SOCIAL IMPACTS OF MAJOR RESOURCE DEVELOPMENT PROJECTS: CONCERNS FOR RESEARCH AND PLANNING

Nick Taylor

Basil Sharp

1983

Discussion Paper

Centre for Resource Management

University of Canterbury & Lincoln College, New Zealand

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ISSN 0112-5044

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SUMMARY

In summary, the volume contains:

a) a preface introducing the project on rapid industrialisation, research objectives and methods, and the scope of this paper.

b) a review of the emerging field of social impact assessment in North America and New Zealand. Social impact assessment (SIA) in New Zealand has tended to follow North American models, with heavy emphasis on predictive and positivistic studies. The scope of New Zealand studies is somewhat limited to the area of profiling in particular. Little attention has been given to such areas as formulation of alternative projects, mitigation of impacts, monitoring,and, especially, management of impacts. The need for more issues-orientated and participatory research is emphasised. It is suggested that SIA research should be responsive to communities and critical of existing perspectives.

c) a discussion of the phenomenon of boom population growth associated with rapid industrialisation in rural areas. Boom towns have been discussed in a wide North American literature. Debate has taken place over the question of whether boom towns face undue amounts of social pathology. Conflict theorists argue that communities built and affected through resource development result in underdevelopment for some social groups. In all approaches theory is weakened by a lack of good data.

d) a discussion of demographic and local economic features. Demographically, resource towns demonstrate some very rapid increases in population, as shown by New Zealand forestry and hydro towns. Age-sex structures are altered by a new industry. Employment can be limited by the need for skilled labour, with labour demands and high wage rates distorting the local economy. Unemployment is not necessarily decreased as youth, women and unskilled people may not find work in the new industry, and local industries and services do not always obtain expected benefits. Local bodies face difficulties in financing necessary increases in services.

e) a detailed discussion of an area of housing as an area of social impact. Housing shortages have been reported for provincial cities and towns located near major energy projects. There are cases of house and section prices rising faster than national trends. In planning new housing areas it is difficult to avoid social problems, allow positive community development and avoid the image of a company town. Housing has frequently demonstrated overtly the social class structures of company towns, and an industrial work-force has special characteristics which distinguish it from an existing population when new housing is integrated with existing residences.

f) a critical discussion of the concepts of social class and labour process. Much literature and research is structural-functional in approach. The concept of social class and the effect of class relationships on community development have been neglected in New Zealand research, despite evidence presented in several studies. Housing and social relationships are clearly influenced by social class in several towns. Major projects result in rapid moves towards automation and scientific management of labour. There is no thorough research on work and the nature of labour-management relationships in the resource-development communities.

g) a discussion of women, youth and indigenous people, who are identified in the literature as frequently being relatively disadvantaged in cases of rapid growth and major project construction. There is some debate about the allocation of costs and benefits to youth and elderly people, and between newcomer and existing residents. It can be demonstrated that young people are relatively disadvantaged in obtaining employment because of age restrictions. Women are also disadvantaged. Youth, women and Maori people tend to lack necessary skills and be over represented in unemployment. Maori people can experience extra impacts through effects of projects on culturally important resources and acceleration of cultural change.

h) suggestions that there is a need for greater interest from established social sciences in SIA work, especially to conduct longitudinal research on development. Good data and well-developed analytical concepts will help towards planning that emphasises both resource development and community development. Suggestions for further research in New Zealand include surveys of work forces in resource communities and detailed community studies in at least two towns. Comparisons with overseas research are important.

PREFACE

Several major resource developments will proceed in New Zealand during the 1980s. Wide changes in land use can be expected. There are certain to be many social impacts. Conflicts will arise between different social groups, both over the use of resources and over the distribution of costs and benefits arising from development projects. National interests will not always match local or regional interests.

The social changes following resource development will be closely interrelated with environmental and technological change. Important challenges therefore face social scientists in making a socially relevant analysis of "development" in New Zealand. Social analysis is required in the shaping of development policy and the planning of individual projects, and this analysis must be part of an interdisciplinary approach.

Social research at the Centre for Resource Management has concentrated on resource development in rural areas. Rapid industrialisation has been a particular focus. There can be dramatic changes to existing communities, and in some cases the rapid growth of completely new settlements, through resource development. Examples include hydro development, forestry, coal and oil and gas developments.

The review of rapid industrialisation described in this paper arose from a study of lignite development that was conducted by a team from the Joint Centre for Environmental Science, (now part of the Centre for Resource Management). This study was conducted during 1981 under a research contract to the Liquid Fuels Trust Board (LFTB), and concentrated on the social, economic and environmental implications of lignite development for the communities most likely to be affected in Central Otago and Southland. One of the study's recommendations was that a review be made of New Zealand experience with the social and economic effects of large development projects. It was noted the study should place emphasis on the examination of existing management of social needs, development of new community infrastructure and the distribution of costs and benefits of development among existing and new communities. Research on New Zealand resource

communities was to be supported by a selected review of overseas literature. This present background review was envisaged as a necessary prerequisite to further research and planning for resource development in order to take stock of existing knowledge and to assess some of the problems that might exist in theories and methods being used.

There have been attempts to assess the social impacts of major projects, but serious questions need to be raised with respect to present research, its institutional base and the qualifications, experience and values of practitioners. There has been no substantial effort to review efforts at Social Impact Assessment (SIA) in New Zealand to date, or the existing base of knowledge and data about social conditions and impacts that practitioners of SIA must necessarily draw on.

Ironically, New Zealand has embarked on a course of economic growth and development of resources such as land, water and energy that has provided considerable experience with construction towns, single-industry towns and major projects in rural areas. At the same time, social sciences have flourished, with university schools of sociology or anthropology being added to the more established sciences such as economics and geography. A number of communities affected by, and in some cases created by, resource development have been studied, but there has been no attempt to pull these experiences and studies together for use in future resource planning.

Our primary interest in this study has therefore been to review information about human settlements and communities that are directly involved in the exploitation and processing of natural resources. These resources communities have a special blend of rural and urban characteristics and are of great interest to the planning and management of resource development.

Approach and Scope of the Research

Research at the Centre for Resource Management has focused increasingly on the need to integrate studies of social impacts within interdisciplinary analyses of resource development. Our own views of the field have developed recently through research and

discussion with many others interested in the field. Discussions have been held with people managing, conducting or using research on social impacts in government departments, local bodies, universities and community organisations.

The first stage of our review of existing work was to prepare a bibliography (Taylor, Bettesworth and Kerslake, 1983) of New Zealand social impact studies, particularly published materials, completed reports and ongoing studies of the social and local economic implications and experiences of community change in:

a) hydro developments
b) forestry developments
c) coal developments
d) oil and gas development

We also recognise that there is much unpublished material available in archives and project files among people involved in managing projects and among those helping communities adjust to change. We have therefore been making approaches for information to people in government departments local bodies and project management, and to those involved in social welfare work. Our approach to collating and reviewing all this material is being organised through a series of case studies defined by type of resource development. Studies of hydro and forestry communities are currently being concluded. The case study approach is a useful way of conducting a background study covering a range of communities with common themes. Case studies allow a range of research methods to be used to examine different types of development (such as forestry or hydro-electricity) and individual communities within each type. There is also flexibility to deal with limited and variable funding in such an approach. Throughout the continuing research programme we aim to draw out common themes and conceptual issues. Bowles (1982: 11-13) supports the use of a case-study approach in an exploratory study of resource communities.

In defining the scope of each case study we have used broad definitions of the terms, social, rural and industrialisation. With regard to social impacts, characteristics and change we have included local economic change and also some impacts on regional economies. It is difficult to make clear distinctions between "social" and

"economic" when discussing the local implications of a major development project. It is also difficult to exclude local from national social implications. Major projects such as energy developments are important to national social policies, and therefore proceed despite possible social costs at a local or regional level.

Rural, in our research and this report, refers to the social and economic base that in New Zealand consists largely of pastoral and arable farming and forestry. Major industry can bring substantial changes to a city previously occupied with servicing rural communities and with strong social and economic links to those communities. It is not therefore a contradiction to discuss new industrial projects with respect to provincial cities such as Invercargill, New Plymouth and Whangarei. Furthermore, major new industries are usually built outside the bounds of a city, with direct impacts on small rural communities.

The term industrialisation as used in this study includes major projects such as pulp and paper, steel, and oil or gas industries. Towns associated with hydro-electric construction are also of considerable interest. Hydro towns have important similar characteristics to other single-industry towns, both socially and economically. They involve industrial management, work and occupational characteristics that follow a general pattern. Similarly, forestry establishment and maintenance communities are included in the study.

Scope of this paper

It is not intended that this paper include a comprehensive review of SIA in New Zealand, nor a detailed analyais of the influence SIA has had in shaping public policy in this country. Both are major research tasks that should be conducted. Neither is this intended to be another "how-to-do-it" handbook. We concentrate on some limited observations of the main directions and problems for SIA in New Zealand, and discuss the relevance of this field to social research on resource development. Within the field if SIA, research on and discussion of boom towns is an important activity. A short critical review of this work is presented, partly to point out further inadequacies in much of the work conducted on social impacts of resource development (Section 2). Then follows a discussion which

uses New Zealand examples to illustrate several aspects of social and economic change that accompany resource development (Section 3-6). Finally conclusions are presented and further research work is proposed (Section 7).

To summarise, this paper has arisen from a perceived need to carry out background research on both SIA and the characteristics of resource communities in New Zealand, with comparisons to overseas work. The authors have felt it imprudent to be involved in further "predictive" research without an adequate "review" base. Some of the central issues and concerns that we have identified for future research on major projects are presented here. It is hoped that the paper will promote critical discussion, and therefore contribute towards an expanded network of people interested in SIA in New Zealand. Further papers will follow from our research, providing detailed case studies of resource communities and discussing methodological and conceptual matters within SIA.

ACKNOWLEDGMENTS

We wish to acknowledge the support of the Social Science Research Fund Committee through a grant towards our research on rapid industrialisation in rural areas. Thanks are also due to the Department of Labour for assistance under the PEP programme. Dr John Hayward, Director, C.R.M., has given continuing support for the research programme and encouraged us to conduct background research that will help develop a base of data, methods and concepts useful to the future planning of resource developments.

Several people have contributed to the research and ideas reported in this paper. We wish to thank especially Tessa Robertson for her research and editing assistance, Wayne McClintock, Colin Goodrich, Neil Anderson and Alan Levett for comments, Pat Prendergast for drawings and Jackie Wills for her typing effort.

I

INTRODUCTION

1.1 Social Impact Assessment: An Emerging Field

Social scientists in North America, and recently in New Zealand, are giving attention to the relatively new and rapidly growing field of Social Impact Assessment (SIA). It is a field that has provided work and research opportunities for social scientists, and it is also an area of social activity that in itself deserves their attention and analysis. SIA is not simply a subset of applied sociology, however, for people from a variety of academic, professional and community backgrounds are practitioners. Nevertheless, it is a field that is closely akin to rural sociology and applied anthropology in particular.

The emerging field of SIA is evident in publications and conferences. The many published and unpublished writings of SIA have been recorded in bibliographies (e.g. Carley and Derow, 1980). There are numerous "how-to-do-it" handbooks (e.g. Waiten, 1981), the first textbook (Finsterbusch, 1980) and a journal called the Social Impact Assessment Newsletter. Major areas of research controversy have received space in recognised sociology journals, as with the "boom town" debate (Wilkinson *et al.*, and commentaries, 1982) in the Pacific Sociological Review. In addition to the first international conference in Richmond B.C., there have been other "state of the art" meetings in North America, and sections of sociology conferences have been devoted to SIA.

In New Zealand there have been special sessions on SIA at the 1980 and 1983 conferences of the N.Z. Sociological Association. Positions related to the investigation of social impacts have been established in government departments such as the Commission for the Environment and the Ministry of Works and Development, and several seminars have been held in government and university settings. A masterate paper on the social impacts of resource development is being taught at the University of Canterbury.

Local social impacts are included in the matters to be covered in environmental impact assessment. Compared to earlier reports, which made little or no mention of social impacts, there have been detailed sections of social-community impacts in recent reports such as those on the Upper Clutha hydro development, the synthetic petrol plant at Motonui and the aluminium smelter at Aramoana. Public submissions on EIR's frequently deal with social impacts. In turn, Commission for the Environment audits have paid increasing attention to these topics.

Research has been conducted under the ambit of SIA including the large Huntly Monitoring Project, which has received international attention. Assessments are currently being undertaken prior to proposed developments of hydro electricity on the Lower Clutha River, irrigation on the Manuherikia River and geothermal power at Ngawha. Social Impact surveys are being conducted on projects already underway, as at the Whangarei refinery expansion and the Taranaki energy projects. Furthermore, research on social impacts has been utilised in the early stages of planning for new resource developments, as with the Joint Centre for Environmental Sciences research on lignite use. Used early in planning, SIA research can play an important role with regard to public participation in decision making.

It is useful to look briefly at the origins of this new field. As Freudenburg and Keating point out (1982:71), the sociological roots of SIA go back to the earliest social scientists, but the field itself emerged with environmental legislation in the U.S.A., specifically through the National Environmental Policy Act, 1969 (NEPA). This act makes special provision for the inclusion of social impacts in the assessment of environmental impacts and consequent decisions about new development projects. Subsequently, the President's Council on Environmental Quality, which oversees and guides implementation of NEPA, has supported the need for full information on signficant impacts - including social science input. Court decisions have backed this stance with cases arising from the legislation frequently being focused on research methods and quality of information presented in EIA's.

Despite the need for good social science inputs, there are few examples where social science research, methods or techniques have been employed in EIA's. Freudenburg and Keating quote a study which found inadequate social science work in 86% of EIA's reviewed *(ibid.: 72)*. Freudenburg and Keating criticise those few environmental assessments that do give attention to the human environment, because of the emphasis that is placed on demographic factors and provision of services in new settlements:

> For many researchers, the words "social impact" seem to mean the impact of people on service agencies, rather than the impact of new technologies on humans and social systems; most social impact assessments have very little to do with the ways in which human beings are reacting to the changes being wrought...
>
> For some purposes, it is important to know how many square feet of empty classroom space the school district has, but eventually we need to know what happens when those spaces are filled by human beings.
>
> *(ibid.: 72-3)*

In Canada, much recognition is given to the inquiry by Justice Berger into the environmental impacts of a new oil pipeline in North West Canada, for Berger placed emphasis on the social implications of the scheme. Dale and Kennedy (n.d.) however, maintain the environmental impact assessment procedures in Canada have generally not been "socially relevant". As in the U.S.A. critical social issues have been ignored or down played, while economic benefits have been exaggerated and biophysical impacts have received attention.

1.2 The Scope of SIA

In examining the relevance of SIA to resource planning, it is important first to define the scope of the field. There is no clear consensus in the literature as to what the field of SIA covers. As an example, Fookes (1981, NO. 7:1) explains that the term monitoring is used for describing studies of social and economic impacts at Huntly so as to distinguish this research from social impact assessments, which he considers involve only predictive studies. In contrast, Freudenburg and Keating (1982) clearly see monitoring studies as part of longitudinal research and maintain this research is of vital importance within the field of SIA.

To obtain an indication of the current scope of the field of SIA, it is useful to look at the content of workshops held during the first international conference of SIA practitioners (in Richmond, B.C., 1982). Each area of interest covered at the conference is backed up by research and writing of at least a limited nature. Fifty workshops were held. Both predictive and monitoring work, plus *ex post* research, were included. Impacts of a wide range of resource developments and technological and environmental changes were considered. They included energy developments based on coal and hydro-power. In addition, new technology (micro-electronics and telecommunications), crime, toxic waste disposal and the "ultimate impact" - nuclear war - were considered. Impacts on a variety of social groups and institutions were covered, including small communities, native peoples, and the family. Boom towns and resource towns were examined. As could be expected, many methods of impact assessment were discussed, ranging from community based assessments to computer modelling. Finally, it should be noted that issues such as public participation, planning and formation of public policy were of concern as well.

Emphasis at the conference lay in questions about the *a priori* assessment of social change. Data sought to build predictive models tend to be quantitative. Despite the possible wide scope of SIA in studying the social consequences of planned change there is not a full use of all the research methods available to the social sciences. A range of methods, both quantitative and qualitative, are used by practitioners of SIA but the great majority of studies are quantitative and positivistic in nature.

Although substantial historical data about social change are necessary for good planning, the emphasis in research to date has fallen on approches for assessing change, rather than the scientific accumulation of data about change. Considerable attention has been devoted to forming a methodology for SIA to the extent that Finsterbusch (1980:6) points out, "we" now have a developed methodology for SIA. This methodology is a set framework with some "variations" applied by particular agencies. The type of step-by-step methodology now accepted by many practitioners is shown in Figure 1.1. Within this development of SIA methods, attention has also been given to the assessment of particular types of projects, especially large energy developments

Figure 1.1 SIA as method: the ten steps

1. Scoping

   Set level(s) of assessment and dimension of impact categories, formulate terms of reference and develop the study design.

2. Problem Identification

   Explicate policy goals and planning objectives, identify publics and concerns, perform a needs assessment and determine evaluative criteria.

3. Formulation of Alternatives

   Define a set of "reasonable" alternatives, characterise and describe the technical system(s), analyse for social components and correlatives and profile change agents and instruments.

4. Profiling

   Characterise potentially impacted system(s), select impact categories, assign impact indicators, perform indicator measurements and compile a profile of the system.

5. Projection

   Explicate "state of society" assumptions, perform a trend impact analysis, construct dynamic system models and estimate impact indicator values for alternatives ("with and without" implementation).

6. Assessment

   Perform a sensitivity analysis for alternative outcomes of alternative plans, a cross-impact analysis and a cumulative impact analysis and describe and display "significant" impacts.

7. Evaluation

   Rank and weight preferences for alternatives, perform a trade-off analysis and identify the preferred alternative.

8. Mitigation

   Review unavoidable adverse impacts, identify possible mitigation measures, perform a sensitivity analysis of possible measures and specify terms and conditions for the application of measures.

9. Monitoring

   Devise a monitoring plan, measure actual vs. predicted impacts and feed back measurements to policy makers and publics.

10. Management

    Devise a management plan and adjust planning objectives, operating procedures, and design specifications.

Source: Adapted from an anonomous handout at SIA conference, Richmond B.C. 1982, see also Krawetz (1981).

(e.g. Leistritz *et al.*, 1982). Some comprehensive computer models have been developed for this work. There does not appear to be an easy means to link the work of *a priori* assessment of impacts to the later steps involving monitoring and management of impacts, although this has been achieved in some cases.

A further problem exists with regard to the different value stances that can be adopted by an SIA researcher. Present approaches tend to downplay or avoid any substantial questioning of the wider issues of development. SIA work that is couched in the value system of the institutions that are promoting a development and funding SIA can become part of a mutually reinforcing system of decision making and research. Schnaiberg (1981) discusses the reasons for a failure of SIA to substantially challenge many of the longer-term policy implications of resource development.

Finally, in this brief introduction to the main foci of SIA it is important to note that the scientific description and analysis of social change by practitioners of SIA has been very limited. This is the case in the work on energy boom towns. Unfortunately, where established social science disciplines have conducted research on social change arising from resource development, that research (rather ironically) often lacks the necessary understanding of technological, biological, physical and planning issues that practitioners of SIA possess.

1.3 SIA in New Zealand

As Maturin (1983) notes, social inputs into resource planning in New Zealand have been overshadowed by debates over physical and economic matters, and there is no established mechanism for incorporating social aspects into planning. She suggests that SIA should not only form an important part of EIA procedures, but also deserves "a legitimate position in its own right in the planning process".

Tied to the low institutional status for SIA in New Zealand are methodological and conceptual problems. Krawetz (1981) points out the confusion that has existed over the use of terms here in comparison to those developed in North America. Unfortunately, even our use of established North American SIA terms is far from adequate. Our

fledgling SIA may develop its own consistent terms, but this is unlikely, and it appears that the North American models will be followed. We can be cynical about the development of SIA in New Zealand. While methods, and even issues, for SIA have been imported along with technology, industrial plants and environmental assessment, there has been little attempt to adapt these to New Zealand conditions, and adoption has been only piecemeal.

Completed, ongoing and proposed studies illustrate the limited framework for SIA in New Zealand. Briefs recently circulated by government departments for research contracts, for example, have a strictly limited scope. These briefs include proposed research on

a) hydro-electric development on the Lower Waitaki River;
b) hydro-electric development on the Lower Clutha River and
c) irrigation development on the Upper Manuherikia River.

In each case there is a heavy emphasis on profiling - detailed descriptions of existing populations, infrastructure and to some extent, local communities. "Attitudes" to the project are studied. A limited amount of projection and assessment is sought, but whole areas of work are omitted, in terms of the methods outlined in Fig. 1.1, including the formulation of alternatives, mitigation, monitoring and management.

One failure in these *a priori* studies is the lack of an approach that clearly enunciates local issues. An issues-orientated approach is used to give full recognition to issues that emerge at a local or community level, often as a result of projects that proceed largely for the benefit of groups external to the area affected. One example is the Joint Centre for Environmental Sciences (1982) study of lignite development. This study centred on local and regional issues and aimed to identify the future research that will be needed to improve the outcomes for local people. It was suggested in the study that issues-orientated research should continue to be integrated into the design of a new industry. An ethnographic approach using a network of key contacts, public meetings and maximum exchange of information between the researcher and communities studied was used in the study and could be employed on a continuing basis (Taylor, 1983). There were limits in the study brief , for example, it was not possible to directly examine alternative uses for lignite. Nevertheless, the

issues-orientated approach meant there was an inevitable tendency to examine critical issues of both community development and resource development. As a result, it is possible that issues-orientated research will not continue to be funded for this development, despite the potential to use this approach for conciliation of conflicts.

Other examples of issues-orientated SIA are evident in New Zealand, including work, at the monitoring and mitigation stages of impact assessment. McPherson's research on the present oil refinery expansion at Whangarei (1982) embodies a combination of action and data collection. In identifying local issues and promoting community development McPherson attempts to work with both the positive and negative effects of this project. Like McPherson, Landon (1982) deals with a current development in her research on Taranaki. Her work embodies an attempt to identify issues at a community level, but this part of the research is not well developed in the final report. Government funding of this project probably imposed many constraints. Yet a study by the Ministry of Works and Development of the social impacts of the meatworks closure at Patea (Melser *et al.*, 1982), has an issues-orientated approach. Future community development was a focus of the Patea study, rather than an endless detailed description of "impacts".

There has been one major research project within the field of New Zealand SIA that planned to systematically obtain data for monitoring and managing impacts over time. The Huntly Monitoring Project (HMP), carried out at the University of Waikato was an attempt to identify and manage impacts occurring in the construction of the large thermal power project at Huntly. The project also aimed to gather information useful for planning other large energy projects and to develop better methods for SIA monitoring.

In terms of funding, government support, and, consequently, manpower, effort and data collected, the Huntly Monitoring Project stands out among New Zealand efforts at SIA to date. There was funding of $300,000 over six years, and many reports and papers ensued. However, in many respects the outcomes of this massive research project, especially the final report series, are disappointing. It is therefore, important to examine in a critical but constructive manner the contribution of this project to SIA in New Zealand, especially in terms of our understanding of the processes of rapid industrialisation and growth.

Three important questions can be asked about the Huntly research:

a) Did the project contribute a core of active and experienced SIA practitioners to the field in New Zealand?

b) As a consequence of this reserach, have other major developer-funded research projects been established to study the latest energy developments?

c) Were the Huntly findings useful to the planning studies for a further thermal power station in the same area?

The success of the Huntly research has been limited in regard to these three questions. Some of the personnel who worked on the study continue to be involved with SIA work, and HMP researchers and findings are being used in planning the new power station. More importantly, however, no new large monitoring studies have been implemented, especially in Taranaki or at Whangarei, and there has been a strong move away from government funding of university-based SIA studies to the use of provate consultants in other SIA work. It is possible that dissatisfaction with the Huntly research helped precipitate this negative attitudes towards "academic" research.

We have to conclude that much New Zealand SIA is a rather pale imitation of the field established overseas. Therefore, when we examine major problem areas in SIA, especially problems of values and the need for issues-orientated research, we have to recognise that we face special difficulties. There is a special need for research that provides a substantial base of data on the social implications of resource development and gives attention to the concepts which we use to understand technological change.

1.4 Responsive research

A useful distinction can be made between technocratic and participatory SIA. Technocratic SIA tends to be positivistic in both its scientific and active components. The aim is to facilitate development by prediction, control and management of impacts. In comparison, participatory SIA emphasises an involvement in community action, either by action directly in opposition to a new project or by negotiation over the distribution of impacts (Maturin, 1983). Research that leads to participatory SIA is responsive to community identity and needs.

Responsive research requires an understanding of the external forces of technological and economic change that affect individuals and their communities. Because the perception and evaluation of a development project can be made at a variety of levels - from individual (through community, regional and national) to international - it is also necessary to identify the allocation of power in decision making between different groups of interest, for, as Porter (1980:17) suggests "impacts" are ultimately the outcome of negotiation between different groups. The identification and study of social or environmental impacts can play an important part in the process of negotiation between different groups. There are special implications for research that is responsive to groups that are disadvantaged in the process of decision making.

To be responsive we require a critical view of existing publications about social change and energy development. Are some of the common assumptions about rural social life valid? Are the rural communities affected always comprised of a small, close-knit, homogeneous population invaded by a large workforce of people with very different values and expectations? Is the consequent rapid transition from rural to urban types of social organisation then accompanied by social dissolution in the form of crime, suicide, marital breakdown, delinquency and problems of mental health (Thompson, and Branch, 1980:8-10); Freudenberg 1980a:2)?

Thompson and Branch argue that there is little scientific evidence to substantiate common negative ideas about rapid social change associated with boom growth. Much empirical data is misinterpreted or poorly based, and many of the assumptions about both rural and urban society are not supported by wider sociological research, which shows that social "stress" is not confined to , or necessarily common to, urban society. Rural communities have often undergone long and frequently disruptive change without large energy projects for example, or growth related to energy development. Emphasis must therefore be given to recognising and understanding existing social problems in both rural and urban areas before the new and extra changes that will be caused by resource development can be understood. A detailed critical review of the boom-growth model is provided in the next section.

Given our dissatisfaction with the boom-town model, we suggest that the term "resource community" is more appropriate for identifying individual human settlements directly affected, and in some cases created, by a new resource development. We propose a view that external forces of change are dominating internal forces of change in rural areas and uneven development is taking place. Benefits and costs go selectively to groups at local, national and international levels.

A detailed conceptual framework for use in comparative research on resource communities is set out by Taylor and McClintock (1983). The framework allows us to consider the role of large industrial corporations in resource development and their decisions made in collaboration with the national state, which will affect impacts on settlements and the character of a resource community. Within each community, stratification of social groups and the relationship between technology, workplace and community life will be important. Our approach requires careful response to groups who are disadvantaged in the course of planned change. At the same time, we recognise that change at an individual or community level cannot be separated from wider processes of technological change.

II

BOOM GROWTH IN RURAL AREAS

2.1 The Boom Town Model

Much of the research carried out in the field of social impact assessment deals with the social consequences of rapid population growth in rural areas, especially the rapid growth associated with energy development in the North American West. Both predictive and historical research are evident. It is not our intention to review all this research, but rather to draw together some of the debates that have appeared in recent review articles.

There are ample writings on any one single type of development: oil, natural gas, thermal power, nuclear power, coal mining or hydro-electricity, for example. Information on these developments can be obtained through computer-based data searches, or through the useful bibliographies by Frankena and Kobernick (1980), Schnell and Krannich (1978) and Thompson and Branch (1980). Important literature reviews include those by Cluett *et al.* (1979), Cortese and Jones (1979), Frankena (1980), Freudenburg (1980b), Wilkinson *et al.* (1982), Reynolds *et al.* (1982) and the book edited by Weber and Howell (1982), which covers up-to-date material on both social and local implications of rapid growth.

The general pattern of boom growth established in the North American literature by authors such as Newitt (1977) is that when a predominantly rural areas becomes the site for a large new energy project, this development:

a) abruptly alters the physical landscape;
b) greatly increases population and employment;
c) inflates and disrupts the local economy;
d) increases demands for local infrastructure - both public and private; and
e) generates secondary industries, employment and immigration.

Assessments of social impacts resulting from these changes often distinguish between the construction, operation and curtailment phases of a development. Overlap of construction and operation workforces can lead to a peak of population, and some stages of the development can involve a population that is dominated by transient, single males. Curtailment of an industry that supports a single-purpose town is seen by many authors to pose special problems.

In our research on the social implications of converting lignite to synthetic fuels, we pointed to the work of Newitt, who, in discussing the social implications of a coal-derived synthetic fuels industry, suggested:

> The boom town scenario seems the appropriate one for a great number of potential sites, although there will of course be great differences in the intensity of impact.
>
> (Newitt, 1977:5)

Questions remain, however, as to the full relevance of this American model of rapid social and economic change to New Zealand conditions. The boom growth model and current debates over that model need to be reviewed in the light of New Zealand experiences. In this section we point to and expand on the central concerns for research on boom growth with reference to New Zealand research.

2.2 Changes in Roles and Social Organisation

Much of the sociological literature on boom towns follows the major branch of sociological theory which examines the structure and function of social relationships. Reported data and analysis are based primarily on the results of social surveys and other quantitative information, especially demographic data, economic aspects, demographic changes and provision of services such as medical facilities, schools and fire engines. But facilities alone are not everything, as stated by Freudenberg (cited in Cortese and Jones, 1979:5):

> One does not need to be a sociologist to know that people rarely attempt or commit suicide because of inadequate sewage facilities.

There is an important dearth of qualitative information on boom towns, especially information based on ethnographic experience. "Less obvious", often qualitative, aspects of new towns, including the quality of life of both newcomers and present residents, must be examined, and analysis based on conflict theories, especially analysis of social class, should be considered.

A further problem with much completed research is the "cross-sectional snapshot view normally taken of what in reality is a dynamic, unfolding process" (Cluett *et al.*, 1979:13). Full understanding of the complex processes of social change that occur over the life of a project will not be obtained without study and monitoring of change at different stages of that project (Freudenburg, 1982). Longitudinal research is likely to recognise that not all the "less obvious" implications of boom growth will be bad or lead to costs that have to be paid by a local community in either social or economic terms. A comprehensive and penetrating understanding is most certainly necessary, with all communities being seen as likely to react to boom growth in different ways.

It is possible, however, to make some general predictions about the social changes that are likely to occur to values, lifestyles and social organisations through boom growth. A functional approach is used to consider the changes in roles in a rural community. New roles are created while others are changed, for example:

Rural	Urban
Local cop	Organised police force
General store	Specialised shops
Local pub	Diverse entertainment and social facilities
One-teacher school	Large school

Two changes that are of particular interest are in the areas of *authority* and *leadership*. Established leaders are often replaced by people who are more "professional", "aggressive" or "energetic". An American study found this to be the case in every rural town experiencing boom growth from energy that was examined (Cortese and Jones, 1979:12). Leadership is bound into large institutions and is provided by industry, government departments, unions or business groups rather than a few respected individuals. Authority becomes more formal, with the change from a small community where everyone knows what the other is doing to a community with an organised police force. There are many more possible changes to rural social structure and they must be recognised as being important to rural people in their *everyday life* as members of families and communities.

A further functional perspective of social change and boom growth is provided by Freudenburg, who proposes a functional hypothesis about "the density of acquaintanceship". His hypothesis deals with the informal social relationships found in a community. Freudenburg suggests that when informal social mechanisms in a small community decline, they are either replaced by formal mechanisms, or social dysfunction occurs. The "density of acquaintanceship" is effectively a ratio of the number of existing social ties over the number of potential ties. It can be expected that when a small community with many informal and close social relationships expands rapidly with boom growth, the "density of acquaintanceship" will change (1980b:12).

In political and economic functions, therefore, informal social mechanisms are soon replaced by more formal ones:

> In a manner quite reminiscent of Weberian rationalisation, the kinds of communication and task performance which had once taken place on the basis of personal acquaintanceship were increasingly taken over by more formalised mechanisms with the changes perhaps being greater and somewhat more successful in the economic sphere than in the political one (Freudenburg, 1980b:15).

Freudenburg relates these types of role change to those discussed by Cortese and Jones (1979).

Using ethnographic data, Freudenburg extends his analysis of role change to examine the effects of boom growth on four important areas of social function: the control of deviant behaviour, the socialisation of young people, the care of "needy" people and the maintenance of personal morale. With respect to informal control of deviant behaviour, for example, Freudenburg found there was a considerable change. In the large new community, it was impossible for everybody to know and watch each other. Behaviour of children changed as there was less adult control. A specialised police force quickly became necessary and the official "crime" rate increased 300%. New attitudes developed towards those people who needed help with social problems, and the larger community split into a mosaic of small groups and interrelationships rather than remaining a more cohesive social unit. Overall, Freudenburg concludes that while statistical data seemed to indicate some social pathology, ethnographic data showed rather that social functions had changed through a reduction in close interpersonal acquaintances. He suggests that this analysis complements wider sociological research on urban communities (Freudenburg, 1980b:17-25).

2.3 A Call for Improved Research

Wilkinson *et al.* (1982) provide a critical review of research to date on the local social disruption of energy development in the Western United States, especially the emphasis given to the notion of social decay. They examine the now infamous "Gillette syndrome" of social pathology in a boom town in Wyoming. Social problems such as alcoholism, marriage breakdown, mental health cases and crime are supposed to increase dramatically in a town experiencing rapid growth. At the same time, fiscal change and pressure on existing institutions are supposed to lead to difficulties for local body finances, expensive housing and disruption of the labour market. Wilkinson *et al.*, while not denying that rapid social and economic change might occur in communities affected by energy development, question the scholarship that has gone into the assembly and analysis of data that describes these changes,and they call for more research (1982:276-281).

Reynolds *et al.* (1982) also discuss the nature of community in "western energy boomtowns" and the literature that proposes a collapse of community and widespread "social disruption" in these towns. Their discussion is important, for it questions basic assumptions which have been incorporated into SIA's prepared for major energy projects. They assert that "the literature on western energy boomtowns has been based generally on inadequate research, undocumented assertions, and mis-interpretations of quantitative evidence", and they conclude that:

> The literature on western energy boomtowns has not presented convincing evidence that rates of behaviours indicating social disruption have increased in communities which have grown because of energy development (p.31).

Freudenburg (1982) extends this discussion of the validity of boomtown statistics. He notes sets of data from several towns that have shown an increase in social problems through population growth related to energy development. Changes that have occurred in boom towns appear to be related to the increase in size of a community, the characteristics of the immigrant workforce and changes in behaviour of longer-term residents. Freudenburg (1982 :141) considers this latter change as most important for social planning, although useful data on these changes would have to be derived through studies of both newcomer and old-timer residents. Data gathered at a community level cannot answer all the questions for boomtown research. Measures of individual and group well-being would be at least one further useful but perhaps elusive, research task.

Wilkinson *et al.* (1982) go beyond the statistics and measures of quality of life to examine the theoretical assumptions that lie behind many studies of social change in boom towns. Assumptions put forward in the literature include the likelihood that boom growth will result in:

a) crowding and excessive demands on services and space;

b) contrasts in lifestyles between old-timers and newcomers (rural and urban values);

c) undesirable characteristics of transiency and mobile populations; and

d) changes in social interaction, including social control and neighbourliness, through "diversification".

As Wilkinson *et al.* suggest, the sociological roots of these assumptions go back to the founding work of Tonnies' *Gemeinshaft* and *Gesellschaft*, Durkheim's organic and mechanical solidarity and Redfield's folk-urban continuum. Social pathologies of rapid change embodied in such processes as urbanisation and modernisation are contained in these assumptions.

Reynolds *et al.* (1982) continue the arguments of Wilkinson *et al.*, noting two assumptions of causes of social disruption: the rate of growth causing anomie and an increase in total population causing stress. In assuming that anomie is caused by energy-related rapid growth, researchers are ignoring the cycles of boom and bust and periods of social conflict and change that have always characterised western communities.

Many writers on boom towns paint a picture of disrupted stability, for example:

> Small western communities that had enjoyed over a century of relative stability, based on farming and ranching, suddenly found themselves host to rapid industrial and economic development, population growth, greatly increased contact with urban influences, and a rapidly changing natural and social environment (Cluett *et al.*, 1979).

Are western communities classically rural? It can be argued instead that there is a history of conflict, boom and bust and well developed "urban" values and orientation in rural areas of both the American West and New Zealand. There is also no conclusive evidence that rural life in America,or New Zealand,is more or less stressful than urban life (Wilkinson *et al.*, 1982:284-5).

It should also be noted that people do adjust to rapid change, as seen in the New Zealand hydro towns, and as discussed by Reynolds *et al.* (1982:30) and Wilkinson *et al.*:

> National survey evidence presented in one study suggests that people who move frequently tend to develop skills to help with their own adjustment to new situations and to help others with adjustment problems (1982:285),

although this adjustment may not apply for locals.

Furthermore, Wilkinson *et al.* suggest that writers who describe domestic colonisation through the capitalist use of energy resources also show this limited perspective:

> Thus urbanisation, rapid change and outside domination are asserted to be sources of social pathology in western energy development communities (*ibid*: 283).

Reynolds *et al.* (1982:48-49) continue this argument, noting "relationships with the larger society have been crucial in many previous upheavals", and they suggest that rates of murder, suicide and divorce have always been relatively high.

In conclusion we can agree that the contention that urbanisation produces social disruption and stress is not well supported by research and is often based on a simplifed view of rural life and social relationships. Classic "rural" life has not been evident in the American West or in New Zealand and care must be taken to avoid "snap" conclusions about boom development. Social "ills" of boom development, if they can be proven to be extraordinary at all, are certainly not simply the result of poor planning and project management. Many problems that do occur lie inherently in the processes of development in which projects take place and in the problems which already exist in rural communities.

2.4 Topics for Consideration in Rapid Growth

While it is therefore impossible to draw a model boom town, it is useful to set out a checklist for describing rapid growth in New Zealand resource development communities. At least the following descriptive areas should be noted in research providing comprehensive longitudinal profiles of resource-development communities. Needless to say, profiles should be treated warily in view of the systematic approach that has to be adopted with any research.

Demographic and Local Economic Change

Population

Changes in total population
age-sex structures
family composition
ethnic composition

Circular and Chain Migration

Number of people coming from other projects
origins and cultural background of migrants
previous experience in resource communities
kinship and chain migration

Multipliers and Population Projections

What was projected and why
what in fact happened
what is projected

Employment

Changes in major categories
changes in control - farm, private, contract, Ministry of Works and Development, etc.
workforce turnover and mobility

Wages and Labour

Effects on local labour supply
spin-off effect on wages in other industries
unionism
unemployment in boom town and regionally
unemployment by ethnic group, women, youth
shift work and work social relationships

Housing

Accommodation supply
pricing trends
short-term accommodation
planning of new subdivisions
developer involvement

Local Business

Ownership

turnover

patterns of spending

financial position of businesses

Local Institutions and Public Services

Local government

Leadership power and authority

who controls the town

different mechanisms for government: regional, county, town borough

special organisations: liason committees, public forum

who pays for growth

level of rates

Boom town social services

Welfare services before and after boom

what new services are needed/supply of personnel

data on social needs/problems/health, crime

recreation supply and demand

Schools and Education

Rolls

how existing schools are affected

provision of new services

schools as a means of integrating newcomers

Social Organisation

Community Character

community identity

social networks

community history

social groups.values

informal organisation

Organisations

What organisations form

differences to rural community

role in integration of newcomers

special organisations

Transfer of Organisations

What organisations move with a mobile workforce

why and to what effect

Special Topics

Disadvantaged Groups

Women

youth

workers

ethnic minorities

Impact on Maoris

Land

unique cultural features (e.g. burial grounds, shellfish resources, thermal areas)

accelerated cultural change

employment

Winding Down

What happens after growth

length of any "stability"

changes in resource use/multi use

planning (if any) for winddown

III

RAPID DEMOGRAPHIC CHANGE AND LOCAL ECONOMIC IMPACTS

3.1 Rapid Population Growth in Rural Areas

Throughout many rural areas of New Zealand, decline of population has been of concern to planners and researchers during the 1970's (Cant, 1980). There has been minor growth in provincial towns and cities and in some of the smaller rural towns, especially those attractive for retirement. Then there are those few towns, associated with major resource developments, that have shown aberrant rapid growth. Similar disparate cases of rapid growth in rural areas that are otherwise declining are shown in the North American West, as summarised by Wardwell and Cook (1982).

Demographic trends in selected New Zealand towns are shown in Table 3.1.1. Hydro towns show a characteristic rise and decline in population over a relatively short period (Taylor and Bettesworth, 1983). Towns based on forest industries show first a rapid, and then more steady rise towards stability. Towns affected by the recent energy projects have also experienced rapid increases in total population.

Early construction towns had a male dominated sex structure, and this remains a trend in construction phases of settlements involved in resource development. Towns experiencing rapid growth also have a trend towards disproportionately large numbers of dependent children and young, working-age people, with a characteristic loss of people in the 15-19 age group. (See Figure 3.1).

3.2 Framework for Studying Regional Economic Impacts

Social and economic impacts of a development project are a consequence of the chracteristics of the project and the characteristics of the site and surrounding area. Three main characteristics of the project that need to be considered are the level and nature of investment, the requirements for materials and energy and the nature of the workforce.

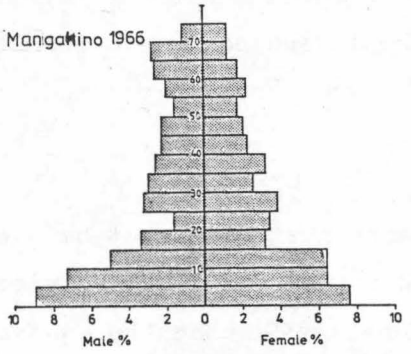
Table 3.1.1 New Zealand Resource Communities: Demographic Features

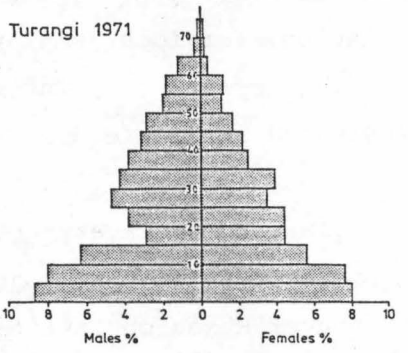
DATE	1951	1956	1961	1966	1971	1976	1981*
TOKOROA							
Total Pop^n	1193	5366	7104	11,229	15,169	18,635	18,710
% 0 -14			43.48	44.08	42.59	40.34	35.88
% 15-64			55.56	54.79	56.31	57.96	61.86
% 65+			0.96	1.13	1.10	1.70	2.26
DR			79.98	82.53	77.60	72.53	61.66
KAWERAU							
Total Pop^n	59	2740	4491	5826	6687	7743	8590
% 0 -14		32.88	41.48	43.72	44.65	41.08	37.68
% 15-64		66.13	57.74	55.42	54.15	57.46	60.38
% 65+		0.88	0.78	0.86	1.20	1.46	1.99
DR		51.05	73.20	80.43	84.47	74.04	65.70
TAUPO							
Total Pop^n	1358	2849	5261	7311	10,563	12,898	13,650
% 0 -14		30.22	37.10	38.64	37.86	32.70	
% 15-64		61.71	57.38	55.51	55.90	59.76	
% 65+		7.72	5.51	5.85	6.24	7.54	
DR		61.49	74.26	80.16	78.88	67.33	
WAIUKU							
Total Pop^n	1192	1417	1612	1759	2879	3494	3650
% 0 -14		31.83	32.01	31.84	35.53	35.23	
% 15-64		56.46	55.46	54.86	56.76	56.78	
% 65+		11.71	12.53	13.30	7.71	7.99	
DR		77.13	80.31	82.28	76.19	76.11	
TWIZEL							
Total Pop^n					1820	5185	4120
% 0 -14					39.07	40.56	35.97
% 15-64					60.71	58.88	63.35
% 65+					0.22	0.56	0.80
DR					64.71	69.83	58.05
CROMWELL							
Total Pop^n	838	885	942	1062	988	1176	2360
% 0 -14	28.76	31.19	32.48	29.47	31.58	29.51	30.76
% 15-64	63.60	60.90	58.28	58.29	58.40	58.08	60.76
% 65+	7.64	7.91	9.24	12.24	10.02	12.41	8.39
DR	57.22	64.19	71.58	71.57	71.23	72.18	64.44
MANGAKINO							
Total Pop^n	3815	4542	5025	1466	1756	1614	1540
% 0 -14				42.97	41.86	36.12	27.86
% 15-64				50.61	50.34	50.25	55.52
% 65+				6.41	7.80	13.63	17.53
DR				97.57	98.64	99.01	81.57
TURANGI							
Total Pop^n	345	286	489	1661	5840	5496	5400
% 0 -14					44.23	41.76	36.11
% 15-64					54.73	56.13	61.28
% 65+					1.04	2.11	2.61
DR					82.73	78.15	63.19

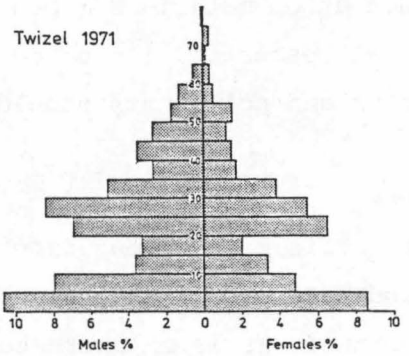
Dependency Ratio (DR) = $\frac{(\text{age } 0\text{-}14) + (\text{age } 65+)}{(\text{age } 15\text{-}64)} \times 100$

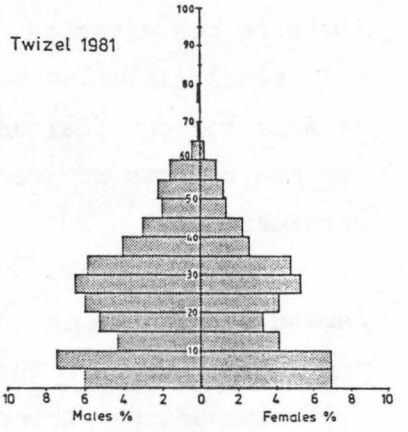
* 1981 figures provisional

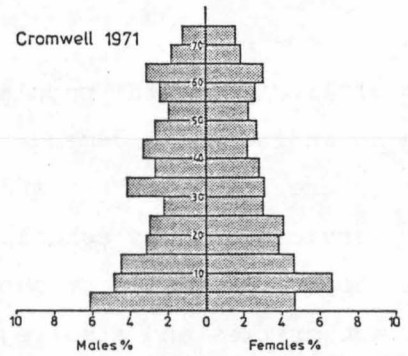
Figure 3.1 Age-sex structures, selected resource communities

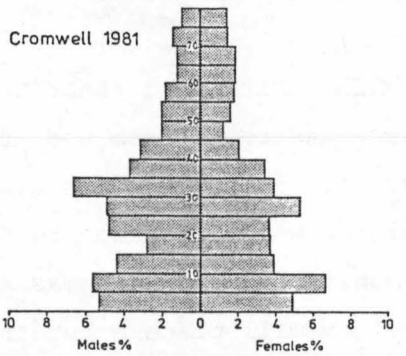


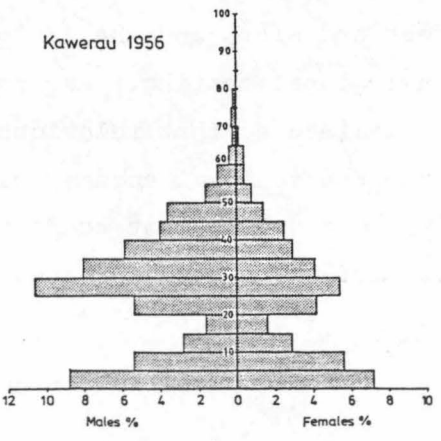


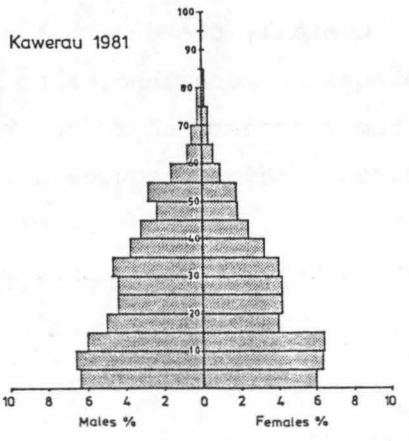












Characteristics of the site to consider include current levels of population, services, employment in basic and non-basic industries and local investment. Interactions between the project and site are illustrated in Figure 3.2 and include:

a) Balancing of investment. A balance must be struck between investment in the project and investment in local services. The Denver Research Institute (1975) estimates that the equivalent of 5-20 percent of plant investment will be required for developing local services.

b) Resource conservation. A major project to develop resources will result in an increased throughput of materials. New demands for physical and biological resources, including energy, and new outputs of products, wastes and pollutants should be considered.

c) Demand for labour in the project. This must be met from external and local sources. The timing and nature of the construction and permanent workforces are important, as is an increased demand for labour in additional services and industries, both public and private.

In addition to these three areas of linkage, total population change has to be examined in relation to an increased demand for physical, economic and social infrastructure. New workers and their families will increase the demand for services such as schools, sewage, community centres, cinemas and retail shops. Provision of public services will place a burden on local authorities and also regional institutions.

Overall, the description of project and site, and the analysis of linkages between them,takes place in a regional setting. Regional economic systems therefore have to be examined so that relationships between a major resource development and the regional economy can be identified. Growth that might occur without development needs to be highlighted. Furthermore, multipliers have to be set to assess secondary

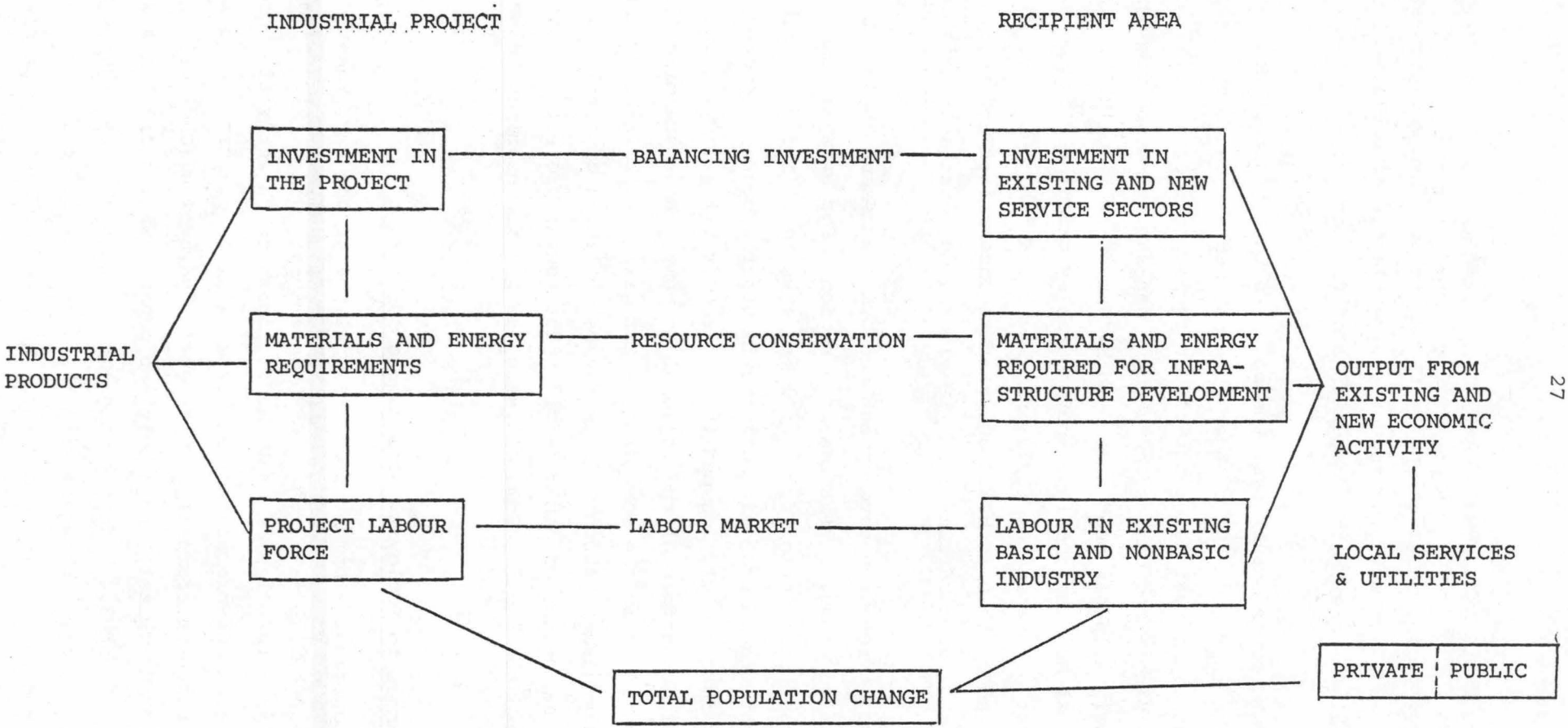


Figure 3.2 Conceptual framework for identifying regional economic impacts

economic impacts. Regional patterns of resource use and processing, or value added to primary production, set levels of employment income and social welfare in the communities of the region.

Debate often ensues over the benefits to a regional economy derived from large increases and changes in employment created by a resource development. A regional input-output table provides a useful means of describing a regional economy and a non-survey method for deriving a regional table has been developed by Jensen *et al.* (1977). The provisional New Zealand input-output tables calculated by the New Zealand Department of Statistics (1979) provide a starting point for an adjustment procedure that is based on relative intensities of regional employment. Hubbard and Brown (1979) provide details of this approach.

A major resource development can bring numerous changes to the interrelated economic features of a region. For example, the arrival of a large construction force will increase total income, which in turn might induce economic activity in other sectors. However, opposing forces could dampen this effect or bring varying changes to different sectors of the regional economy. Lags stemming from a slow build up in the servicing sector will result in high leakages of locally earned income. There may be inflation of local wages, housing and prices of other services due to the project. Local bodies may face extra costs. Some of these changes are examined below.

3.3 Changes to Employment and the Labour Market

Resource development projects will change the employment composition of a regional economy. The new workforce is likely to emphasise particular categories of employment, depending on activities such as construction and processing, and there will be changes over time in any one resource community. Changes in hydrotowns (Cromwell, Mangakino and Twizel) and a pulp and paper town (Kawerau) are shown in Figures 3.3 and 3.4. In the steel-mill town of Waiuku, the occupational structure has also changed, with the workforce being integrated into an established rural service centre. The town now has more people in the professional, production trades, transport and labour sectors, all being occupations that are directly bolstered by the new workforce.

FIGURE 3.3 Occupational groups - Cromwell, Mangakino and Twizel

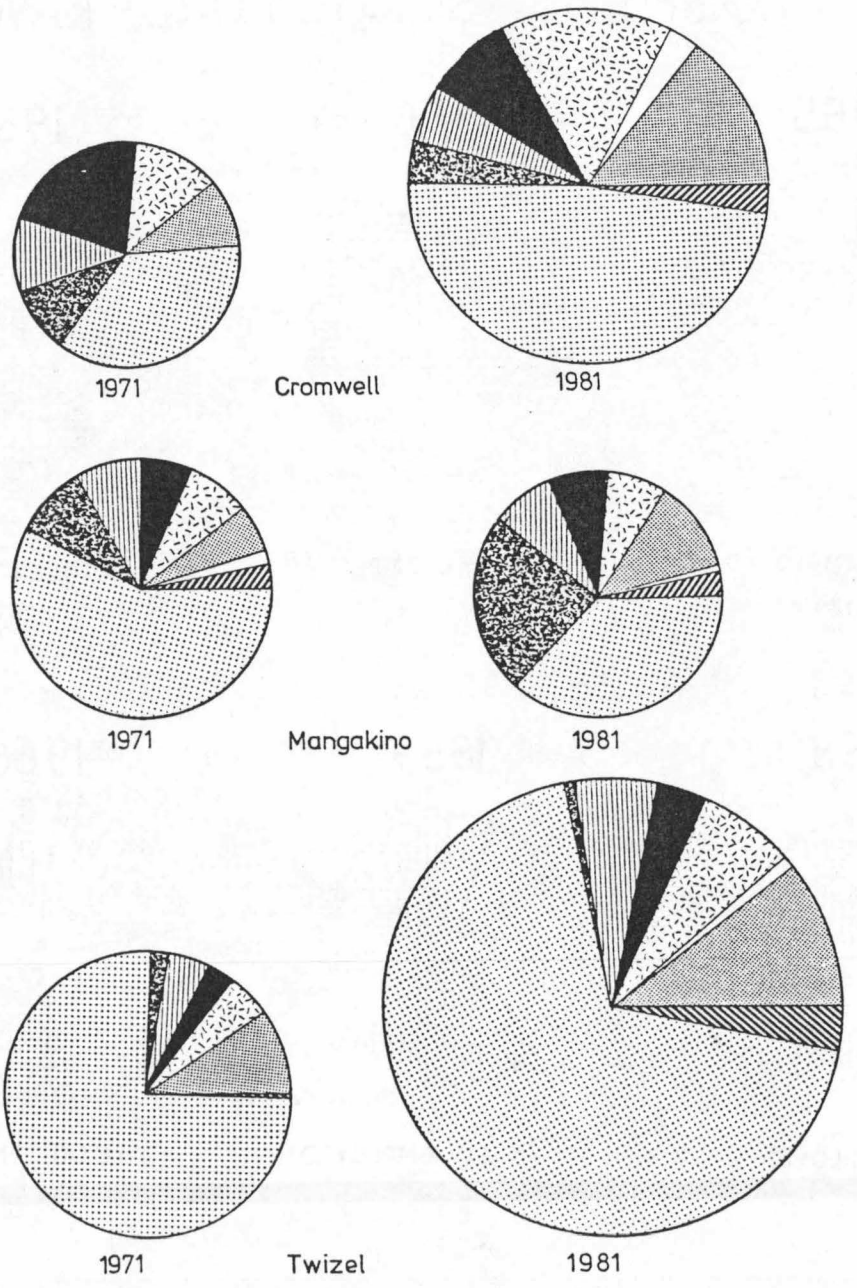
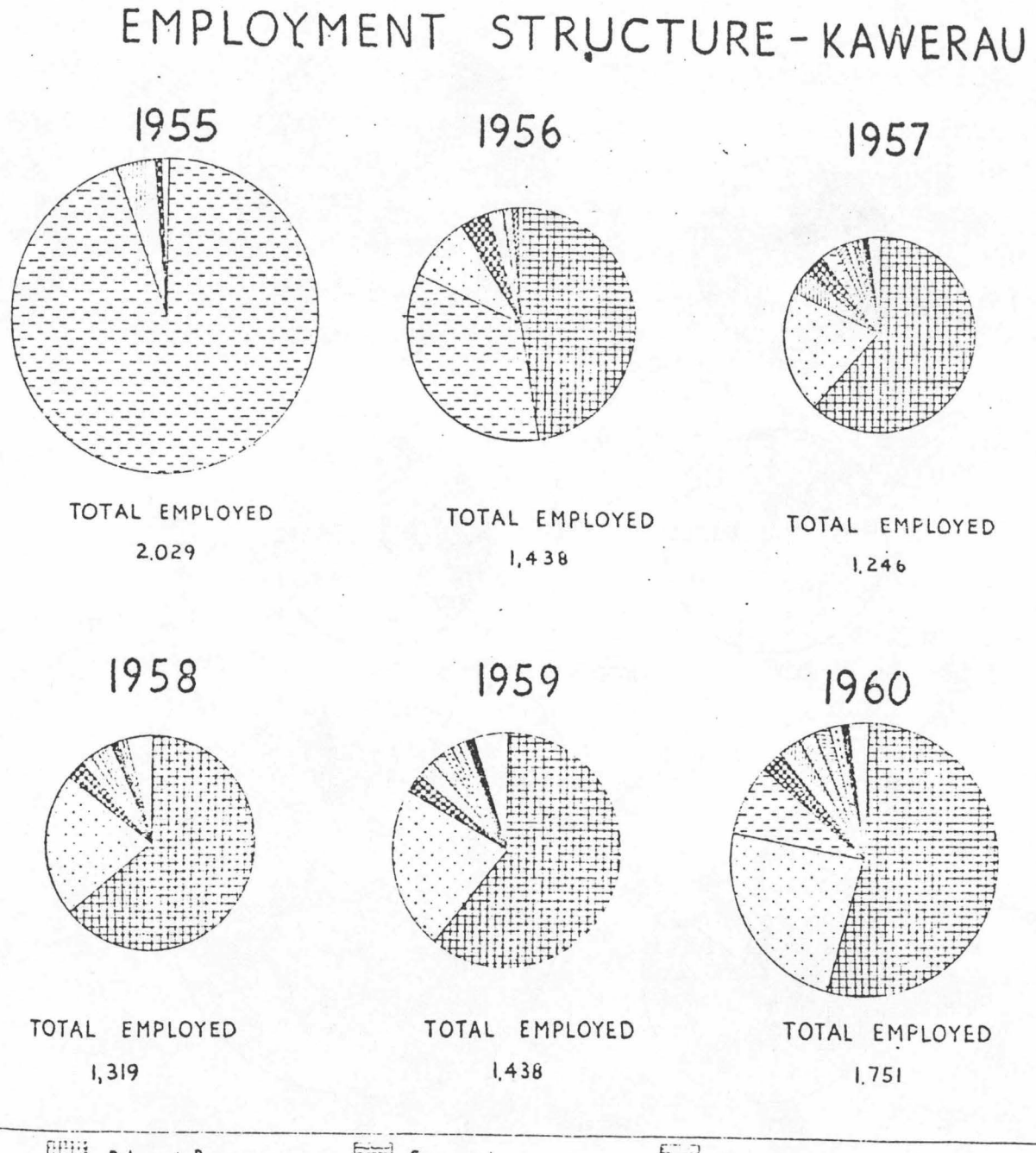


FIGURE 3.4



Source: Chapman, 1960

Assessments of regional employment benefits of major projects have been made for aluminium smelters in New Zealand. Most of the employment benefits for the Tiwai Point aluminium smelter, which commenced operations in 1971, have accrued to Invercargill, where growth over the 1971-76 period was significantly greater than regional growth (Brown, 1980). Overall, the smelter's role in the Southland regional economy has been to sustain the pre-1971 growth rates in the manufacturing and servicing sectors rather than generate extraordinary growth. (New Zealand Department of Labour, 1976; Brown, 1980). Effects on the regional economy are therefore limited,and Brown estimates that the smelter spends only 0.02 dollars in the region for every dollar of output.

Considerable debate has ensued with regard to potential regional economic benefits from the proposal to establish a second aluminium smelter, possibly at Aramoana. The N.Z. Commission for the Environment (1981:17-18) notes the varying opinions on local and regional economic benefits that were given in public submissions to the project's environmental impact report. The Commission point out that although the EIR indicates that up to 1200 on-site and a further 300 off-site jobs will be "created" during construction of the smelter, this does not mean 1500 new jobs in the regional economy.

While a regional economy is undergoing a period of recession and restructuring, it is likely that people will tend to change jobs, and the vacancies created will not be filled. There is unlikely to be much overlap of jobs between the construction and operational phases because of the increased demand for skills in operation. Furthermore, a lack of locally available skilled labour to fill the new operational jobs may mean that many jobs are filled from outside the region unless there is a local training programme. Between 30-40% of the workforce for the refinery expansion and synthetic fuels plant are coming from outside the respective regions.

Potential increases in local employment outside the direct needs of the new project may be reduced by the increases in local wages and production costs that that project has generated. High project wage rates may reduce the ability of local businesses to compete either in supply of services to the new industries or in export of traditional products from the region. The New Zealand Employers' Federation (1982) trace the flow-on effect of high wage rates between major projects and the likely extension of these rates into wages generally. They relate this phenomena to the inadequate national pool of skilled construction labour for which each project competes. Effectively, however, the Government has forestalled these problems to some extent by the wage-price freeze, which has exemptions for major projects.

3.4 Impacts on Local Trade

Research on energy towns in the American West indicates that the local trade and service sectors obtain increased revenues compared with control communities (Leistritz *et al.*, 1982:45). In their discussion of potential impacts of the Aramoana smelter on the regional economy, Cable *et al.*, (1981) note that project expenditure includes direct spending on goods and services and on wages and salaries. Both can be "leaked" very quickly from the region. Size and specialisation of a regional economy will affect the extent of leakages, as will state measures such as taxation.

Data on the impact of a major construction project on a local rural economy are available in the Business Development Centre (BDC) study of Cromwell (1982). Business turnover and employment have increased beyond expectations from national trends. A cautious approach to business development is being taken, however, given uncertainty over the water rights for the project, involvement of private contractors and questions over the location of the new town centre.

Benefits to the local economy include project wage and salary payments. The Business Development Centre (1982) calculates that some income is immediately lost through remittance to families. Around 54% of "unleaked" gross wages and salaries are spent locally. "Project" households tend to shop over a much larger area than "non-project" households, looking for better prices and selection. Increases in house prices form another impact documented at Cromwell, causing both benefits and costs (see Section 4).

Speers (1978:79-80) notes that in Waiuku there was "relative stagnation in the commercial centre" from 1966 to 1976 despite a doubling in population. Only 15 new commercial buildings were erected. But of the 80 commercial buildings in the centre nearly half expanded their premises. Also, most businesses were able to expand their business to some extent using existing facilities, with one firm doubling its sales volume on the same floor area. Then, as premises reached their productive capacity, increased building costs became a factor limiting further expansion. In a survey of consumer patronage Speers notes that most residents shopped in Waiuku for everyday purchases of grocery and hardware, but shopped elsewhere for items such as furniture and clothing, usually seeking better variety.

There appears to have been a move towards change in the structure of Waiuku businesses. Traditional "father-to-son" operations have changed hands with young owners bringing new approaches to business. The mill has brought a steadier demand to the previous rural service town,through good regular wages, and trading has become more consistent (*ibid.*:83).

3.5 Impacts on Urban Services

Increases in population and changes in the structure of a population will affect demands for public and private services. Urban infrastructure such as land, water, sewage disposal and roading will be required for any increased population. More young people will mean an increased demand for schools. Maternity, geriatric and other hospital services will face changed demands. Energy, particularly electricity, as well as other fuels, will be required. All these services are part

of any area's capacity to absorb growth. Costs of providing new or changed urban services are an integral part of the total social costs of growth.

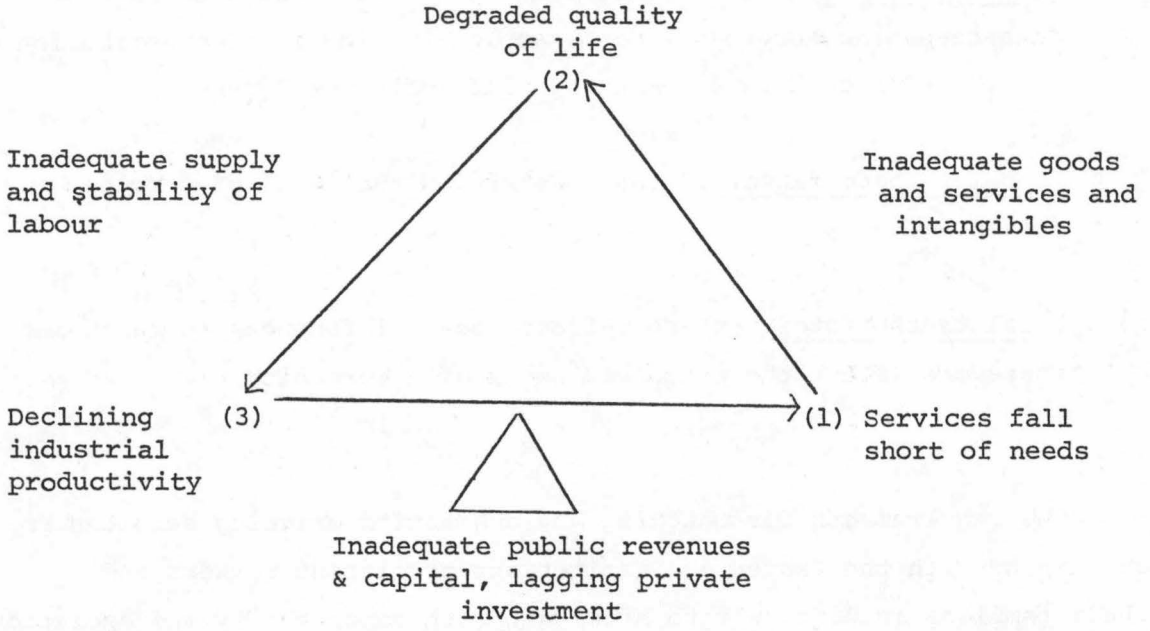
The potential economic benefits from a major project for local territorial authorities can be considerable. Existing services and utilities may be used more efficiently. New and improved community facilities may become financially viable with a larger population and increased economic activity. A problem can arise, however, when the need for increased public expenditure grows faster than the increase in revenue from traditional sources. The Denver Research Institute (1979) identifies three major problems with the public finance of urban growth:

a) Jurisdictional mismatches: where the local authorities receiving increases in revenue are not those confronted with increased demands for public utilities and services.

b) Revenue shortfalls: where provision of new facilities is out of phase with increases in revenue. Some new sources of revenue can be tapped immediately, others are very dependent on an increase in the rateable base.

c) Degree of uncertainty: where delays or changes in the location and/or scale of development are likely to impose high costs on local communities, especially if they attempt to anticipate new needs.

Gilmore *et al.* (1976) use the notion of a "problem triangle" to identify the implications of public finance problems for resource development. First (1), rapid increase in population is not matched by a corresponding increase in the provision of goods and services. This shortfall results in a degraded quality of life (2), which in turn leads to difficulties with labour recruitment and high job turnover leading to reduced industrial productivity(3).



In their studies of public finance problems associated with boom growth in Sweetwater County, Wyoming, Gilmore *et al.*(1976) document a number of problems. A critical period arose during the actual period of population growth. Population doubled but tax revenue did not increase substantially until after the growth phase. In the meantime, a variety of public services and infrastructure were needed. A very high labour turnover occurred at the peak of the boom. In their review of *ex post* studies of growth, including Sweetwater, Murray and Weber (1982:109) found that major increases in expenditure were needed for water supply, sewers, schools, law enforcement, roads and fire protection. Although most cases of rapid growth will have their own special circumstances of environment, economy and existing infrastructure, it is reasonable to conclude from cases such as Sweetwater that a faster growth rate will lead to greater immediate problems.

If a shortage of public services is going to cause low industrial productivity, high population turnover and other social problems, it is important to identify the demand in a community for public services. Auten (1972) identifies three groups of factors that influence this demand:

a) Ability factors: these measure a local government's ability to finance public services. For example, the level and distribution of wealth and income in a community will influence demand.

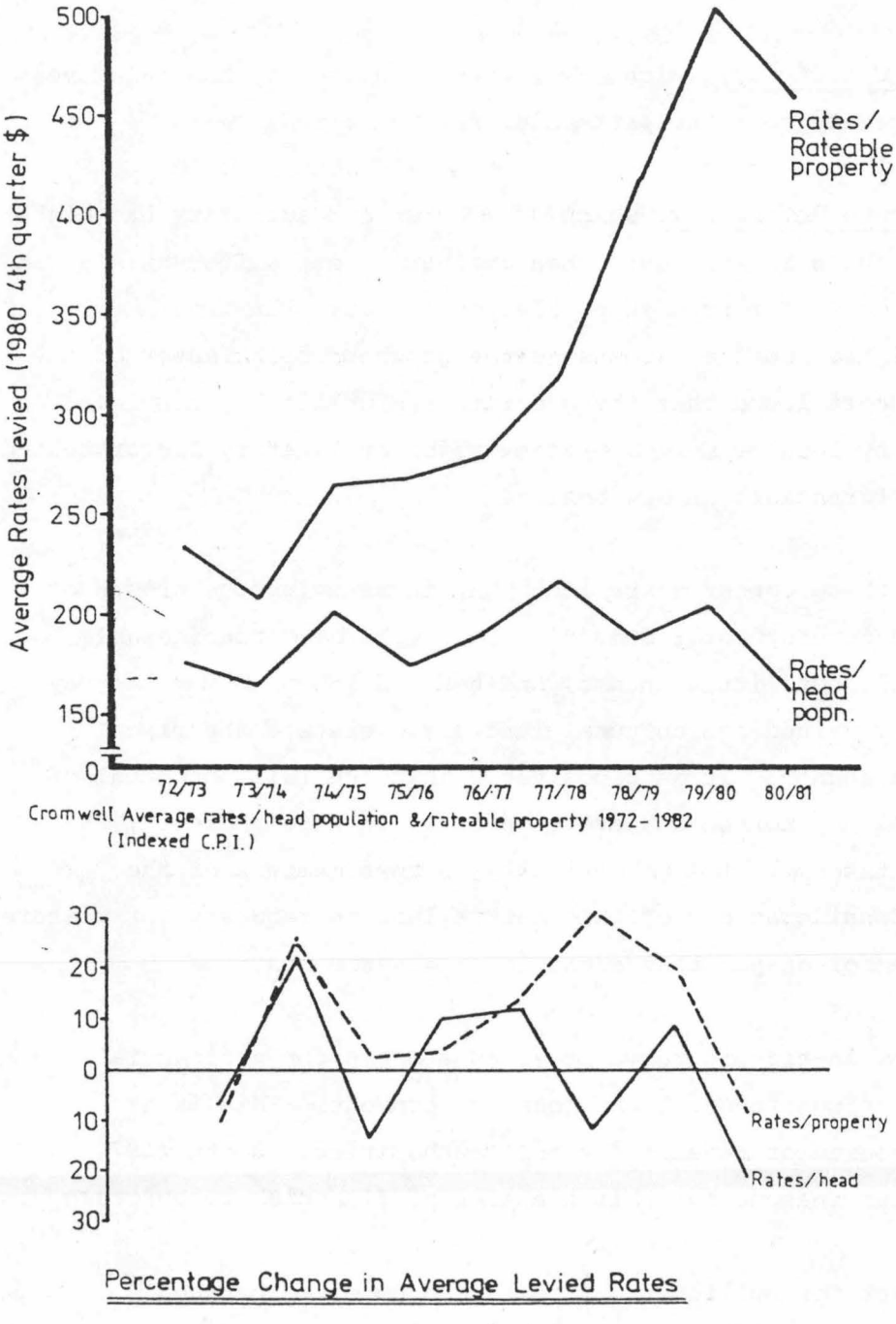
b) Perceived need factors: these determine the level of service wanted.

c) Local taste factors: these reflect local differences in taste and therefore affect the perceived needs of a community.

The requirements for matching and augmenting existing services to correspond with the tastes and aspirations of migrant workers and their families is difficult to ascertain both conceptually and operationally. One approach is to estimate physical needs on a per capita basis, and then identify the sector that is likely to provide the facility. Most analysts use cost and quality estimates, which is a shortcut method requiring certain behavioural assumptions relating to the interaction of supply and demand. Margolis (1968) suggests that the results from using this approach are ambiguous. Do high education expenditures indicate a high preference for education for example, or do they mean that the learning ability of children is lower, or are they the result of urban composition or bad management? Another problem relates to the factors that influence the demand for public services. Fiscal capacity, which is the ability of an authority to raise revenue from taxable sources (Scott, 1979), is a significant determinant of public expenditure rather than needs.

Rating is the major source of local revenue independent of central government in New Zealand. Our data on rating in the town of Cromwell show a distinct increase in rates levied per rateable property from the first expansion with hydro construction (Figure 3.5). It is clear that this borough has faced increased costs with the expansion of housing and facilities despite considerable investment in services made by the developer.

FIGURE 3.5 Rates Levied, Cromwell 1972-1982



Source: Cromwell Borough Council annual accounts

Further problems can arise with disparities between local bodies in financing development. Scott (1979) identifies two types of deficiency that can be used to measure financial disparities among local government. They are:

a) Revenue deficiency, which arises when an authority has relatively less capacity to raise particular revenues; and

b) Expenditure deficiency, which arises when one authority has higher service needs and/or costs than another. Cost differentials can arise from differences in population density, diseconomies of scale, higher localised costs or the geographic character of the area. Scott found that the quantity and quality of services offered by local authorities were a major explanatory factor behind cost differentials in New Zealand.

Both of these concerns are important in managing the growth of energy-linked development. Some districts will have considerable taxable wealth, but little income, and hence a low capacity to pay taxes. Highly valued agricultural land may overstate the fiscal capacity of a county. It is conceivable that the full potential of the valuation base may not be achieved. Even if it were achieved, the incidence of taxes will not fall equitably across members of the community. Considerations of this nature lead to requests for measures to compensate for disparities among local governments.

The grant-in-aid programme provides a basis for a financial relationship between central and local government. This is a significant source of revenue for most authorities. Scott (1979) identifies four reasons for this transfer of financial resources:

a) to correct for spillovers of costs and benefits between communities, especially small communities that experience many costs and a small proportion of benefits;

b) to ensure adequate standards of public services such as water and sewage;

c) to equalise the fiscal positions of communities that have a predominant economic status; and

d) to compensate for a mismatch between local body responsibility and ability to raise revenue.

The N.Z. Department of Internal Affairs (1979) lists a variety of types of financial assistance available to local bodies for recreation, community development, roading, water supply and sewage disposal, for example. There are several problems to be faced in obtaining such assistance. First, in most instances the subsidy rate is fixed. Second, the local contribution has to be raised on the loan market before the subsidy is granted and there will be an interest bill to meet immediately Furthermore, ability to obtain the subsidy depends upon the loan market. Third, applications for subsidies towards new community facilities are limited to one per year with a maximum subsidy period of three years.

The local contribution is raised on the loan market once approval has been obtained from the Local Authority Loans Board. Several months may elapse in obtaining final approval. Most loans are for a fixed term. When the need for a new asset extends beyond the term of the loan, local authorities are faced with the problem of refinancing. Funds can be built up in anticipation of refinancing, although the scope of this will depend upon the revenue and expenditure profile of the particular authority.

The Local Government Act of 1974 was amended in 1981 to provide for a system of levies on developments with an assessed value in excess of $50 million. United or regional councils may impose a development levy at a rate not exceeding 0.5% of the assessed value. Provision is made for the development levy collected on the first $50 million to be paid to the territorial authority in whose district the development takes place. Therefore, $250,000 from the levy collected would be allocated to the territorial authority. The levy collected on the value in excess of $50 million is to be apportioned by the regional or united council

for regional roads, recreation and community development, reserves and payment of administration costs, for example Other local authorities that are carrying out works that will be of benefit to the residents of the region may also receive a contribution from the development levy. The amendment also enables united or regional councils to require contributions from the owners of the project towards roads and water works related to the development. Moreover, territorial authorities other than the authority in whose district the development is situated are empowered to ask the owners of the development to contribute towards services required as a result of the development. While this amendment provides a mechanism for assisting territorial authorities in managing growth, however, it may not guarantee an equitable distribution of costs within a region. Neither is the levy likely to cover all the additional costs of public services arising with a major project.

IV

HOUSING

4.1 Introduction

Housing becomes an important aspect of the social impact of a major project because a rapidly increasing population has to be housed. For many "boom" communities arising at the frontier of a resource development, housing has been seen as symbolic of the social problems of a new community. An image of rows of single-men's huts, caravan parks or, at best, sterile suburbs of relocateable housing, is commonly held, and consequently, a social desert is also expected. Sociologically, the home, the focus of family life, is seen as an important part of any community, especially a rural community. Boom towns, therefore, have frequently been seen as contrasting very strongly, both in appearance and social life, to a rural community. In section 5 we discussed the inconsistencies of such an argument. New Zealand rural communities are hardly "ideal", and even the most raw construction village can have strong community development and well established social relationships, such as the comradeship of a work group that has moved from a previous project. Nevertheless, there are several concerns for research with respect to housing.

Housing and living conditions in some of New Zealand's early construction projects were far from ideal. In the case of hydro towns, however, it was possible to describe a transition from "one-man tent to family home". There have undoubtedly been many improvements in living conditions in resource communities, and new subdivisions, including relocateable housing, are now built to high standards internally, externally and in layout of subdivisions, as shown by the construction housing at Cromwell. Modern single-men's accommodation is also of a high standard as demonstrated by the accommodation built for the Whangarei refinery expansion.

Despite these improvements, several questions need to be asked about the impact of new projects on housing, especially in relation to their effects on the housing and accommodation market in a development area.

There are important research topics in regard to the relationships between housing, status and social stratification in resource communities. The role and implications of the developing organisation in control of the housing in a community should be considered. Integration of new housing and occupants into an existing residential area and community must also be examined.

4.2 Housing in the "New" Towns

Chapple (1976:142) provide the following florid and disparaging view of housing in new towns such as Tokoroa:

> The New Zealand answer to housing people is supplied by engineering and animal husbandry; that is, the provision of cheap sanitary boxes, arbitrarily partitioned, and hooked up to essential power, water and drainage networks. All this is set in a few square yards of the flattest grazing land, and is bordered by a road or a "race" along which the breadwinner may be driven to and from the forest or factory where he labours. Spatial relationships *between* such house units, and between these and other facilities - especially those that cater for the needs of young mothers, children and old people - are matters which have seldom exercised the minds of our town planners.

The most important feature of Tokoroa with respect to social planning is that the town "was founded upon a more or less flat, fairly exposed site, on company land 6 kilometres from the industrial plant, straddling a main arterial highway". As a result the town has now "spread too close to the mill with its smoke and fumes" and the highway isolates the smaller residential area on the east (Chapple, 1976:59). As it grew, Tokoroa was both isolated and lacking in social and community services ranging from recreation facilities to health care. Education facilities took time to build up, and pre-school facilities were only provided very slowly. "Until 1971 Tokoroa had only 2 kindergartens (with a total waiting list of over 500) and one play centre for an estimated pre-school population of 3000" (*ibid.*:61). In the early 1970's, local groups were making an effort to expand these services. Medical services were poor and marriage and other counselling services were provided mainly from local initiative and funds (*ibid.*:59-62).

Chapple points to the "failure to make far-sighted investments in human welfare" (p.60). Planning of house design and layout of residential areas are primary examples. Chapple notes that unfortunately,planning of residential areas "has tended to compound the errors common to most new subdivisions in New Zealand towns and cities". Although housing has improved through time, inadequate housing has been a key issue at a neighbourhood level (*ibid.*:60).

Social effects of company housing have to be examined in respect to social class and the tendency for social life in a resource community to be strongly influenced by the social hierarchy of the controlling organisation, especially the common distinction bewteen "staff" and "workforce". A clear case study of this effort is found in the iron-sand mining town of Taharoa. Of the 76 houses in the village, 64 belong to the community and the remainder are the school house and 11 older dwellings belonging to original residents. All the new houses have been built on leased land, in four stages, and each area is numbered accordingly. Village "Three" comprises "better class" homes, and while the allocation of houses was reported to be purely on the basis of "chance", "most of the managerial and technical staff reside in Village Three" (Higgs, 1979:36). Higgs considers the proposition that social stratification in the village is based on housing and status and giving it support notes:

> I must stipulate that this is my own supposition and any talk of "classes" in Taharoa usually brings a closing of the ranks against the prying outsider.

A further problem with housing is also evident in Taharoa. Company residents are reluctant to purchase their homes because of the unavailability for freehold of the Maori land. Other problems are caused by the temporary nature of the homes and residents' uncertainty over the future of the mine. Similar problems are faced with the more isolated hydro towns where residents are not always prepared to purchase if the opportunity is made available. On the other hand, a few residents in resource communities may decide they want to settle, and perhaps retire, leaving the developer with the possible dilemma of a part temporary, part permanent town. Where the town is close to other towns or housing areas, it is likely that some of these problems will be

avoided because some of the workforce will commute. At Huntly, for example, the trend to commute reduced pressure on housing development (Vautier, 1977:68). Part of the Upper Clutha workforce live in Alexandra rather than Cromwell and for new projects widespread commuting is expected as in, for example, the geothermal development at Ohaaki and the steel-mill expansion at Waiuku. Where the town is established, as at Cromwell, however, there appears to be a tendency towards greater desire to own rather than rent and nearly half the workforce homes are privately owned (Business Development Centre, 1982).

4.3 Hydro-town Housing

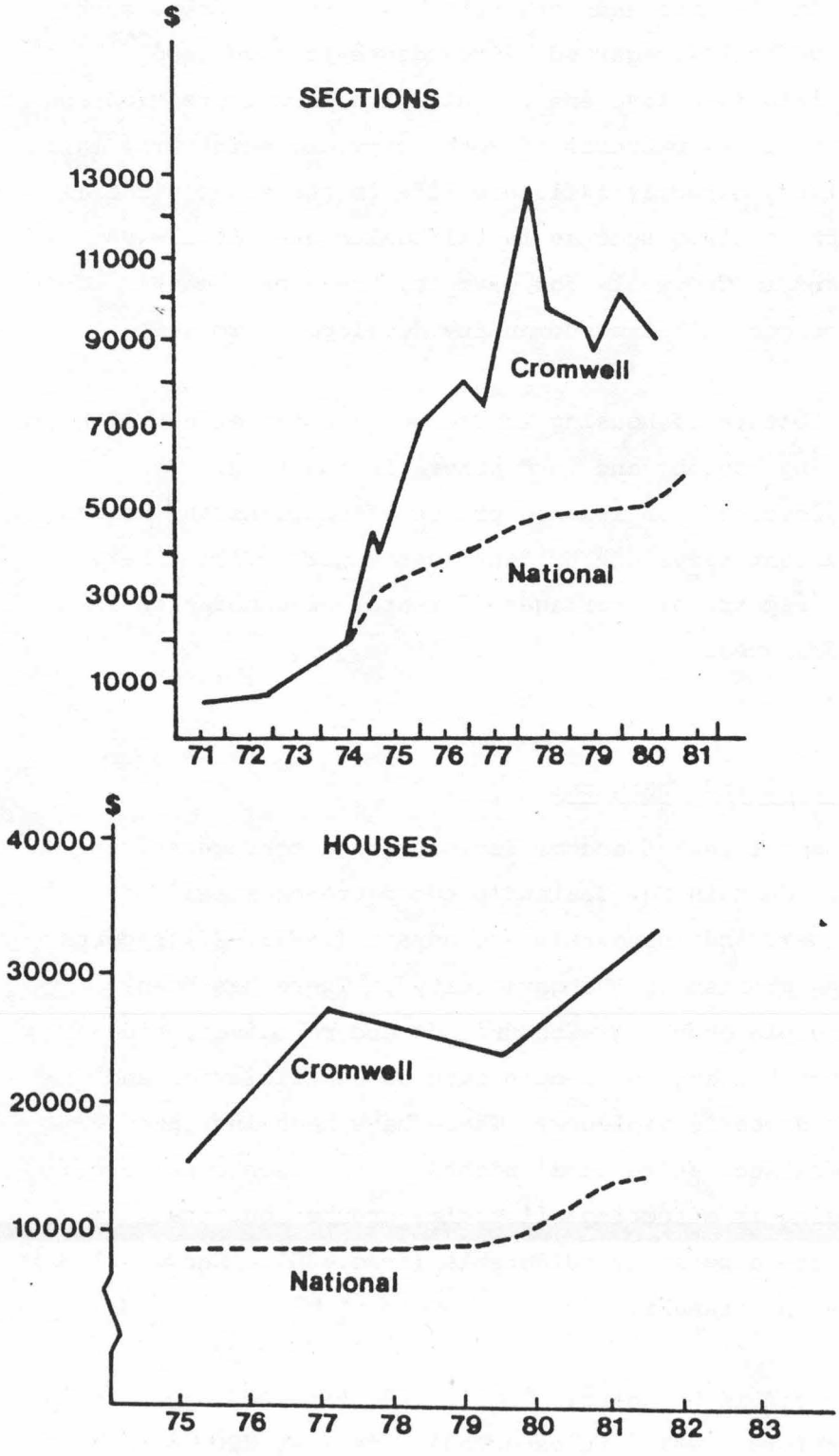
Early houses in hydro towns were:

> substandard on nearly all counts of present day standards: low fire rating, insufficient insulation, undersized wall framing, ceilings too low, windows too small and timbers not treated. More than ten years after they were virtually phased out, new hydro ventures are still being haunted by ever present ghosts of past substandard housing (Gardenier, 1982).

Gardenier describes how these substandard houses were distributed throughout many rural areas after construction finished. As local bodies were left with these substandard dwellings, especially in holiday areas, stricter building regulations were enforced and at the same time there was a push for more permanence to hydro settlements.

Over the 1950's and 1960's the Ministry of Works made a successful effort to improve the standard of housing and its physical surroundings in their construction towns, despite the problems arising from transfer of construction and the need to move housing from site to site. Otematata houses came from Hawea, Roxburgh and Tekapo. Twizel houses came from Otematata, and houses from Twizel have recently been moved to Cromwell. There are difficulties in providing good services for temporary homes such as kerbing, though recent "permanent" neighbourhoods at Cromwell are noticeably well served physically.

FIGURE 4.5 Average section and house prices, Cromwell 1971-1982



Source: BDC (1982)

Single men and young couples are attracted to the towns by high wages and low rentals. The Ministry of Works and Development acts as landlord, providing maintenance and many services. Recent towns such as Twizel have been generally regarded by residents to have good facilities. Social life is active and organisations for recreation and sport abound. Nevertheless, patterns of work, provided mainly for males and organised in shifts, directly influence life in the towns. Social services dealing with problems such as mental health are not always well provided for, and in Cromwell, for example, there has been difficulty in financing a full-time community development worker.

An interesting feature of housing in Cromwell is the effect of hydro development on existing housing and land prices in the town. The BDC (1982:97-8) provides data on indexed prices of sections and houses in Cromwell, and aberrant rises are evident (see Figure 4.1). There have also been media reports of shortages of rental accommodation in the Cromwell-Alexandra area.

4.4 Housing in Taranaki and Whangarei

A shortage of some types of accommodation, with a consequent rise in house prices, is evident in New Zealand's two petro-chemical developments at Taranaki and Whangarei. McPherson (1982:1-27) reports on a "growing housing problem in Whangarei city". There has been overcrowding, with people doubling with friends and relatives, and shortages of emergency housing for people such as beneficiaries and women suffering from domestic violence. There have been increased enquiries into matters such as tenants' rights. McPherson considers the shortage of housing is affecting all social groups but that low-income families are especially vulnerable (*ibid.*:30). Landon (1982) notes similar trends in Taranaki.

Housing is required in Whangarei for the expected migrants in the construction workforce, which is expected to peak at 2800 during 1983. Of the 1350 workers on the site in early 1982, McPherson records that 900 were local. In her first report, McPherson notes plans to house up to 1000 single men in a variety of free accommodation ranging

from specially constructed hostels at Waipu and Ruakaka to motels purchased for this purpose in Whangarei. But later in 1982, numbers for expected single men were being reduced.

Planning approval was granted for 300 new houses to be built in clusters of 20-40 throughout Whangarei and Ruakaka, and existing homes were purchased. All company housing was planned for administrative staff, however, rather than construction workers who were expected to be without dependents or else find their own accommodation. According to real estate agents and local newspapers the ensuing demand for rental accommodation has far exceeded supply and prices have increased dramatically. The average price for advertised rental accommodation was around $50 per week in 1981 and $80 per week in 1982. Whangarei city was especially short of rental accommodation, with the consortium renting from existing housing stock and advertising for more (McPherson 1982, Report No. 1). In her second report, McPherson notes that the supply of rental accommodation had continued to decrease as flats were changed to ownership units in order to improve returns to capital invested. There was also a high demand for rental accommodation caused by young people wanting to leave home and live in flats and by a critical shortage of cheaper accommodation. McPherson also notes the long waiting list and delay of one to two years for state houses. However, the Housing Corporation did not recognise a housing problem because its waiting list was consistent with other years. It is possible that many families were not eligible for state housing and yet unable to afford private housing, thus reducing the "official" problem. In her third report, McPherson notes a substantial increase in house prices during 1982. Rising prices were compounded by a shortage of housing finance, which existed before the refinery expansion began. The new purchase of houses by the consortium allowed for the sale of houses that had been on a depressed market for some time, but this helped to increase the purchase price of houses in an area already short of low-cost housing. The consortium tried to buy houses in the lower price ranges in order to stop excessive inflation of prices, and stopped buying when prices began rising rapidly. There are no current plans to increase housing finance in Whangarei.

In Taranaki, a slight increase in house sales was evident throughout 1982, but sales were well below the figures for 1981 possibly as a result of the shortage of mortgage finance. The overall increase was probably due to purchasing by energy companies for their workforce as they are not restricted by mortgage finance. Average prices paid increased slightly in New Plymouth City but fluctuated greatly in the rest of Taranaki. Information on section sales and new building permits is incomplete. On the whole, sales of sections wavered, but there was a definite rise in average price throughout Taranaki, with the exception of New Plymouth City where the average price did not change much throughout the year (Taranaki United Council, 1982). It is difficult to obtain information about rental accommodation but interviews with people in the Citizens Advice Bureau and in rental agencies indicated that there was much unsatisfied demand during 1982. One agency reported that immigrants who had employment had actually returned home to other parts of New Zealand because they could not find rental accommodation. The agencies estimated that only 2-3 properties became available each month. There was an upsurge in new arrivals requiring rented accommodation, in the majority married people. Long term rental accommodation (as sought by the energy companies) was in very short supply. Caravans began appearing in the "To Let" columns, as opposed to the "Holiday Accommodation" section of the newspaper, and one agency offered "an introduction between prospective boarders and those who had vacant rooms". Caravan parks were being used as emergency accommodation and housed both employed persons and beneficiaries. Emergency shelters were fully occupied, mostly with local mothers and children but also with some immigrant families (ibid.).

The two companies involved in Taranaki *(New Zealand Synthetic Fuels Corporation and Petralgas Chemicals NZ Ltd)* have stated that they intend to house personnel whom they or their contractors bring into the area. NZSFC expect a total of 755 in-migrant workers (175 administration staff, 400 single manual workers and 180 married manual workers). The single men will be housed in hotel/motel accommodation and the Corporation has bought the Hen and Chicken's motel for this purpose. The rest will be housed in leased, bought or specially constructed accommodation, the latter two being used if the former is too expensive.

Petralgas expect an in-migrant workforce of 140 manual labourers. These will only be in Taranaki "a very short time". They will be given private board/hotel/motel accommodation. Non manual workers will be housed in accommodation bought, constructed or leased. By December 1982 *Petralgas* had 27 properties for this purpose. *Petralgas* at first considered housing to be the responsibility of its subcontractors, though now the company is more directly involved.

A particular problem arises for people attracted to Taranaki by the energy projects who have no jobs to go to or who are not subject to the site agreements. They usually want rented accommodation because of the limited life of contracts, but this is in short supply.

In Whangarei, and the area from Waipu to the refinery site itself, there appears to have been inadequate planning for new housing. Problems for planning are compounded in Taranaki where there are several projects working individually but having cumulative effects. Poor accommodation can lead to health and social problems through stress placed on families. Low income families are especially vulnerable to change brought into their area. McPherson (1982) links the shortage of housing in Whangarei to family breakdown, child abuse, economic hardship and pressure on housing agencies.

4.5 Integration of Tiwai Housing into Invercargill

Thomson (1981) examined the integration of housing for the workforce at the Tiwai aluminium smelter into the city of Invercargill. A new town built on the uninviting, wind-swept and poorly drained coast at Tiwai was a bleak prospect, so new housing areas were established within the city boundaries. Thomson examined the basic hypothesis of *Comalco* "that the better option was to build the housing as part of Invercargill rather than as a separate town, both for the Company's benefit and for the employees" (1981:10). Using interviews of key informants plus a survey of 100 from 337 "Tiwai" houses and a sample of 52 houses in a "control" suburb, She examined the question of whether the Tiwai suburbs had similar characteristics to other suburbs of a similar age in Invercargill, and the extent to which residents were involved in community life and formed their own community

identity. The possibility of "permanent" social disorganisation caused by the transition from boom growth to stability was also examined (*ibid.*, 10-11).

Thomson reviewed the social characteristics of single-industry towns, noting in particular the type-casting of "company" workers. Tiwai workers apparently did not want to experience the perceived problems of social/community life in a smelter town, which include:

a) lack of diversity,
b) imbalance of young children,
c) loss of high-school children,
d) company patriarchy,
e) social stratification by male occupation,
f) lack of facilities,
g) marital problems.

> The social problems avoided by not building a town at Tiwai are: the age-sex imbalance, the lack of employment opportunities for young women, the image attached to company towns and their residents, the limited range of services and amenities and the undesirable effects of a captive community (*ibid.*:20).

Thomson considers the benefits of incorporating new housing into an established community include no economic dominance by a single sector, less division of a town by industrial unrest, use and stimulation of established services, older buildings and more diverse lifestyles, increased privacy and a sense of community (*ibid.*:21-23).

The smelter company formed a subsidiary, the NZ Construction Company, to provide housing. The aim was to integrate Tiwai workers into established communities, yet the NZCC retained a large measure of control over the housing environment. Reasons for this involvement included: a lack of vacant houses, inadequate private sources of finance and construction, and a risk of an inflationary spiral in housing prices. Thomson paints a bleak picture of the first houses built at Newfield, initially by the Ministry of Works and Development for the NZCC. Inadequate site preparation including drainage and clearing, in addition

to lack of City Council amenities such as streetlights, telephone boxes, footpaths and access led to very poor conditions. Furthermore, these early problems created "a bad impression of planned housing areas amongst Invercargill residents that has taken several years and a lot of hard work by the homeowners to overcome" (*ibid.*:28). Problems in the new suburb included many new couples from overseas with young children and no extended families. The Newfield school was overcrowded and new schools incomplete. A consultant town planner was then engaged and an effort was made to obtain physical improvements and encourage social contact by visiting between wives, provision of information on the community and the setting up of a medical practice. Thus the immediate social disorganisation caused by neglect of the new community was checked.

Since 1972, housing has been spread through five suburbs, with all houses available for sale to smelter employees. The smelter company provides housing through the NZCC so that employees feel independent through the separation of workplace and housing. With a letter of introduction from New Zealand Aluminium Smelters (NZAS), employees first rent a house for 12 months with an option to purchase. In reality, therefore, though the parent company controls the housing and uses it to attract employees, it remains discreet. Tenants have some choice of house and location, and financial/legal rights and obligations are explained in detail. The NZCC deducts payments from wages and there is an overall "paternalistic" interest in the tenant (*ibid.*:31).

If the tenant decides to purchase, the NZCC will loan 100% of the price, arrange insurance, pay legal fees and deduct unpaid debts such as rates with penalty interest payments. NZCC permission is necessary for additions or alterations. By September 1980, 382 houses were built and only five repossessed. The company has first option to buy back a house at any asking price. Local builders carry out construction, usually in blocks of 5 to 20, near established shops and in quiet areas. Two large companies built most of the houses, usually to a similar design and with similar material. Thomson reports that siting is often unimaginative and conformity taken to an extreme, including letterboxes! Automatic credit at a nursery does provide variety with shrubs and planting, however. As a corporate citizen NZCC provides a reserve

contribution as a legal obligation. Both NZAS and NZCC contribute to the community, through, for example, scholarships , school prizes and two adventure playgrounds (*ibid.*:32-44).

In studying the views Tiwai householders hold about their new suburbs, Thomson draws a comparison to other new suburbs through a survey of a non-Tiwai suburb called Grasmere. The main difference is in age. Young families are drawn to work at Tiwai, causing differences in age between other new suburbs and more established Tiwai suburbs. Children are younger, with an obvious strain being placed on pre-school facilities in particular. Employment at Grasmere is more diverse than the Tiwai area, but there is also considerable variety in the Tiwai suburbs, where in the original Newfield block only 11% of original occupants remain. Many took rapid capital gains and moved. In the newest suburb of less than four years, all respondents worked at Tiwai. The established suburbs generally have more community facilities and residents in the newest suburbs are least satisfied by amenities, and go elsewhere for most services. Shops seem slow to become established. Ninety percent of both Tiwai and Grasmere residents, however, were satisfied with school facilities. Licensed premises are usually established rapidly. As housing becomes more established those staying for a longer period have a greater interest in community life. Despite the disadvantages of the new housing areas,it can be concluded that there are many advantages to integrating housing into an existing city compared to building a complete new company town.

4.6 Integration of steel-mill housing into Waiuku

Waiuku is a borough in South Auckland. The town traditionally served the surrounding rural economy with its base of dairying. Despite a trend to use land for horticulture, farms were amalgamated and young people emigrated. In 1966, however, construction of a steel mill began at nearby Glenbrook. Local coal and ironsand reserves, plentiful water and a large market in the Auckland area determined the location of the mill.

Initially, Waiuku residents faced the prospects of the steel-mill workforce with some trepidation. In fact, although the original population of 1760 doubled in ten years social change was accumulative rather than being very chaotic or disruptive (Speers, 1978: 86).

One immediate effect of rapid demographic change however, was land development, especially for residential purposes. In ten years the total number of residential dwellings doubled to 1073 units and 229 of these were in the New Zealand Steel Company housing area. The rest were scattered throughout the borough (*ibid.*:70).

The Company estate was established jointly with the New Zealand Ministry of Works on 20 hectares. Despite uniformity in appearance and materials there was also plenty of open space and safe areas for children. Original deficiencies included lack of privacy, poor orientation to the sun and inadequate garage space. By 1976 employees generally considered that the housing was adequate. Nevertheless, there has been considerable transience among mill employees with an average length of residence of only two to three years. The residents have usually moved to larger, non-company houses. Recently the company has instituted lease-purchase arrangements and made sections available for sale to employees from other land owned in the borough. By 1976, 45% of the mill labour force resided in Waiuku, 25% in the estate and 20% in the Borough.

Waiuku has apparently retained many of the characteristics of a rural town despite industrial development, although some distinctions have inevitably arisen between 'locals' and 'newcomers'. Locals no longer know everyone in the town and newcomers have perceived the existing community as "close" and faced difficulties of integration (*ibid.*:86). This division in the community has been aggravated by the distinct nature of the housing estate. Over time, however, integration has occurred as Company employees have purchased homes through the borough (*ibid.*:78).

One of the most important aspects of distinction between mill and other residents is the nature of mill work , especially shiftwork. Speer notes that shiftwork was a new characteristic in the town. Sixty percent of the mill workforce and 70% of the employees who live in Waiuku were on shift. Shiftwork has caused problems for families especially those with older children. Women for example, have experienced greater responsibility with the discipline of children. Shiftwork families have also had difficulty taking part in community life (*ibid.*:92).

Few shiftworkers expressed a negative attitude to this type of work but most were unwilling to do it indefinitely. Nonetheless, Speers makes a useful observation that half of the employees involved in shiftwork had worked in this way prior to joing New Zealand Steel (*ibid.*:91-92). This observation reinforces our view that to fully understand the nature of communities associated with major industrial projects it is necessary to examine the links between the industry, management of work, processes of work and community. Work in the "industrial" community is substantially different to work in the rural service centre. The two communities are directly related to their economic base.

As Krahn and Gartrell (1982) suggest for Canadian resource communities there is evidence of a segmented labour market, with limited mobility between the industrial and rural sectors despite their geographical proximately. Full integration of an industrial community within a rural town is therefore unlikely. Questions about social class, labour and community are examined in the next section.

V

SOCIAL CLASS, LABOUR AND COMMUNITY DEVELOPMENT

5.1 Social Class and Resource Development

Differentiation and social stratification are two concepts identified by Thompson and Branch (1980) as being important to our understanding of changes in social organisations brought about by a major energy project. Both an increased differentiation of social groups and their reorganisation in social strata are likely to occur with a new resource development.

Social differentiation is the process by which a community breaks into an increasing range of groups with shared values and interests. An energy project is likely to increase social differentiation by bringing more diverse people into a recipient community. Rapid differentiation can cause community stress and become a source of social action. But this description of change towards a "modern" society with increasing division of labour and increasing complexity of institutional arrangements is only one perspective of social change and its effects on individuals. It is part of the structural-functional school of thought in sociology and is certainly a perspective with which many individuals or laymen can also identify.

In comparison, the conflict school of social thought is interested not only in describing different social groups in society based on income, occupation or ethnic background, for example, but also in describing the differences and relationships between groups in terms of social class, status and power. Social stratification is seen to represent inequality between groups. Changes in stratification are therefore important aspects of social change and the planning for social change.

Resource development can lead to changes in social stratification and consequently to the extent of social inequality that exists in a community. Existing stratification based on ownership of agricultural production and servicing will change in a system dominated by energy developments. New arrangements of power and status will accompany the new industry through its ownership and control and the new professional and technical groups associated with it. In addition to changes in status and power, economic changes such as increased costs of living may cause special problems for those groups on fixed incomes or otherwise unable to benefit from energy development. These groups may include people who own land and control production under present systems of social and economic organisation.

To date, community studies in New Zealand have experienced considerably difficult in establishing a clear description of social stratification. While Pearson (1980) stresses the importance of the egalitarian ethic, there is also clear evidence for social stratification based on class, status and power. Status and power are important aspects of social stratification in New Zealand's rural towns and provincial cities. As rural service centres, the towns have forged strong links to the rural sector. Retirement of farmers to towns reinforces these relationships. It is important to recognise, therefore, that status and power are often inherited and based on ownership of land or rural servicing industries. There is, however, evidence of increasing new positional status and power in the towns through employment with either state bodies or extra-regional business.

Social, economic and political change caused by reorganisation of resources and industrial ownership should be examined in relation to the existing stratification in towns. In this way, projections might be made about the impact on each sector - unskilled, skilled, technical, professional, managerial, and so on - involved with a major resource development. Existing social conflicts should be described and potential conflicts identified in social impact studies.

It is necessary to turn to overseas studies in order to further the study of social class and resource development in New Zealand. In a recent study of a new Australian open-cast mining town, Williams (1981) describes an accentuated awareness of class divisions among the population. Social class is directly symbolised by quality of housing, for example. Williams provides a comprehensive analysis of the effects of an autocratic, male-dominated, multinational mining operation on the working-class families of the town. While the primary male workforce has become politically motivated, women have experienced considerable oppression.

These changes are most apparent in a single-purpose mining town, though they would probably occur if the workforce were to be located in an existing town. Questions would then need to be raised as to whether heightened awareness of class relationships would spill over into the resident population. Furthermore, parallel conflicts might be expected: for example, unemployed newcomer wives with employed resident women, or politicised and active trade unions with conservative unions.

At least two aspects of Williams's analysis are of particular interest for New Zealand research on resource-development communities:

a) The nature of job control and the degradation of skills. Open cast mining is highly automated and much less labour intensive than underground mining. Deskilling extends the control that an employer has over his workforce and reduces the effect of union activity. Scientific management of labour becomes more important. These trends are evident in New Zealand major resource developments, and questions should be raised about the nature of work in a new industrial activity compared with the traditional production and industry of an area.

b) The nature of the working class communities associated with resource development. Williams describes the influence of an overt class-based and patriarchal social organisation on issues such as housing, social relationships, family relationships and union activity. Young couples are attracted to resource towns by prospects of high wages and cheap housing. Single incomes and young families restrict earnings. Social services are inadequate.

5.2 Social Class in New Zealand Resource Communities

There is considerable evidence in research on New Zealand resource-development communities to suggest that social class is an important feature of their social organisation, social life and social problems. Yet little mention is made of the concept of social class in the analysis and discussion of research material. Furthermore, in some cases the mythology of an egalitarian society seems to have overriden the empirical nature of social science research to the extent that the existence of social class is ignored or even refuted.

The Joint Centre for Environmental Sciences (1982) report on South Island lignites discusses the importance of social stratification in the towns and rural communities of Otago and Southland. It is suggested that "existing divisions, based on ownership of agricultural production and related servicing, will change in a community dominated by energy development". Changes will occur through the ownership and control of a new industry, with new professional and technical groups and new arrangements of status and power (*ibid.*:47).

Discussion at "social" meetings, and with informants during the lignite study, pointed to housing areas such as South East Invercargill, East Gore and Mataura Borough as being "less desirable". Often these areas were described as stepping-stone housing districts, which often formed a base for upward mobility in terms of income, housing and status. Data on this social and economic mobility - real or imagined - will be vital to community studies preceding lignite development. Analysis of differences based on social class may help to clarify potential conflict in a large new industrial development. In this respect, the Tiwai development discussed in Section 4 offers special prospects for research, for Tiwai workers are located mainly in new low-status housing areas, and there are apparently some conflicts with established residents over differences in income and housing "perks".

Thomson's research on Tiwai housing (1981) reinforces the idea of class-based divisions in both housing and social life. Disadvantages of living in the new suburbs studied by Thomson (both Tiwai and non-Tiwai housing areas) include their rawness and lack of privacy. In

addition, however, Tiwai workers have the disadvantages of living with workmates and isolation from non-Tiwai residents. Further problems include lack of old people, marriage problems, lack of parental control of children and monotonous housing (*ibid.*:56). Social divisions are evident in participation in formal organisations and informal social networks. Plunket, kindergarten and other women's organisations are important, as are sports teams and the aluminium smelter social clubs. Many Tiwai workers mix informally out of working hours, and women meet through their husbands' work, with those whose husbands work in Invercargill city being excluded (*ibid.*:69). There is a perception of the working class nature of the suburb, despite similarities with the "up and coming" suburb studies. A sense of community is desired, with more diversity seen as important in addition to the need for better facilities (*ibid.*:57).

In the studies of Taharoa by Higgs (1979) and Boudrou (1979) there is much useful description of the change from an isolated rural Maori community to an industrialised mining town. Higgs claims that his study aims to understand community dynamics where residents are facing "radical change to almost every facet" of their daily lives, yet the study "was conducted without the use of any particular model or theory, and no hypothesis was tested". Higgs and Boudrou both describe details of a community that has become highly scientifically managed, company orientated and influenced by class divisions through the organisation of housing to the networks of social relationships.

Chapple (1976), in his detailed community study of Tokoroa, and James (1979), in her study of Kawerau, both provide useful material on the nature of working-class, single-industry towns. Neither approaches their description of the town from an analytical framework that accounts for social stratification in terms of class analysis or work processes. There are many unanswered questions that could be considered by such an analysis: studies of the relationships between work life and home life, unionism and the role of women, for example.

In his study, Chapple describes a paternalistic company domination of the planning, building and organisation of the early town of Tokoroa. The industry has continued to dominate social life, with social class boundaries clearly defined by company occupational status: "staff" having loyalty to the company, "workforce" to the unions. Ethnic differences are also class-based,with Polynesians belonging to the "workforce" category. Status is reflected in housing and association.

In his description of the shaping of the Tokoroa community, Chapple considers that the impetus for "local group decision-making and local community action" has come from the need for the community "to work together on their environment to shape and control it". But it is not clear as to the existence and nature of a working class community, for Chapple also distinguishes between a community of work and a residential community. In the former, there are systems of social relationships governed by the industry, either "as a whole or with one of its subsystems (including trade union organisation)". Confusion continues to be found in comments made about egalitarian clubs that have inequity in membership. In all this description there is a need for a critical framework of class analysis as used by Williams (1981), and this need is usefully illustrated by the following quote from Chapple (1976:141-2):

> Social "class" differences based on income and occupation (and style of residence where that applies) are not particularly significant in shaping the pattern of social exchange in the smaller industrial settlement. To a certain extent this remains true of company towns like Tokoroa where at least a large cross section of employees (staff and non-staff) occupy similar and adjacent company built houses, either on a rental or an own-as-you-earn basis, and where many non-staff employees earn more than staff men, and where there is a wide range of activities in which men of various occupations and incomes "rub shoulders" together. However, a large and sophisticated industrial organisation - like a pulp and paper mill - recruits professionals,businessmen, and others whose styles of living maybe markedly more sophisticated, whose incomes may be considerably larger, and whose aspirations may differ radically from those of the majority of semi-skilled and even skilled manual workers. This tendency has become increasingly obvious in Tokoroa. Company executives and their families occupy more expensive homes either in the elevated and more mellow part of the town or occupy expensive "custom built" homes in select areas including Tokoroa's

> tiny "nob-hill". In certain new subdivisions the more well-to-do, sophisticated, or socially aspiring residents, whether private businessmen or company executives, are catered for by real estate agents who stipulate a stiff lower limit on the price of homes which buyers will be permitted to erect on these sites. At the other extreme we have neighbourhoods of the oldest, smallest, and least well-repaired company houses, and these appear to be retaining a disproportionate number of non-European families, just as the more expensive sites are taken up almost entirely by Europeans. So, a familiar pattern of "class" segregation (with ethnic parallels) is emerging - around the edges rather than at the heart, for Tokoroa, like most industrial boom towns, is still essentially egalitarian in spirit.

Confusion about class is evident in Burch (1969) who distinguishes four elements significant in the formation of a community:

a) a "sense of belonging" to a community;

b) regular "patterns of interaction";

c) "a recognised system of authority"; and

d) "a shared set of mutual expectations".

Using Campbell (1957) as a base, Burch examines the failure of a community to develop at Roxburgh hydro in terms of these four elements. The hydro project began in 1950 and in 1952 control was passed to an Anglo-Swiss engineering group. In 1953 a New Zealand firm took over. In seeking to understand why a technically competent group failed in a community sense, Burch maintains "it appears they failed because they gave little attention to developing a sense of social solidarity" (*ibid.*:85). Burch does not follow through a possible argument that his four community elements could also be part of a strong working class consciousness and therefore the management group may not necessarily be interested in allowing a strong "community" to develop.

Burch continues his structural-functional approach in examining aspects of social structure and social relations at Roxburgh. Burch notes the demographic imbalance of the community with its emphasis on young males and failure to develop strong family life, but he places most emphasis on the "structural liability" of "the vertical division of labour, or the authority system". He notes "a dual system of authority caused by the traditional village 'leadership class'

of businessmen and professionals" being replaced by "the urban and highly articulated hierarchy of a large scale organisation". In Burch's analysis, the traditional system could no longer function effectively to provide community stability (*ibid.*:86).

Burch continues to discuss how the "structural" problems of the town affected social relationships between the different ethnic groups, which included New Zealanders, British and Dutch migrants and "contract workers". Burch notes that "there was little love lost between the four ethnic groups, and yet these groups needed to function as a team, if the project was to be successfully carried through" (*ibid.*:92). Burch does not discuss the possibility that these divisions in the workforce served to work against any strong unity and consciousness aimed at bargaining with the project management.

Roxburgh was dominated by outside sources of power which resulted in the changes in project management, with changes in the control of the project and community being matched by a rapid turnover of workers. Worker motivation remained highly instrumental, with monetary incentives for productivity and little development in "a pride of workmanship". There was poor communication between workers and management. As the quote from Burch shows, Roxburgh hydro showed the effects of scientific management of labour and clear evidence of the labour process in one of our resource-development communities:

> Anglo-Swiss developed only loose occupational categories which made little discrimination as to who was employed or what was done. All of which suggested to the employee that he might be master of a variety of menial tasks, but by virtue of such spread he was not expected to perform any one task at a high standard. Also, it should be noted that this pattern was encouraged by the trades unions which emphasised an industrial rather than crafts approach. Given this situation the worker became part of a relatively undifferentiated mass with little opportunity to develop a specialised and distinctive occupational pattern. Consequently the worker quickly reached a peak in earnings and challenges: there was nowhere to go so he might as well sit tight. Though the treatment of workers as standardised, easily substitutable labour components might have served the organisational convenience of management and the trade unions, the unintended consequence was loss of pride and job satisfaction for the individual. Even in classless societies men need a sense of progress ... that there is an opportunity to go somewhere rather than stagnating dead centre. (1969:88)

In contrast to Burch's limited conclusion of classlessness, it seems most productive to see the changes that were evident in the Roxburgh hydro construction as a very important example of class-based industrialisation placed in an otherwise rural setting. There appears to be a clear example of the labour process as outlined by Braverman,(1974), and by Williams for single-industry towns in Australia. Workers at Roxburgh were drawn out of a rural workforce to become part of a well-managed construction force that eventually built a series of hydro projects.

Future research on our resource-development communities would be well served by a much wider use of sociological theory than has been used to date. It is essential to make the best use of available data through good analytical models and critical appraisal of completed work. Useful and believable inputs to future research will be well served by a critical analysis of our society rather than the mythology that society has developed. Each resource community should be described in terms of social class, status and power. Changes in social stratification brought about by new industries in rural areas which already have strong class distinctions should be considered, especially changes caused by new forms of centralised resource ownership, new technology and new types of management. Inequality between groups should also be recognised, especially the possible relative disadvantage of women, youth and indigenous people.

VI

DISADVANTAGED GROUPS

An important aspect of resource communities is the relative disadvantage experienced by some groups in the distribution of benefits and costs arising from rapid growth. From the evidence available in overseases literature on energy-related growth, three particular groups emerge as frequently being relatively disadvantaged: women, youth and indigenous people. These groups can be seen as disadvantaged in the wider New Zealand society. They need to be examined with respect to their position in New Zealand resource communities.

6.1 Women

Resource communities are often a "man's world". Employment, including both the salary and wage-earning workforce, is predominatly male. Decisions about the design and construction of the town are made by male engineers, and the criteria of work dictate the criteria for living and social life. Often the company or "Uncle MOW" answers public needs. Nevertheless, housing, social services and living conditions have improved greatly in resource communities over the last thirty years.

Luxton (1980) examines the role of women in a Canadian resource community. She notes the differences between male dominated wage work and the work of women in the home. Women work to produce and raise a new generation of labour, and to maintain a suitable living environment for the nourishment and recreation of the male workers. Community life is built around the efforts of women. This domestic and community work is for love, not wages. The company which the town serves understood the benefits of stable family units for a stable workforce, and they pursued a preferential hiring policy to form a core of permanent married workers (*ibid.*:26). Luxton's analysis is useful because it helps to show that the general role of women in our society is demonstrated in an exaggerated form in resource communities.

Our argument here is that there are special problems for women in resource communities, as in the wider society. Yet problems for women in the wider society, such as unemployment, or even lack of adequate research on their problems, are compounded in these new communities. Moen (1981:100) points out that despite the employment opportunities in "boom towns' there is little mention of employment for women. She suggests that authors must assume "women are economically dependent since there is no mention of female heads of households, single women without children, or married women who work out of economic necessity. Instead it is assumed that shopping facilities, not employment, are the major concern of women in energy boom towns". In addition to these particular problems for women in boom towns, Moen considers there is double importance for further research. Given their importance in family and community life, women take a central part in the adaptation of a community to change and "it is doubtful if women can perform this role if they are disadvantaged and constrained by energy development" (*ibid.*:101).

A Ministry of Works and Development staff husband discussed conditions for women in hydro-construction towns. He enjoyed the work he did and had social contact with his workmates. It was different for the women, however, who saw the same neighbours every day. They had children to care for and shopping trips to the nearest towns for supplies; there was not a great deal of activity for them within the village. Mental health problems arose for the women. Another man found that there was a very clear distinction of status in Twizel. His wife found it very difficult living in an executive's house, unmistakable by its size and location. She found workers wives did not often make social contact with executives' wives. There was therefore a limited range of social contacts and friends for her. Shift work compounds these problems, with men having only limited time to spend with their families (Taylor and Bettesworth, 1983).

Women are relatively disadvantaged with respect to employment in resource communities. Research by Williams (1981:44-50) shows that an Australian open-cast mining town is particularly dominated by males. She describes mine work as a "pronounced masculine setting" with strong opposition among miners to employment of women. New Zealand construction communities are similar. At the peak of construction in Turangi, for example, Mitcalfe (1972) estimated that fewer than 10% of

women were in paid employment. Other communties also show histories of poor opportunities for employment for women, for example, Waiuku (Speers, 1978). As could be expected, support facilities such as day car services and pre-school education are also inadequate, as shown by McPherson (1982) for Whangarei and the Ruakaka area that services the refinery expansion, and Chapple (1976:61) for Tokoroa.

Particular questions therefore exist with respect to newcomer women and the possibilities that might be created for ensuring greater economic advantages to women from resource development. What prospects exist for employing women in the new industry? What training programmes would be required? What support services are necessary? As Freudenburg (1982:236) explains, if total population increase is an indicator of total social change, then this change will be reduced if part of the existing female population, or the incoming female population, can be employed in the development.

Overall, our conclusions about women in resource communities have to be tentative. Freudenburg's most recent studies on the effects of boom growth on both men and women show that at best a general hypothesis could suggest that the process of change is complex. He found that men, women, newcomers and long-term residents are all affected (1981:235). In contrast to the assumption that women are most affected, Freudenburg states with respect to isolation: "available data show that the highest levels of alienation exist not among newcomer women, but among old-timer men" (*ibid.*:234). His further studies of mental health in boom towns found that within two years of the onset of growth, "long-time residents of the community found it necessary to double their use of the mental-health facility" (Freudenburg *et al.*, 1981). Nevertheless, there is sufficient evidence in New Zealand and elsewhere to show that women, both newcomers and existing residents, deserve special attention in social research on resource development.

6.2 Youth

Chapple (1976:74-5) describes youth as a "minority" in Tokoroa despite their numerical majority with 56% of the total population being under 18 years of age in 1970. This definition of minority equates with the notion of disadvantage in terms of "social, political, or economic power", and places youth alongside women and non-europeans in facing disadvantage in Tokoroa. While their minority position is limited by age, youth can transfer to other positions of disadvantage according to "sex, ethnic background, and occupational class" (*ibid.*). Chapple has traced the disadvantage of youth in Tokoroa from their birth in inadequate maternity facilities, through poor pre-school facilities to formal school in rapidly expanded and overcrowded conditions, to insufficient recreation services and limited vocational choice.

Speers (1978) notes the changes in the age structure of Waiuku borough. With more youth in the town there has been an increased demand for pre-school and school facilities, with schools coping with expanded rolls. Similar changes have taken place at Cromwell (Taylor and Bettesworth, 1983). Speers notes that Waiuku College students have increased aspirations and can be expected to leave the borough because of limited prospects there (p.119).

Resource communities show a 'rural' characteristic with a common decline in the 15-19 age group of the population. As with the surrounding rural areas, youth tend to leave for the attraction of bright lights, education and employment in the cities and provincial centres. Youth are generally in a poor position to take full advantage of the employment opportunities offered by a major construction in their area. Skilled labour is often required and some sites have minimum age restrictions of 19 years. There are examples of apprenticeship schemes to cater for school leavers, and others take the few job opportunities that arise in supporting services in the community.

Ministry of Works and Development have made moves to employ youths on their construction sites. Mitcalfe (1972) reports on the admission of boys at Turangi for trade and training, and this has also been the case at Cromwell (BDC, 1982). McPherson (1982) reports that apprentices have been employed on the Whangarei refinery expansion and training schemes have been implemented. Unfortunately, as with womens' employment, there is a paucity of data on youth employment.

Recreation opportunities for youth appear to be a further particular problem. While there are often opportunities for sporting activities in the construction towns, other recreation opportunities can be limited. Rural districts have few entertainment facilities for youth, especially when they may have come from an urban background. Efforts to provide entertainment through organisations such as youth clubs have only intermittent success.

Tertiary education also poses problems. With only limited apprenticeship intakes and other employment there is an added incentive for youth to move towards tertiary education. This training is unlikely to lead to that person returning to their community for employment. Youth also move for the final years of secondary schooling. Many families have to face the choice of moving away from their home and parent's employment to seek better opportunities for their children in education and employment.

6.3 Maoris

Resource development can have special implications for Maori people. There is a potential loss of land, food resources such as seafood and sacred sites to a development. Maori people are often employed in resource communities, especially in the North Island, but they face difficulties in obtaining skilled and managerial positions. Where there is unemployment in resource communities, Maori people are overrepresented, as they are nationally.

An example of the effects of development on cultural resources is provided by Mahuta and Egan (1981), who discuss the cultural importance of the Waikato river and Manukau harbour for the Maori people of the Waikato, and, consequently, for the Maori people of New Zealand. Both the river and harbour have been badly polluted from industrial urban and rural sources. Mahuta and Egan consider the impact of expanding the iron/steel mill at Glenbrook, outlining first the position of Maori people in New Zealand society. Maori people have generally experienced disadvantages in the alienation of their land, as well as in health, education,employment, political representation and the expression of a full cultural identity.

The report by Mahuta and Egan arose from the desire of NZ Steel to understand Maori objections to the expansion of the mill, especially in terms of possible damage to the culturally important local waterways and coastal areas. In the report, an attempt is made to form strategies for development based on local *marae*, making use of the resources of both the local Maori and NZ Steel.

Meetings were held on local *marae* to discuss possible environmental impacts such as the removal of water from the Waikato river and the discharge of effluent from the mill, and from the town of Waiuku, into the Manukau harbour. Surveys were completed by *marae* members, including adults and college students. It was intended that a development programme should also be considered given the relative disadvantages of Maori people.

Survey data showed, as expected from national trends, that the Maori population had limited education, mainly practical skills and high unemployment. In terms of future development, the study showed that there is potential for the NZ Steel Company and government agencies such as the Department of Maori Affairs to work together on a number of local programmes:

a) training for future employment in the mill;
b) education programmes such as preschool, reading skills and continuing education and counselling, with an emphasis on marae-based education;
c) assistance with provision of housing for mill employees, including help with the use of volunteer labour;
d) assistance for marae-based small business development; and
e) assistance with horticultural development in the area.

It was recommended that a joint NZ Steel - local *marae* committee be formed, with an executive officer employed to initiate a development programme.

A clear description of the influence of a resource development in promoting cultural change is provided by the studies of Taharoa by Higgs (1979) and Boudrou (1979). Higgs provides a description of Taharoa, a small community undergoing major physical, social and economic changes as a result of the industrial processes required to mine and ship ironsands from the coast nearby. He notes that Taharoa is a dynamic community for both the longer-term Maori residents and the shorter-term Maori and Pakeha residents (*ibid.*:2).

Taharoa is relatively isolated for a North Island town. It is situated 43 km from Otorohanga and Te Kuiti. Surrounded by ocean, lakes, swamp and rugged hills, access was gained either by horseback, bullock cart or boat across the lake, until the road was built in 1968. Poor farmland, game and sea food provided a subsistence diet for the original inhabitants (Higgs, p.10; Boudrou, pp13-14). Furthermore, as Boudrou indicates (pp14-18), isolation was a strong influence in the local culture, where the Ngati Mahuta people upheld "a belief that by keeping themselves apart they preserve the injunction of their prophet Tawhaio to hold the

land in safe keeping and protect it from outside interference". Unwanted visitors were easily discouraged, and the residents retained a high degree of autonomy, with a motto of *Taharoa takaroa* (Taharoa, slow to move).

Nevertheless, the land which the people sought to protect, with its rich deposits of iron sands, brought prospectors during the 1950's and 1960's. Encouraged by the prospect of employment for their young people, so that people came to work, "not just to die" (Boudrou, p.20), the ironsands and land for housing and infrastructure were eventually leased to NZ Steel Ltd for 70 years, by a specially formed incorporation of land owners.

The road was built in 1968, electricity came to the company infrastructure in 1971 and to the village in 1974. An industrial plant, offices, a cafeteria, recreation facilities and 64 modern pre-built houses were established by 1978 (Boudrou, p.21) with an overall impression of industrialisation and suburbia (pp21-22): a far-reaching change from 12 houses on family land, scattered around a central *marae*.

The population increased from 95 in 1966 to 335 in 1978. By 1978 population growth had slowed, with an 8.1% increase to 335 in February 1978. However, during these two years the nature of the population changed considerably as temporary construction workers were replaced by permanent mine operators. Of the 1978 population of 335 total, 220 (65%) were Maori, 104 (31%) Pakeha and 11 (3%) were children of mixed ethnicity (Higgs, p.25). The community is mainly comprised of young families, with school age children staying but older teenagers leaving for highschool.

Prior to the period of change that mining evoked, the people of Taharoa lived in a very different cultural setting to that of an industrialised community. Higgs (p21) discusses for example, how "European" concepts of time, work, play, annual leave, money and economics were not relevant. "Rather than being chopped into discrete little segments as happens with the advent of a large industry, life flowed from day to day". Industrialisation has brought far-reaching change with the immigration of both Maori and Pakeha who have an industrial background. The Maori population has changed from traditional rural to working class. Yet the industrial Maori have retained many elements of their own identity, as they have in urban areas.

James (1979) notes that the force of *tangatawhenua* (people who share identity with tribal land) remains important to Maoris living in urban areas. There can, however, be complex consequences for Maoris who are newcomers in a town. The *tangatawhenua* usually initiate social activities in their area, but newcomers from a different tribe may also form attachments to an area and develop their own kin relationships. However, "there is customarily no structure to incorporate the migrants into the existing social relationships" (*ibid.*). Newcomers wanting to be integrated must be sensitive to any existing *tangatawhenua*.

James describes the multi-tribal marae as a response to these complexities of urbanisation and this was noticeably the case at Kawerau. Maoris from many tribes live in Kawerau, which, though lying in Ngati Tuwharetoa territory, had no direct *tangatawhenua* who inhabited the town site prior to its development. Thirty percent of the Kawerau population is Maori. A proper place was required for ritual purposes such as *tangihanga* (the welcoming and entertaining of guests) as well as for other meetings. A community centre was opened in 1963 and called Rautahi, meaning "one hundred welded into one entity". Later the centre was declared a Maori reserve,and a meeting house was built. But as James points out:

> The running of a marae in a multi-tribal setting such as Kawerau is no straight-forward matter. Leadership can be factional, and turnover high. Particular tribal leaders may not be accepted by the majority. Matters of outlook, marae protocol, customary procedures and meeting house decoration and design become prominant issues (*ibid*:176).

Generally, community members appear to have taken part in activities associated with the *marae* and their own particular kin groups both within and outside the town.

Future research on resource communities should place emphasis on the three groups of women, youth and Maori. Each group faces special problems in New Zealand. Issues with respect to identity, employment or cultural resources, for example, are being recognised. There is evidence that these issues are exaserbated in resource communities.

VII

CONCLUSIONS

7.1 Questions for Social Science

SIA is a new field of social activity. It arises from academic disciplines of the social sciences , from technocratic activities of planning and project management and from social and community responses to vital issues of technological and environmental change. Established social sciences, especially sociology and anthropology, have had limited involvement in SIA. There are, however, several reasons for academic social scientists to be involved in SIA:

a) The first is mercenary. Given the size and expense of many resource developments, considerable funds are often available for SIA research. Funds are especially available in situations where developers expect or encounter opposition and social problems, and need to facilitate a project.

b) The second is the lure of "experimentation". Large development projects can create rapid social change in a context that is relatively easy to define. The experimental element of planned change allows predictions to be made and then assessed as change occurs. The prospect of increased predictive ability has long intrigued social scientists.

c) The third is revolutionary. Involvement in SIA offers researchers the potential to become active in challenging paths of development, particularly through activation of an affected community. There is potential to identify impacts and the political means to negotiate for better terms of development.

A wide involvement of social scientists in SIA will bring changes to the field. Freudenburg and Keating (1982) suggest several changes that will improve SIA work. The first is better definition of the social well being of a community, especially so called base-line

conditions. Many methods and briefs for SIA suggest that a comprehensive profile should be established for communities that will be affected by development, but good community studies take years of careful research. Nevertheless, social scientists can and should help to describe the existing social life in relevant communities, including potential changes with a range of resource uses. We can identify and compare data and studies on similar communities elsewhere. We can make professional decisions based on past research and theoretical assumptions about the key aspects of distribution of impacts. We can direct new research to the most relevant subjects. Most especially, we can identify critical issues for impact assessment and management.

A further area of change for SIA is proposed by Freudenburg and Keating and deals with the need to consider the question of "mitigation" during SIA's, including the need to avoid or change impacts by changing the development itself. Many practitioners of SIA are placed in the position of assessing impacts for a project that will go ahead regardless, or with minimal change to the project. Constraints on the scope of SIA work in New Zealand are evident in the nature of briefs that are circulated for impact assessments. Development agencies do not usually fund or otherwise encourage either critical *a priori* assessments or thorough *a posteriori* reviews. There is a general failure to comprehend or foster the relationship between resource development and community development.

SIA researchers have to look at their own values and the values surrounding demand for a development project. Should projects be facilitated through SIA, with little attention paid to the plan itself? Should all development, and the political-institutional context of development, be challenged from a social perspective? Should practitioners aim to steer a middle course, reconciling development of both resources and communities through an issues-orientated approach? Difficulties arise because a project may be seen locally to have negative impacts, but more widely to have a national importance. In this case, the work of SIA may involve clear identification of impacts for a fair allocation of costs and benefits or the recognition that local and regional interests may be served better by a different scale or type of resource development.

Perhaps Freudenburg and Keating's strongest plea is for more and improved longitudinal research. In addition to his own published research, which is a major contribution in this area, Freudenburg has put a strong public case for seeking greater scientific credibility for SIA. Longitudinal research will lead to greater credibility. More scope and depth to *a priori* work, and stronger links between academic and applied research, will also help.

Longitudinal studies of the social implications of resource development should suit university thesis research, plus the longer-term research interests of university staff. In turn, by their involvement in good, detailed and applied research, university graduates and staff should be better informed and qualified to make useful contributions to shorter-term assessments and planning programmes. Suggestions for specific longitudinal research projects are made in Section 10.3.

Greater attention by established social scientists to the social aspects of resource development should bring necessary changes to SIA. In New Zealand we need to give special attention to developing approaches that suit the needs of our own human environment. If we follow imported examples of resource development - using concepts of growth and technology that is energy and capital intensive - then it follows that we will use imported procedures for environmental and social impact assessment. Our current major projects produce rapid technological and social changes that extend into our institutions of administration, planning, research and academia.

New Zealand's social scientists need to consider how our resources can be controlled and developed in terms of the welfare of communities closely associated with them. As a result we may diverge well away from the main stream of SIA. Yet major projects, like *Coca Cola*, appear to be here to stay. Many of us like a can of coke. On the other hand, there are many ways of quenching a thirst. It is possible that SIA in this country could remain a relatively small and technocratic activity, isolated from innovative thinking about social and technological change, and of little use in reconciling local, regional and national interests.

7.2 Questions for communities

Rapid and widespread resource development, with continuing technological and social change, has been common to New Zealand since the earliest European settlements. We retain elements of a frontier philosophy about endlessly available resources and belief in a technological fix. But new uses of resources are bringing increased social conflicts for communities and social groups who already occupy our environment. Serious questions should be asked about the distribution of costs and benefits of new developments.

New resource developments are being offered as the solutions to our current economic and social crises. Resource development is perceived by many as a way around government budget deficits, large balance of payments deficits, inflation, depressed businesses, high interest rates, unemployment and many other "ills". We have nationally important projects, using energy resources, and also regional projects such as irrigation and forestry. Unfortunately, the climate of economic crisis distorts the ability of local communities to benefit from a resource development. Local costs are increased.

Communities have to deal with change, while government services struggle under sinking lids, house prices rise nationally, interest rates are high and finance for housing and expansion of services is limited. Businesses are being "squeezed" economically and are incapable or unwilling to expand for possible short-term benefits. People who are unemployed do not have skills necessary to take part in the new technology. In these circumstances new economic activity and benefits tend to find their way outside the local economy to central businesses.

Local decision makers seem reluctant to move into the area of community development. There is little comprehensive investigation of community needs and social services to assist with planning of a new project. Experienced, professional social and community workers are not always located in the areas of greatest need or impact. Perhaps most importantly, local benefits derived from a resource development will transcend local body boundaries. At the same time, government departments do not always cooperate well. New organisations formed to coordinate

community approaches to development, such as "social needs" committees, lack political "muscle". Much can and should be done on a regional level, and here united councils in particular could play an important part. They have the potential to be involved in immediate concerns of social development and also in longer-term needs for social planning in association with resource planning.

7.3 Questions for further research

Research to date on the social implications of major industrial projects in rural New Zealand has not been adequate. Nevertheless, research that has been completed must be viewed positively.

Firstly, a great deal has been learnt about approaches and methods. These lessons should be noted and then built into improved research rather than being allowed to discourage both funding agencies and potential researchers. Secondly, large amounts of very useful data have been accummulated with respect to major developments, often by completely unrelated studies. This research must be brought together and then used as a base for further work. There is much remaining to be done, especially continuation of case studies, new research and comparative research.

Our first consideration has to be the extension and refinement of a conceptual framework for further research on communities affected or created by resource development (see Taylor and McClintock, 1983). As a starting point the relationships between a world economic system, nation state, region and specific project need to be recognised and described. Allocation of power in decision making and distribution of costs and benefits are important. We suggest a move away from a model of "boom growth" to analysis of individual communities and social groups in a wide process of cultural change. In this process, new technology, workplace and community life are seen to be closely linked. Future research on resource communities should concentrate on understanding social stratification and conflict, with special attention being given to groups who are relatively disadvantaged. Potential for increased polarisation between groups should be identified.

To build a sound base of information about resource communities and energy projects in particular we need improved research. To date development projects located around towns such as Whangarei, New Plymouth, Twizel and Cromwell have been researched, if at all, with inadequate backing of funds, data and concepts.

The following suggestions for immediate research needs can be made. This research would build on the base developed in review and case studies by the Centre for Resource Management.

a) Current energy projects. A seminar should be held, possibly under the auspices of the Social Science Research Fund Committee or the National Research Advisory Council, to review research needs at Whangarei and Taranaki. Government, university and local personnel should prepare a basis for comprehensive applied research of these two areas.

b) Workforce survey. A survey should be conducted of workforces in several towns which have a major resource development under construction or in production. Both project and non-project workforces would be studied. Topics to be covered in this research would include demographic and family characteristics, workforce origins, education, employment history and mobility and social relationships of work, family and community.

c) Community studies. Detailed community studies should be implemented in at least two communities that have changed from rural to industrial economic bases, for example, Cromwell and Waiuku. Existing data on these towns would be extended through survey research and ethnographic methods. Both the community and workplace should be studied.

d) Overseas comparisons. Comparisons need to be made between the social implications of New Zealand resource developments and overseas experiences. Australia and Canada offer special opportunities for comparative work. Both countries have similar dominion histories to New Zealand, with extractive resource industries and production of staples. Comparative research has been carried out within Canada (Bowles, 1982) and could be extended to comparisons with

Australia and New Zealand. Current processes of technological change are international and should be studied as such.

Finally, we recommend that both the planning and social science communities should pay special attention to ongoing and forthcoming *a priori* SIA work in this country. Large new developments, especially lignite use, are being planned. SIA to date has been unsatisfactory. There are growing divisions between academic and applied research and between centralised facilitation of development and community action research. Serious inadequacies in current SIA research may not therefore be rectified. Yet there is much opportunity to improve our work for the sake of the people involved.

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