Town Centres" outside of downtown (Vancouver) and attempt to decentralize some downtown growth to these centres." (The Tilbury proposal might not be situated in the best location for promoting this policy as it is relatively far from residential areas and as has been mentioned, would require the loss of further farmlands. Another location for this type of development could however actively serve to promote this policy.)

"Pollution control measures must inevitably be paid for both from general government revenues and by individual polluters, but emphasis should be on policies requiring the polluter to pay whenever this is in the public interest." (Pollution, and the methods of dealing with it, have not been made public regarding the Tilbury proposal. It may be possible that by encouraging the location of industry on this site, the burden resulting from the effluents put into the river will fall on the public.)

"Encourage a public participation and discussion process prior to consideration by the Board of all major plan amendments and major projects." (It does not appear that the planning of the Tilbury project included this consideration.)

The degree to which the Tilbury Industrial Estate proposal conflicts with the goals as stated in the evolving regional plan amendments would possibly be significant and

would appear to warrant a further analysis of the social impacts of the proposal.

B. Past Attitudes about Tilbury

As early as 1957, a report titled "Delta Plans for the Future" was prepared for the developing municipality which suggested the industrial development of the Tilbury Island area.²⁶ It was offered as the third priority due to its river frontage, buildable land and proximity to Vancouver via the Deas Island throughway. The other areas for industrial development recommended were Annacis Island and the area east of Tilbury Island. In 1966, the official Regional Plan designated the Tilbury Island area, along with a strip of backup land approximately 3,000 feet deep and 3.3 miles along the south bank of the river as developing industrial in the long range plan.²⁷ This was in the order of 2,000 acres including the Island itself.

A report prepared in 1972 for the Fraser River Harbour Commission, the governing authority over the river recommended the Tilbury area as a fourth priority for industrial development.²⁸ The higher priorities were attached to the Surrey area south bank, the Richmond bank opposite Tilbury and Annacis Island.

C. Environmental Interests

In 1973, a series of citizen's policy committees

of volunteers were established by the GVRD in an effort to obtain the views of citizens of the region to assist in the preparation of an updated regional plan.²⁹ The report recommended that in view of the fishing resources and recreational potential of the Fraser River, only those industries which require water access be permitted near the waterfront.³⁰ It may be the case that the Tilbury project would conflict with this policy. The Report also recommended that agricultural land must "cease to be the residue from which regional and municipal governments draw land for other uses," and that permanent agricultural preserves be established.³¹ It was also recommended that population growth in the region be limited "to decrease the pressure for construction of housing and industry on farmland."³² This goal would appear to be in direct contrast to the goals of the proposed Tilbury project.

The recommendations of the Environmental Management Policy Committee represent a strong statement for careful development of our regional resources. It would appear that the attitudes of the environmentalists would conflict with those of the government as outlined in the Tilbury Island Industrial Estate proposal. The undertaking of a social impact study in this situation should assist in the negotiation of a proposal more acceptable to all interests

by providing a greater degree of information about the burden or benefit of the social costs or benefits of the project. Attitudes and goals of interest groups are useful in that they identify specific interests but are difficult to integrate into the decision-making process due to the fact that often information needed to justify other points of view and promote a compromise is not prepared.

D. Farming Interests

The development of the Tilbury industrial estate would reduce the land available for farming in Delta, and it would appear that this could affect the future of the farming community. A study done for the G.V.R.D. titled "Viability of Farming Study" concluded that the greatest single contributor to the non-viability of Delta agriculture is the fact that 53% of the municipality's farmland is not owned by resident farmers.³⁴ Other hinderances to agriculture resulted from the growing urbanization of the area, which by increasing the volume of traffic on the roads has hindered the movement of slow moving farm equipment along highways between fields.³⁵ In addition new railways, roads and transmission lines to serve the growing urban and industrial developments in Delta have isolated or divided farms and resulted in reduced efficiency in the pursuit of agriculture.³⁶ The uncertainty produced among the farmers

by development proposals in the area produces a social impact in that farmers may reduce capital expenditures and maintenance of the soil out of concern that it may not be practical to continue farming.³⁷ This report provides an indication of the needs and goals of some of the farmers in the affected area and would be useful in the analysis of the social consequences of the Tilbury proposal upon the Delta farming community. It may be possible to ascertain for example, that farming is still important in some areas but may be limited in productivity or viability as a result of the disruptions resulting from urban growth, expropriation of land, division of farms by highways and other services, or simply uncertainty and land speculation.³⁸

E. Urban Residents' Interests

Prior to 1958, the Municipality of Delta as it is today was accessible to Richmond and Vancouver only by ferry across the Fraser River into Richmond or along the River Road on the south bank of the river to the Patullo Bridge at New Westminster. The relative location of the area was sufficiently distant from the main urban area that it was possible to maintain a rural atmosphere and economy. The construction of the Deas Island Throughway in 1958 brought Ladner, the main center of activity, within

30 minutes of downtown Vancouver. The resultant development of south Delta as a bedroom community of Vancouver during the ensuing years represented a major change in the historical trend of the community. During this period industrial development continued in north Delta, along the Fraser River where access to rail facilities and the bridge into New Westminster made the area attractive. The development of a bulk coal facility at Roberts Bank in 1958 along with the rail connection and proposed super port development placed the future of this area in doubt for some time. Land acquisition and expropriation for the railway and for industrial development produced changes in the farmland use of the area. There remains, however, relatively little industrial development in Delta and many of the present residents work in other parts of the region. The three nodes of urban or suburban development are North Delta, Ladner, the oldest centre, and Tsawwassen on the upland peninsula of Point Roberts.

In a random survey of Delta resident attitudes towards their community taken in February 1974, it was found that about 39.7% of 141 respondents favoured the location of light engineering industries in Delta, while 27.7% favoured secondary or manufacturing industry. A minority of 17.7% favoured no industry.³⁹

Without any suggestion in the questionnaire

the respondents were asked to state their location preferences. Of the 50 responses, 57.5% indicated that industry should be located "close to the water" while a further 4.6% suggested Annacis Island and 3.4% Tilbury Island and 9.2% said both Islands. Considering that these are all "near water" the total rises to 74.7%.⁴⁰

On the basis of this small sample it would appear that the people surveyed in Delta would not be opposed to some further industrialization in the Tilbury Island area. The questionnaire was distributed about three months after the initial government announcement of the Industrial estate proposal. The critical question would possibly revolve around the rate of industrial growth the community would be forced to accept rather than the general principle of industrial expansion. Another explanation may be that a random sample in Delta would mainly obtain the views of the majority suburban residents and submerges the attitudes of farmers and fishermen who are minority interest groups. As the results of the survey indicate little apparent conflict in principle with the Tilbury proposal, a social impact study incorporating a questionnaire specifically dealing with the Tilbury project could possibly begin to indicate what changes in the proposed project would be needed to make it more acceptable.

Areas of Social Concern for Consideration in the Social Impact Report

The first step in the development of this outline social impact study proposal was essentially a description of the project. The second part endeavoured to illustrate the attitudes towards industrial development in Delta held by various affected groups. The preliminary test of the proposal vis-a-vis the general attitudes and goals of those affected appears to warrant the pursuit of a more in-depth study and public discussion about the proposed Industrial Estate at Tilbury. The first chapter of this study attempted to demonstrate the need for critical analysis and public participation and discussion in the development of future human environments that are as well suited to societal needs as possible, especially in situations where decisions may be irreversible. The information developed will provide the opportunity to clarify and focus those areas of concern that will require monitoring and attention during the development process.

Identification of the Social Impacts

It is possible now to list a series of social impacts or areas for evaluation that should be included in an analysis of the proposed industrial estate at Tilbury Island. The concerns listed here were raised in Chapters II and III and are brought together to develop a model

form of social impact study. The following chapter will detail aspects of a process which can be utilized to deal with the impacts as they are catalogued in this section.

Aspects of each Impact

Each specific impact must be evaluated according to several criteria in order to facilitate the development of solutions;

- A. Time - At what stage in the process of project development will the problem or impact occur? Will long term or short term impacts occur?
- B. Scope - Will the negative or positive impact be felt on society as a whole or will it be more local in nature, e.g. to nation, region, or municipality?
- C. Incidence - what groups in society will benefit or lose as a result of any impact which can be identified, or will the impacts fall on the society as a whole?
Delta is likely to be most affected in terms of:
 - i. social structure of lifestyles
 - ii. social economics or distributional impacts
 - iii. social needs and amenities.

It is not possible in this study to evaluate fully all the following areas suggested for examination, however, an attempt will be undertaken to indicate the manner in which such an investigation could be pursued.

Social Impacts

A. Employment

Will the industrial estate utilize local labour or require specialized skills from outside the area? How does the composition of the Delta force compare with the anticipated needs of the development? How many workers, over what time period, will be required? If the industries require workers which are unskilled, are they available in Delta? If they are not, what might be the impacts of attracting them be, as a result of providing more housing or improving transportation links? Will educational and training facilities be necessary? Are existing educational facilities adapted to this type of need?

B. Population

What effects on the population projections for Delta under the present trend will be altered as a result of the industrial development? Will the age composition of the present population be significantly affected? Will existing day care or chronic care facilities be faced with

an increased pressure or will the stimulus for facilities presently lacking be improved? Will an influx of single workers in a primarily suburban young family area result in pressure upon social services and recreational facilities?

It must be recognized that the rate of change is critical to the impact here as there is a difference between accelerating a trend in a growing community and completely altering existing trends in a small town. Smaller towns, if they are more homogeneous in terms of the composition of the residents are more likely to suffer from the social impacts resulting from the rapid change to a heterogeneous population. Thus the degree to which a development conflicts with the goals and attitudes of the present residents, the more likely difficulties will develop. An influx of young single workers to work on a large scale construction project can sharpen lifestyle differences and create potential problems.

C. Change in Sense of Community

Will the proposed development alter the tempo of growth to the degree that the existing community as the present residents know it, be obliterated? Again the rate and scale of change are significant. In a rapidly growing community such as Delta, it might be possible

for a large development to occur without changing very drastically the "resilience" of the community as it would appear to have a large capacity to absorb change. Information about the mobility rates of the present population of Delta might be useful in the evaluation of this area of concern. Similarly new social services, educational or employment opportunities may have significant effects upon cultural groups, particularly among ethnic minorities which can result in social dislocation.

D. Transportation

Will the present system of transit and roads be adequate to serve the proposed industrial estate? Will it be practicable for the farmers to move their machinery on roads loaded more heavily with truck and commuter traffic? To pursue this an analysis of the carrying capacity of the existing facilities should be undertaken and compared with the expected volume of traffic generated from the proposed project. This information could be utilized to stage the construction of municipal roads with the development of the industrial estate. If the limits of safety are to be exceeded, what dangers might result? Which group of users, and where in the community will the hazards be felt?

Similarly, if it is found for example that the present connections between Delta and the Vancouver area are inadequate, what social impacts might result to Delta as a result of the construction of the new crossing of the Fraser River? How will this need affect the range of future options for Delta? What will the long and short term impacts of this development be and what alternatives could be provided? It would also be necessary to analyse how the various groups in the area would be affected by the new transportation development.

E. Spatial Interaction

How will the Tilbury Industrial Estate affect existing patterns of land use, shopping patterns, economic activities and future housing or commercial development in Delta? Could the existing communities of Ladner, South Delta and North Delta retain their present functions or would a large industrial development in the centre of the municipality alter the past hierarchy? Would an increase in traffic congestion on the Deas Island Throughway resulting from the industrial traffic to Tilbury tend to isolate south Delta by increasing the travel time to Vancouver? What would the social impacts upon South Delta be in terms of growth, use of recreational facilities, provision of facilities and population composition be?

Similarly, if it is found in the long run that a new public transit facility is required, how would the present patterns of spatial interaction internal and external to Delta, be altered? Information about the number of potential workers within 5, 10, and 15 miles of the development might be useful in illustrating the journey to work patterns.

F. Tax Base

Information is also required about the impact of the proposed development upon the tax base. While not strictly a social impact it does affect the community's ability to meet the costs of the expenditures which may be necessitated by the social needs resulting from the project. The social impact analysis may be able to provide an indication of the costs of establishing a mechanism to deal with the concerns as they arise and provide some forecast of the budget required. Unless external financial assistance is available, social impacts and tax base considerations will have to be considered together. In addition, the comparison of the two by such methods as cost benefit analysis may be a useful tool in the decision making on or design of the industrial estate.

If it is found that land tax rates will have to be raised in the community, who would be affected and what

would the consequences be? For example, would farmers be economically forced to sell their land to developers or driven out of business? Would fewer low or middle income workers be able to purchase housing in the community? Would South Delta become relatively less attractive to retired people? What are the area and temporal distributions of the impacts of a change in taxation rates? How would urban growth be affected, would the development of large lot subdivisions be replaced by medium or high density dwellings and thus change the nature of the community? Alternatively, if the industrial estate facilitates lower or stable taxes, what social changes, if any, might be expected to result?

Could the lack of expenditure on social facilities which might result from a tight financial situation affect the livability of Delta by reducing the amount of money available for social services, school construction, recreational facilities and other services and needs?

G. Services and Public Facilities

One of the primary needs of any industrial or urban development is local services. Physical services such as water, sewage treatment facilities and fire protection are required for the industrial estate. An analysis must be made comparing the present capacity of these services and the expected load to be introduced by the industrial

development. The financial burden for an enlarged sewage treatment plant capable of handling industrial effluents may fall on the present residents of the community, or on the whole of society if the wastes are expelled untreated into the Fraser River, for example.

Social services such as schools, community recreation, hospital, day care and community health services may undergo pressure if the industrial growth stimulates urban development. Problems could result if a large increase in the teenage population develops without adequate concomitant development of activity centres and programs for this group. Social needs of other groups must also be considered.

In a community where livability is more than a mere function of an adequate income, consideration of people's needs for public and private facilities must be considered more carefully in the future than was the case in the past. It may not be adequate to assume that an influx of new workers and general undirected growth in a community will, in themselves, improve the community. The probable impacts of a new industry on the services in the area must therefore be considered in addition to income changes.

H. Property Values

Any large project which is likely to increase the

attractiveness or choice of employment opportunities is likely to stimulate urban growth. The proposed development at Tilbury will occur on land leased from the government, the "unearned increment" in value as a result of the development will therefore return to the public purse. If the lease rates are lower relatively to the alternative costs of other locations, it may be possible that some land extensive industries will locate on the site, essentially wasting land for users who may require less land but require the access to sea, rail and road which Tilbury will offer. This may result in a degree of inefficiency if the low lease rates encourage the loss of farmland to industries which may be better located elsewhere, in terms of the costs to society.

Similarly, if a large industrial estate is developed and proves successful, economic pressure for expansion of the area may develop and the result may be land speculation, which can be defined as the purchase of land with the purpose of earning an increase in value due to an anticipated change in permitted uses. This increase in the price of agricultural land will make it more difficult for farmers to purchase land to enlarge some of the less economic units. Uncertainty about the future of farming in the face of speculation and pressures for further industrial or housing development may contribute to the decline of the farm operations by discouraging farm operators from doing

necessary capital improvements to maintain the farm in good operating condition. The social result may be severely degraded farms, uncertain futures, poor returns to farmers, and underuse of good agricultural land.

Reductions in property values, although unlikely, may occur if nuisance elements of the development reduce the desirability of potential housing sites in Delta. Smoke, noise, smell of traffic congestion, may make some areas less attractive and possibly reduce the community's tax base relative to its potential.

A complete social impact study should endeavour to anticipate the number of people affected by changes in land values, how they are affected and the geographical distribution of the effects. Some consideration of the time over which changes will occur would be useful.

I. Housing

One of the important social needs in a community is an adequate supply and choice of housing. The impact of a new large scale development upon the housing supply and demand should be examined. Indications such as vacancy rates, building starts, and the number of dwellings for sale are useful to such an analysis. It may well be the case that in the case of the Tilbury project workers will be drawn from several areas, thus placing a small additional burden on the regional housing supply rather than placing

a large new component to the demand in Delta alone.

Prices for land for housing might be driven up by the increased demand for housing resulting from the influx of new workers to the area. If the change in demand rises sharply, the costs of the land or housing may rise above the level which many of the new migrants will be able to afford. The social result may be overcrowding or use of substandard housing. Increased values may also result in higher taxes and thus produce hardship for retired members of the community who may have fixed incomes. If it can be determined in advance that a serious housing shortage might develop, it may be necessary for the government to undertake a land banking program for housing or take other steps to encourage the production of housing at a pace related to the growth of the industrial estate. In other social impact reports in the case of less developed areas, this factor can be critical, if a general housing "shortage" exists.

In some communities the plans attempt to encourage some types of housing development such as large lot single-family dwellings over medium or high density housing. This may create difficulties if the influx of new workers desire or can best afford rental or mobile home accommodation for example. If the Tilbury Industrial Estate develops a large garment factory for example, an industry which traditionally employs women at salaries near the minimum wage, this may have a different effect upon the housing market

than the location of a light engineering plant with a large proportion of highly skilled and consequently better paid workers. These factors need to be considered in order to ensure that shortages of housing can be kept to a minimum. Central Mortgage and Housing Corporation may provide technical and financial assistance if the need can be demonstrated.

In addition to the housing types, the location for further housing development needs to be planned in advance and staged to reduce the likelihood of haphazard development or costly urban sprawl which might result from a period of high housing demand and minimal planning preparation.

J. Relocation

One of the most severe social impacts of large projects may result from the forced relocation of people and families. In this situation it is useful to know the number of people affected, who they are or what social group or groups are involved where they are located and at what stage in the development they will have to relocate.

Alienation was shown to be a hazard in relocation projects in Chapter II. Information about the mobility, age and other aspects of those affected might be useful. In addition, if there is a strong sense of community among those affected it may be possible, by discussing the

consequences with them, to work out the best solutions. Dialogue and participation are the keys to dealing with this potentially great social impact.

In the case of Delta, relocation of farmers may be necessary due to the construction of industry upon the former farms. Secondary causes for relocation may result from new highway construction necessitated by the growth of housing or commercial facilities. In addition, congestion of roads may no longer make it practical to move machinery to some fields thus reducing the viability of farming and resulting in a type of forced relocation as a result of indirect economic pressures.

K. Societal Costs

In the course of the development of our lands and resources, future options for their use may be reduced. While the above nine criteria have attempted to identify the social impacts of the project in terms of the possible effects upon the various groups of a local community, a development such as the Tilbury industrial estate can produce societal costs or benefits. These societal impacts differ from what has been discussed as social impacts in that they fall upon society as a whole. The impact may affect society in broad terms, for example aesthetically. The importance of considering the societal impacts results

is two-fold. Firstly, there may be some segments of society which depend upon the common property resource such as clean water; for example, fishermen or tourist industries. Secondly, if a project consumes some common property resource, the external costs, as they are referred to by economists, should be noted and utilized in the decision-making and used to evaluate the project against some of our broader goals of regional development. Evaluation of the social impacts of a project upon a local community is not a simple proposition: however, the analysis of the groups affected in terms of income, area of residence and activity patterns provides some information about the consequences. In the case of the societal impacts, evaluation may be very difficult although the public discussion of the consideration will provide the opportunity for the inclusion of the societal impacts in the decision-making.

I. Farmland Loss

In the strict legal sense, farmland is owned by the person in whose name the title is registered. The products of the land are consumed by society as a whole. In British Columbia, where only about 3% of the land surface can be considered arable, farmland therefore is a relatively scarce resource. Conversion of farmland to urban uses could affect society by increasing the cost of food, reducing the aesthetic and recreational potential of our

greenbelts and possibly have national economic effects if foreign exchange is required to purchase imported foods. In the conversion of any given piece of farmland it may well be impossible to evaluate these losses, but by being conscious of them, better regulation of the future shape of the environment may be possible. In the case of the Tilbury proposal, there appears to be a contradiction with the intent of the Land Commission Act passed by the B.C. Government in 1973 to preserve farmland. Industrial development of Tilbury may incur a societal cost to the people of the province as food consumers.

M. Pollution and the Costs of a Degraded Environment

In any given situation it is difficult to project the consequences of an environmental change upon society as a whole. A clean environment can be seen as a common property resource and if it is degraded it is generally felt as a cost to all members of society. In some situations, however, social impacts upon specific groups in society can be identified. In the north, many native people live by trapping and hunting, the construction of a rail or pipeline may have upsetting effects upon the environmental balance upon which the native people or trappers depend. In this case an environmental effect would produce a social impact upon these people. Similarly, the construction of a large new pulp and paper mill in the

Okanagan Basin might degrade the air and water environment to the degree that tree fruits would be damaged and the tourist potential for water based recreation would be lost. This would have an economic impact upon the orchardists and resort operators and a societal cost in that the area would be lost or impaired in its attractiveness for holidaying.

Water quality in the Fraser River may similarly be affected. The development of industry on Tilbury Island would likely have an effect upon the Fraser River estuary fish population. The social impact upon the fisherman and the native people upstream could be substantial if negative environmental changes were to occur. Information about these consequences may be useful in the decision-making by demonstrating the need to control the types of industries permitted, or indicate the effluent treatments required, to minimize the negative social impacts which could result.

Analysis of the incidence of pollution, the identification of the affected groups dependent upon the present environmental quality, in addition to some analysis about how, when and where the groups are affected, should be included in a social impact study. The environmental impact studies can be used as a basis

for this analysis.

N. Historical and Archaeological Sites of Interest

Under the National Environmental Policy Act in the U.S. it is mandatory that these items be included in the environmental impact statement. The value of an historical building or an Indian midden generally contributes to the society as a whole. The loss of a building or other site of interest may reduce the diversity and sense of continuity to a community. In most cases, the loss is a societal one unless the area is of special interest to one component of the community such as an old parish church, for example. These impacts are also difficult to evaluate, however, the importance of remainders of past eras are often important to society or groups within it. Industrial estates or new highway construction may obliterate these forever. Inclusion of this information in a social impact study may provide the only systematic analysis of a consideration which should be utilized in the planning for development but is frequently overlooked in the name of progress. In a rapidly changing society links with the past may be useful in providing a sense of identity or continuity for the present inhabitants of an area.

O. Noise and Nuisance

An environmental impact statement may provide information about the degree of nuisance from smoke or noise that may result from a proposed development. This information can be superimposed on a population distribution map to illustrate the number of people likely to be affected within one, two or any number of miles from the source of the nuisance. A subjective analysis of how these people are affected may be possible. In the case of Tilbury, this factory may be minimal. The nuisance factor may be a useful consideration in the establishment of parameters for the types of industry and the degree of regulation permitted.

P. Recreational Opportunities

One of the losses to society of an industrial development may result from the use of lands which may have important recreational capacity. River bank locations such as Tilbury Island lend themselves to passive recreation such as walking or fishing. It is possible to ascertain the effects of a proposed development upon an area in environmental terms, however, it is more difficult to anticipate the future recreational demands upon an area. If future options will be reduced, this fact in itself is useful. If

public access to the water is an important goal in government policy, a social impact study might make it possible to design the industrial development in such a way that a foot path along the dyke could still be maintained.

Q. Consequences of Not Proceeding with the Proposed Development: the Concept of Social Balance

In many cases it is necessary to provide a balance with an environmental impact statement to consider the social impacts of alternatives, including scrapping the proposal. It is most common that changes brought about by man upon the natural environment have negative results as it seems that nature's design is difficult to improve upon. In our social milieu, there would appear to be a larger opportunity to improve the distribution of wealth, level of amenities, choice of work, housing or recreational opportunities if these goals are established. A social impact study may therefore be less likely than an environmental impact study to demonstrate purely negative effects.

In order to ensure that both sides of the coin are dealt with, it may be useful to look at the societal distribution of the effects of not pursuing a proposed project. For example, would a reduction in the

size of the proposed Tilbury Industrial Estate result in such a severe restriction in available land for industry that young people about to enter the labour force will be faced with reduced opportunities? Will the opposition of citizen's groups to new housing projects reduce the supply of units available? In each case, some analysis is required in a balanced social impact study to ensure that the consequences of a "no growth" alternative are evaluated or at least raised as possibilities. The distributional aspects of the consequences in terms of who is affected, be it the whole society or groups within it, how they are affected and when effects will be felt and where those affected are located is required. Provision of this information may assist the organization of groups with vested interest to participate in the public discussion and ultimately promote dialogue between the various interests that are affected in different ways.

The costs and their distribution of exercising a "no growth" option are important to a social impact analysis. It has been stated that the general goal of this type of research is to provide better information for decision-making in an increasingly complex societal milieu. In many cases the pursuit of a project, such

as housing for older people may produce environmental damage or social changes in local communities. A social impact study must provide information about the consequences of such a project, so as to maximize the opportunity to carry it out in the least disruptive fashion. Equally important is the need to deal with the consequences of not proceeding with an undertaking with important social objectives such as the Tilbury Industrial Estate.

Information provides weight to arguments on any subject. A balance must be sought in the course of a social impact study as an alternative to the information provided by the ecologist, engineer and economist. This balance of information may complicate the process of decision-making but it must be seen as a necessary prerequisite to dialogue and informed decision-making. In the preceding introductory chapters, the hazards of making decisions on information heavily biased by the economist, or the engineer must not be replaced with an ecological or narrow social bias. If projects are to be stopped on ecological grounds, the social consequences must be examined. A planning process must be developed to generate a broad range of interdisciplinary information.

Summary and Conclusions

In this chapter an outline for a model social impact study has been illustrated. The area affected by a proposed 726 acre industrial park was described as it is presently developing. In addition, an attempt was made to compare the goals of the people in the Delta area with the goals and possible consequences of the proposed Tilbury Island Industrial Estate.

The rationale for the undertaking of a social impact study on this proposed development was supported by a number of facts. Firstly, the proposal appears to conflict with the goals of certain groups in the region which has caused some controversy. Secondly, the proposal conflicts with the Regional Plan in that part of the industry would be located on agriculturally zoned land. Thirdly, the large scale consequences such as the need for a new crossing as the Fraser River, and the irreversibility of the project once constructed make it one that should be carefully scrutinized. Finally, the location of a large industrial complex in an area which has hitherto been agricultural and suburban would appear to represent a change in the historical type of development. The size and rate of development of the project may also produce more side effects than a continuation of the existing growth trend, thus more

information to permit planning action in advance would be required to provide the opportunity to minimize the negative social impacts which could arise in the course of development if it is allowed to proceed.

The second objective of the chapter was to outline the criteria or areas of concern for analysis in a social impact study of a proposed industrial estate in Delta. Various factors were listed and indications were provided as to how they might be evaluated, if time and funds were available. The list of 15 concerns must not be viewed as complete or necessary in all social impact studies, it is merely a suggestion as to the general areas into which information is needed. Different types of proposals, different conditions and people would warrant varying arrangements in this guide.

Once the information about the range of impacts is gathered two alternative courses of action are possible. The project could be stopped if the decision is made at the political level that the magnitude of the social impacts are such that the project should be scrapped. Alternatively, the information provided by the social impact study can be utilized to establish social "terms of reference" for the design, staging and development of the proposed

project. This could ensure that areas of special social concern are dealt with and provide the opportunity for plans to be developed in such a way that the disruption does not exceed the resilience of the community which could result if large or rapid changes were imposed upon the community.

Also stressed was the need for interdisciplinary research and the provision of a balanced level of information. The need to evaluate the social impacts of not pursuing a project was also raised. This item is important if the pitfall of social impact studies becoming a tool for the preservation of the status quo is to be avoided. Often a project must be carried out in the face of real negative social impacts at the local level, to serve the needs of the larger community. Senior citizen's housing, power transmission corridors and new hospitals might be more obvious examples. Societal costs to the whole society as well as local social impacts must be considered in the decision-making. The trade-offs between the local and broader interests can be made based upon a social impact study. The information, however, will be available to deal with problems as they arise, which all too often was not the case in the past.

The need for evaluation of projects against our social goals, along with the presentation of social information for inclusion in the decision-making are important challenges that will have to be faced. In addition, a planning process which decentralizes some aspects of decision-making to the local level which fosters dialogue, recognizes various interests and provided information will provide a better basis for selecting alternative courses of action and facilitate adoption to local needs wherever possible and avoid the oppression of local communities by massive developments emanating from a distant government agency.

Footnotes

- ¹Greater Vancouver Regional District (G.V.R.D.), Population Forecast, January, 1973, Vancouver, (D.B.S. figures).
- ²"Regional Index of British Columbia", Department of Industry, Trade and Commerce, Victoria, B.C., January, 1966, p.187.
- ³Ibid., p.188.
- ⁴Loc.cit.
- ⁵Ibid., p.256.
- ⁶Ibid., p.188.
- ⁷Ibid., p. 189.
- ⁸Official Regional Plan, Lower Mainland Regional Planning Board, New Westminster, 1966.
- ⁹Press Release, November 26, 1973.
- ¹⁰Ibid., p.1.
- ¹¹Ibid., p.6.
- ¹²A Report on Livability, November Report, 1972, p.27.
- ¹³Press Release, November 26, 1973, p.4.
- ¹⁴Vancouver Sun, December 29, 1973.
- ¹⁵Press Release, op.cit., p.1.
- ¹⁶Ibid., pp.5-6.
- ¹⁷Vancouver Sun, December 11, 1973.
- ¹⁸Greater Vancouver Regional District, Newsletter, February, 1974, p.1.
- ¹⁹"Position Paper", Delta Farmer's Institute, June 29, 1974.

- ²⁰Telephone interview, August 5, 1974.
- ²¹Press Release, November 26, 1973, p.3.
- ²²Ibid., p.5.
- ²³Ibid., pp.5-6.
- ²⁴Ibid., p.4.
- ²⁵This is also referred to as the November Report. The following statements were gleaned from the analysis of over 50 public meetings in the G.V.R.D. "A Report on Livability", G.V.R.D., Planning Department, Vancouver, November, 1972, pp.27-28.
- ²⁶N.H. Richardson, L.M.R.P.B., p.27.
- ²⁷Official Regional Plan, L.M.R.P.B., 1966, p.32.
- ²⁸N. Pearson, "Fraser River Harbour Development Study," Vancouver, 1972.
- ²⁹see: "Report of the Environmental Management and Pollution Control Policy Committee", G.V.R.D., October, 1973.
- ³⁰Ibid., p.30.
- ³¹Ibid., p.27.
- ³²Ibid., p.39.
- ³³Paton, Smith and Gram Agricultural Consultants., "Viability of Farming Study: Phase I", for G.V.R.D., September, 1973.
- ³⁴Ibid., p.61.
- ³⁵Ibid., p.3.
- ³⁶Ibid., p.6.
- ³⁷Ibid., p.62.
- ³⁸National and international marketing practices for vegetables and other products against which Delta farmers must compete may also have contributed to the decline in market gardening.

³⁹Delta Livability Study, Eikos Consultants, Vancouver,
B.C., February, 1974.

⁴⁰Ibid.

V. CONCLUSIONS

Summary

In this study the rationale for pursuing social impact studies of the consequences of large development projects has been investigated. In what Boulding has called the "spaceship economy" of the future man must apply his intelligence to ensure that continued economic growth takes place within social parameters. In the past, it was assumed that economic growth in itself was likely to reduce human misery, provide opportunities for the poor and promote development of a sound economic and social community. Scientists and environmentalists have realized in recent years, that unregulated resource extraction and industrial growth must have an optimum limit after which the earth would have a reduced capacity to support life. These understandings have stimulated demands for environmental impact studies of both large and small development proposals. The National Environmental Policy Act of 1970 passed by the United States Congress reflects this awareness. Economic growth may be increasingly subject to critical analysis as man considers the possible consequences of his actions. The new task Kahn suggests is one of introducing a social component into the on-going planning.¹

To some extent environmental awareness has produced a "backlash" against economic growth. The evolution of the "no-growth" ethic is an example of this. Unfortunately, this attitude is frequently found among some elements of the community who, having their basic housing, employment and other social needs met, advocate more amenities such as cleaner environments and more recreation facilities. Poor people in urban communities may simply be concerned with the struggles of day to day living and are often less active and less eloquent in environmental debates.

The need to evaluate the social impact of our planning programs and development projects is urgent. Firstly, the assumption that simple development of an industrial estate will benefit a community must be critically examined in light of the goals and objectives of the various interests involved. In this way better decisions can be made which incorporate social values in the terms of reference for such undertakings, where the disruption to life could be significant. If planning is to be concerned about the future shape of human environments, institutional arrangements capable of translating the goals of the community into concrete realities will be needed. Large development proposals must be incorporated into the milieu of the affected

community without exceeding its resilience or capacity to absorb change. Perhaps negative social impacts should be viewed as effluents which degrade the environment and must be avoided or adequately treated.

In some areas, uncontrolled growth has resulted in rapid changes to existing communities. This "future shock" has produced among people a lack of historical and social continuity. In some cases, the sentiment has resulted in the "no-growth" approach advocated by groups such as the Sierra Club. If reduced growth rates are to be adopted as planning policies, interdisciplinary information will be required to anticipate the social impacts and economic incidence of the reduced growth rate. Social information may reduce the apparent trend towards heavy weighting of decision on factors relating to environmental quality. Increasingly in the future, social as well as economic environments must be considered in the planning of the communities which people actually relate to and live their lives in.

An important area of this study dealt with various types of social and economic impact research which has been undertaken in fields such as transportation, water resources and regional economic assistance programs. The reviews in Chapters II and III served to illustrate some of the techniques for undertaking social impact

analysis. A theme present in many of the studies indicated diverse concerns for the social consequences of the individual projects. Most of the studies lacked any appreciation of how the adverse effects which had been identified could be incorporated or dealt with in any future planning process.

The assumption made by many researchers appears to be that provision of information alone will enable decision-makers to solve problems in the present and future. This does not appear to be an adequate solution. It is similar to the likelihood of planning proposals being implemented when the problem is merely stated without offering solutions and methods of implementing the objectives.

In the outline case study of the possible social impacts of the proposed Tilbury Island Industrial Estate, there remains a major imperfection or shortcoming. This involves the consideration of time. While an environmental impact from a project can result more or less directly, social consequences occur at various stages and are spread over time. A study which attempts to analyse or anticipate the social impacts of a change in itself may produce social changes by affecting uncertainty about the future or the degree to which people are motivated to accept or reject the change.

Social impacts of a project cannot be investigated or analysed entirely in advance of a project because impacts are the result of the interaction between people and their environment over time. Changes may occur when the land acquisition begins, when the announcement of a project is made, during the construction and development period or years later during the operation of the facility. With the introduction of citizen participation into the planning process, the quality of the changes may be improved positively. The necessity remains for some type of prior analysis or checklist of the possible range of effects to provide a basis for later actions as the problems arise.

Many assumptions can be made about reasons for the failure of planners to achieve their objectives. One important assumption is that better social information will improve the basis for decision-making and thus improve the range of considerations utilized in the final analysis. Social accounting and complex information retrieval systems approaches depend heavily upon this assumption. A second assumption, and the one indicated by this analysis states that the reason that planners fail to achieve their objectives is that the institutional arrangements through which

information is processed or implemented are found wanting.

Uncertainty must be recognized as a given in the analysis of the social consequences of planning. While it is useful to analyse from a technical framework, the areas of community life which may change as a result of a large development, this evaluation can never be complete in our present "turbulent environment"².

It may be fruitless to expend energy only upon methods to evaluate or anticipate the social impacts of planning decisions. The solution to the difficulties produced by negative social impacts may not lie in improving the planning process as much as expanding the process to include a broader range of considerations and by asking different types of questions related to actual social policy.

Conclusions

The conclusion of this analysis is that the main shortcoming of planning is the nature of the planning process. Information is vital but it must be utilized rather than being seen as an end in itself. In the past, planners were able to gather and manipulate information to produce Master Plans for communities to guide land use. Today, it has been generally recognized that this is no longer an adequate approach. Situations

change rapidly hence future options must be kept open and broader social considerations must be included. Plans which do not include participation by those affected are often rejected by rapidly organized activist groups.³ The increasing complexity and diversity of interests makes it difficult to prepare concrete plans and it appears that this indicates the importance of the process through which planning takes place in society.

In relating this to social impacts, it can be seen that consequences which may be felt in a community may not only result from the project itself but also from the manner in which the project is handled by the government involved. For example, if people in a country are forced to relocate as a result of a dam construction project, the social consequences may be worse if the project is not explained in advance and time is not permitted to re-educate people about life in a new and changing economic milieu.

Similarly, in an urban situation the mere process of undertaking an interdisciplinary social impact study may provide people with information about a project and this may allow the lead time for people to adapt as individuals by either acclimatizing to an idea, moving away, or working to modify the impacts

upon their community. The breathing time permitted by the decision to undertake a social impact study can reduce the suddenness of the impacts and spread them over time in such a way that the capacity of the community to absorb change is not exceeded.

The information generated by the preliminary social impact study would inevitably be incomplete but the evaluation and public discussion of the various criteria will assist the subsequent gathering of information and provide a basis for negotiation and dialogue in the later planning and development process. Cognisance of the fact that different types of projects will require different criteria, flexible processes and possibly varying intensities of participation by those affected is necessary.

In a world with increasing population, and a relatively fixed supply of resources, planning must become more important. To continue to assume that technical solutions which have propelled our scientific revolution can provide solutions to social problems or needs is inadequate. It might be argued that the development of an elaborate computer-based model of society which could predict social impacts of planning decisions would assist planners by improving their understanding of how society works. This approach

would emulate the methods of research so successful in the physical sciences where causative relationships and their variables can be identified with greater precision than in the social sciences.

Planners, in the consideration of social impacts of their work, must utilize technical information when it is available for it provides useful insight into complex systems. In addition, they must recognize that planning takes place in an ever changing society where the process of planning becomes very important. Were it possible to anticipate all the social impacts of a water development project for example, it might be possible to develop a perfected design. This is not possible, however, for the simple reason that social impacts do not occur instantaneously but develop over time. This point is supported by the fact that social systems, unlike physical systems do not exhibit cause and effect relationships but rather result from complex interactions between institutions, government and people. An industry cannot be looked at as a cause and the society an effect, for the society existed in the first place. The changes are the result of complex interaction over time.

The prior social impact study is useful for two purposes despite its incompleteness. Firstly, as a

comparison between the goals of the project and the goals of the people affected (which can be surmised by questionnaire) provides an indication of how significant the impacts are likely to be. The greater the difference in goals, the less likely or amenable those affected are likely to be towards the project. Secondly, the identification of the areas of concern proposed in Chapter IV can provoke public discussion of and contribution to the prior impact report. In addition, participation will promote dialogue and if the experiences gleaned from the relocation studies are applicable, will reduce the alienation of the people affected. This fact alone may justify the social impact study if crime and similar anti-social behaviour is aggravated by an increase in the alienation of people in a community.

Another barrier to the preparation of adequate prior social impact studies is the variability of situations. No two communities or regions are likely to contain people with homogeneous attitudes on various types of development, for communities are composed of individuals with various mixtures of class, religious, cultural and historical backgrounds and aspirations. A format to study social impacts of alternative locations for a power plant would have to be adaptive rather than prescribed. This format would be better

suited to an adaptable planning process than a prescribed social impact study. The review of the literature would not indicate that there is any significant agreement at this time on what types of prior information should be provided regarding the future social consequences of a proposed project. It may be possible that in the world today, change is occurring at such a rate in industrial countries that planners must develop mechanisms to deal with uncertainty. These mechanisms should be more effective than if they pursued Master Plans or Advance Social Impact Studies. Certainly, the British system for minimizing the negative social consequences of their New Towns program appears to provide a workable process-oriented answer to the need to include social considerations in the construction of new communities.

The Process of Planning for Social Impacts

This planning process must develop a capability rather than a product and must meet several criteria:

1. It must consider the social goals of a proposal and compare these with the goals and objectives of the affected communities.
2. The process must provide the option of rejecting the proposal entirely if it

appears to indicate that sufficient disruption to people will result. If it is allowed to proceed, the social parameters within which it is allowed to continue must be evolved. This must also insure the incorporation of social goals in the evaluation of the proposal in such a way that social matters can be included in the decision-making along with economic, environmental and technical feasibility of the project.

3. The process should promote citizen participation in the evaluation of the areas of concern identified in the prior impact study as well as permitting them to benefit from helping to shape the future of their community. If all interests are represented, a balanced decision is possible as the distributive effects of a project upon a community can be clarified by public discussion. Participation will provide a platform for dialogue, which may promote compromise; the public provision of information about a proposed project will

provide the time necessary for people to adapt, acclimatize or remove themselves from the area. By democratizing the process - permitting participation by all groups at every state - the potential for alienation will be reduced and the community's goals and objectives will be reflected in the end product.

An example of a similar process is provided by the analysis of the British New Town case study which is reviewed in Chapter III. Of the studies and approaches to social impacts investigated in this analysis, only the British approach appears to recognize and act upon the need for participation, flexibility and on-going planning as a social development process. One could speculate that this process may be attributable to the original utopian origins of the New Towns in Great Britain. Perhaps it is necessary for planners to reconsider the broader objectives of their work while maintaining a closer relationship with the changing milieu in which they work. In this country there is no counterpart to the social relations officer in the New Towns of Britain whose responsibility is to give advice on a range of matters with social content, as a member of a planning team. This work involves advising on the

social implication of the physical plan and its preparation, attempting to assist in the starting of new groups and association and encouraging co-operation between different statutory and voluntary bodies.⁴

If planners are to serve the people in a manner which will promote the careful management of growth and the development of viable communities, broad changes in the planning process are required. Closer environmental and social tolerances have been produced in part by the failure to include in the decision-making, the diseconomies of past economic growth. Planners must deal with these considerations and promote a dialogue between different interests to ensure that problem areas are not only identified but that social mechanisms are evolved to promote the discovery of the best paths through uncertainty.

Further Research

In this study a range of issues and ideas have been explored. A number of concerns that have been identified could possibly assist future planning programs which incorporate social impact studies.

The question of who should fund or undertake a social impact study has not been adequately dealt with. Related to this is the problem of the institutional arrangements within which the prior impact study and the subsequent planning program should take place.

To obtain a better understanding of the need for a planning process to deal with social impacts, it may be useful to trace out over time some social impact studies which have been done. Social impact studies have been done in this Province on hydro projects, developments affecting Indian people, and on the expansion of the Vancouver International Airport. Assuming that these studies in fact generated important prior information about the impacts, it would be interesting to study how, over time this information affected the planning, implementation and development stages of the projects. Identification of the weak links in the process through empirical research would be valuable. From this type of analysis a better model planning process could be developed for

use in these cases.

Citizen participation in large development projects was frequently riased as having a number of roles in the anticipation of social impacts and the subsequent planning process. This issue could be looked at in any number of ways, however, one which may be practicable would be to compare several different studies and examine the role of participation in each case. It may be found that participation helps minimize disruption or delays the process so badly that it is not easily incorporated in the planning.

Past project case studies of areas affected by large developments could, through interviews and questionnaire, determine the impacts upon those actually affected. If social impact studies were available, it would be interesting to compare the anticipated consequences with the actual results felt by people. This would provide valuable insights into the validity of existing methods of social impact research.

It it is possible to identify a series of similar projects such as highways or dams, it would be useful to compare the consequences of each project to determine which had negative social impacts, which

positive, and to explore the reasons for the variations.

A review of the whole issue of social development programs insofar as they relate to resource development projects may reduce the social costs of Canada's northern development programs which have, in the past frequently created hardship upon northern residents and native peoples.

Ultimately, it may be possible to identify better procedures for undertaking impact studies and incorporating them in a variety of planning processes, each one being adapted to different situations.

Footnotes

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- ²Eric Trist, "Planning in an Era of Change and Uncertainty", presented at the 21st Anniversary Conference of the School of Community and Regional Planning, The University of British Columbia, Vancouver, March, 1974. Proceedings of conference edited by B. Fairbairn, p.6.
- ³John Friedman, Retracking America: A Theory of Transactive Planning, Anchor Press, Doubleday, Garden City, New York, 1973.
- ⁴William M. Nicholls, "Social Planning Ends and Means in New Environments: Observations on Experience in British New Towns", U.B.C. School of Social Work, Vancouver, 1971.

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