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SOCIAL IMPACT ASSESSMENT MONITORING
THE HUNTLY MONITORING PROJECT
IN RETROSPECT
(VOLUME 1)

A thesis
presented to
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by

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ABSTRACT

The emerging field of Social Impact Assessment Monitoring is critically examined through a review of the Huntly Monitoring Project (HMP). A summary of the HMP, which is both reflexive and critical, identifies practical issues and criticisms arising from that research experience, as well as describing its research method and results. Criticisms of the application of Positivism to Social Science published during the six years of the HMP provide a framework for an SIA Monitoring critique. Alternative philosophical and theoretical positions advanced by Albrow, Giddens, Hagerstrand and Pred are examined. Ideas pertinent to SIA Monitoring are brought together in a discussion of Albrow's Dialectical Paradigm, Giddens' Theory of Action, and Hagerstrand's Time-Geography. The implications for SIA Monitoring of two opposing philosophical positions within Social Science are examined through a comparison of eight SIA Monitoring options, with only three found to be compatible with the non-positivistic position. SIA Monitoring as a Study of Structuration is one of these three options, and a coherent methodology is provided for it by Time-Geography. Finally, it is concluded that designing another Huntly Monitoring Project to include non-positivistic ideas is possible but politically difficult.

ACKNOWLEDGEMENTS

The Huntly Monitoring Project, on which this thesis is based, began in December 1975 and continued for six years. The actual writing of this thesis occupied a further two years, which means that over the past eight years a number of people have been involved with me on this project. Too many, in fact, to be named although they are not forgotten, and I wish to extend my sincere thanks to them all.

However, it is my family - Susan, Emma, Catherine and Ian - who deserve my thanks. They are the ones who have had to share a husband and father with the Huntly Monitoring Project for eight long years. Without their sacrifices of evenings and weekends this project would not have been completed.

Special thanks are also due to Drs Neil Ericksen and Lex Chalmers, who as my colleagues supervised my work, and as my friends helped me finally complete it.

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INTRODUCTION

This thesis addresses the subject of monitoring social and economic impacts of major industrial developments. Its aim is to make a contribution to knowledge on monitoring as practiced within the field of Social Impact Assessment (or SIA). This is achieved through a retrospective assessment of an SIA monitoring operation, known as the Huntly Monitoring Project. The framework for the assessment has been devised from philosophical and theoretical ideas contained in the literature of the social sciences, and published during the years of the Huntly Monitoring Project.

The applied research on which this thesis is based was initiated in 1974, at a time when there had been little application of social science knowledge to monitoring social and economic impacts of major industrial developments. Some effort had been made to examine the effects of decisions after the event, principally work on closing military bases (Breese, et al, 1965), and research was in progress on industrial development in rural areas (e.g., Summers, 1976). However, to monitor a major

development during its construction and initial operations was a task which people were only beginning to discuss when I initiated the Huntly Monitoring Project in 1974 (Fison, Quisenberry and Dixon, 1977; Leistritz and Chase, 1982).

The two components of this thesis are a 1000MW thermal power station and an applied piece of social research. The first is a physical reality and the second is an intellectual exercise. Construction of the power station began in late 1973. Located in the Waikato region, adjacent to Huntly Borough, it took its name from the town and its surrounding district (Figure 1).

The applied research was a major contract for the University of Waikato, and for six years, from December 1975, it was closely involved with the developments at Huntly. The University established a research unit to monitor social and economic impacts resulting from the construction and commissioning of Huntly Power Station. The research contract was principally with the Ministry of Works and Development (MWD). The author was the principal investigator (with the title 'Project Co-ordinator'). The purpose of the research was both methodological and applied, and a final report reflecting this was published (Fookes, 1981a). Although this thesis uses information from that social and economic impact monitoring research experience, it moves beyond it by way of a review which is both critical and reflexive.

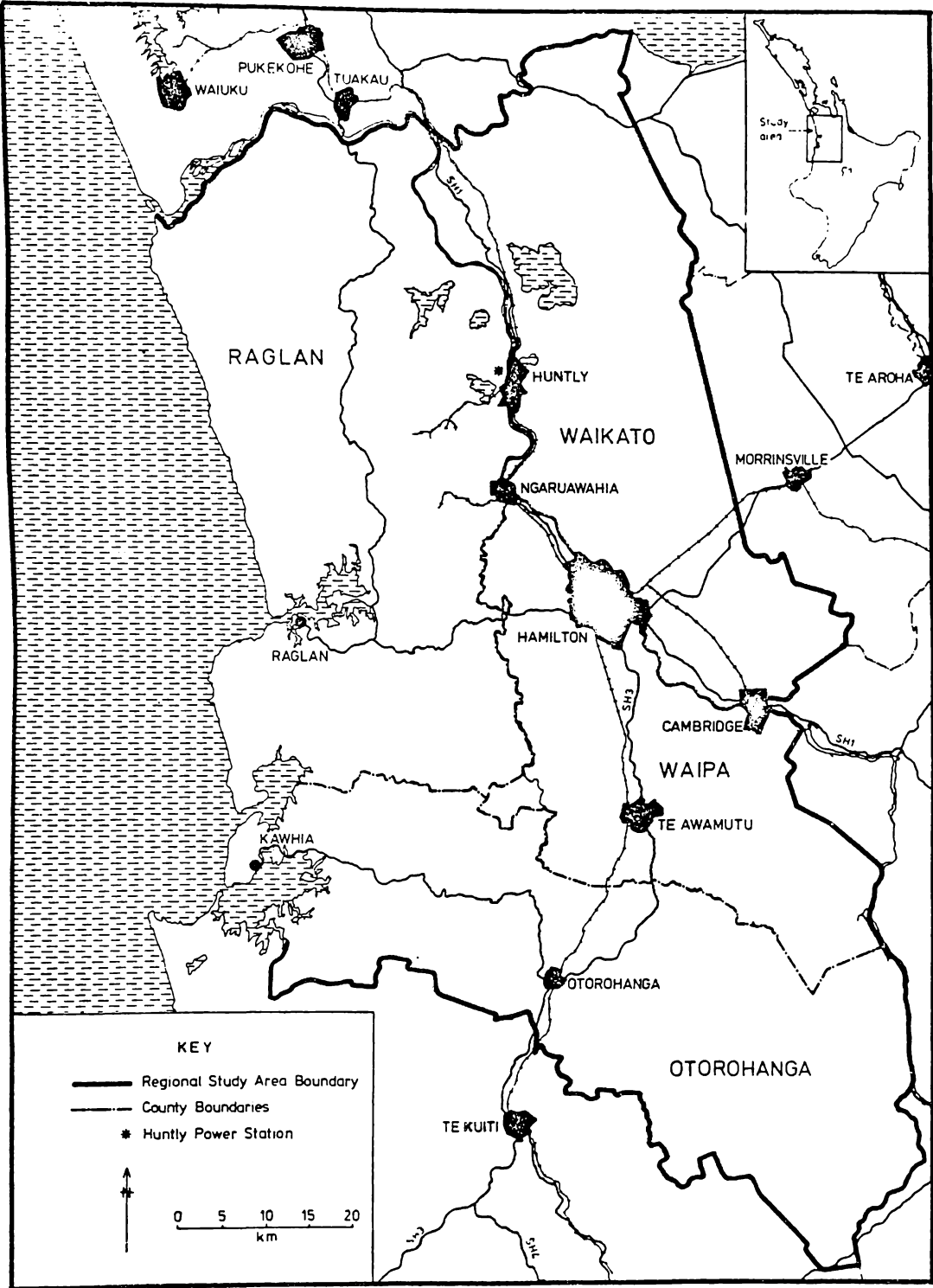


Figure 1. HMP regional study area (Source: Fookes, 1981a)

Thesis Objective and Approach

Since a final report on the Huntly Social and Economic Impact Monitoring Project (or its short title, Huntly Monitoring Project) has been published, this thesis is not a report of research results. Rather, it is a further development on that previously published material, working with the idea that having spent six years managing a social and economic impact monitoring operation, one could reflect on that experience. From such an exercise, it was expected that the lessons learnt about monitoring could be identified, and ideas for other applications developed. By viewing a research project retrospectively, it should be possible to provide insights on a range of subjects which would be of benefit to further methodological developments in social and economic impact monitoring.

The rationale for a retrospective view of a research project can be developed quite simply by reference to the Huntly Monitoring Project (or HMP). In that case, the social and economic impact monitoring operation was based on ideas, current in the early 1970s, as to what comprised suitable research practice (e.g., Harvey, 1969). It seemed reasonable to argue that since new ideas had emerged during the decade which followed, an assessment of the current appropriateness of that methodology could form part of a retrospective critique. Similarly, the social theory upon which the research was initially developed could be

expected to have developed further over a decade, providing a source of new ideas for the research. By pursuing these lines of enquiry, it was expected that a retrospective approach would raise questions about alternative approaches to, and methods for, social and economic impact monitoring. Furthermore, the basis for studying particular impacts could also be examined, and improvements in explanation and theory suggested.

However, a retrospective view of a piece of applied research along the lines suggested, could generate questions of a more fundamental nature. For example, the whole philosophical foundation of social and economic monitoring could be subjected to a critique which would also contribute to one's thoughts on alternative approaches to monitoring. The approaches, by being addressed at a more fundamental level would raise moral/ethical rather than purely technical questions (Fookes, 1982). The researcher may then become more conscious of other issues underlying his or her actions, and therefore, be more aware that choices are available. There is, however, a danger in the latter type of critique outlined, because by examining such fundamental questions a range of issues could be revealed which could undermine the earlier confidence on which the monitoring task was originally based. There is a risk that social and economic impact monitoring, when exposed to a critique of a philosophical nature, may be revealed as something which should not be embarked upon.

Interestingly, the suspicion that such a confidence-destroying situation could occur, in a perverse

way, made the task even more appealing. This is because, in the the six years spent monitoring Huntly Power Station, a sufficient number of changes had occurred within both monitoring as such, and the general field of social and environmental impact assessment, to introduce some personal qualms about the exercise. There was increasing uncertainty whether the publicly accepted objective of impact assessment, as part of the overall rubric of environmental management, was the only one being pursued. The public objective for impact assessment, as I accepted it, was to enable decisions on matters which could negatively affect the natural and human environment to be resolved in a way which is consistent with the public interest. However, since I was aware that there is more than one 'public', I became increasingly suspicious that impact assessment as practised in New Zealand, was furthering objectives which were covert, and only in the interests of particular vested interests in our society. In other words, was social and environmental impact assessment, with its accompanying stage of monitoring, being used by government and business as a device to lull the general public into thinking that their interests were being protected?(1) This question indicates the extent to which the HMP experience had served to make the author more cynical towards the field of social and environmental impact assessment in New Zealand.

However, to return to explaining the object of this thesis, the idea of reflecting on a piece of applied research seemed relatively straight-forward, until one

began thinking about the approach to be used. To begin with, there was the problem of where to start, because it could be a thesis which reflects on the monitoring results, or the research approach followed, but this appeared to be an artificial distinction since, in some ways, the results reflect the approach used. If results and approach cannot be separated, then there must be a way to examine both results and approaches in some combined form. For instance, by proceeding to examine the research in terms of social science method, there could be a critique of its research design. This could include a critique of the use of various techniques (such as multi-variate analysis, and modelling), and of data collection methods (such as primary source techniques like household surveys, or secondary sources like published statistics).

However, the scope of a research design review had already been covered in the HMP final report. For instance:

- Paper No.4B discusses the HMP's findings with reference to experience from overseas;
- Paper No.8 examines SIA monitoring from the perspective of development planning;
- Paper Nos.9 and 10 discuss methodology, the latter with reference to overseas examples;
- Paper No.11 describes the information sources and assesses the merits of each variable included in the HMP operation; and
- Paper No.13 examines the question of alternative monitoring approaches.

It was necessary, therefore, to look beyond the issue of how to extend the research design. The tension which

exists within social science between supporters of the dominant paradigm, based on the natural science/positivist tradition, and others who advocate an alternative view, was one which occurred to me.(2) Since the HMP was based on the traditional, scientific paradigm, with the application of scientific method implicitly written into its research proposal (Appendix 1), there was no doubt about its positivistic foundations. It was also true, that during the six years spent on the practical task of monitoring the power project's effects on Huntly and the Waikato region (Figure 1), ideas within the philosophy of science were being subjected to various criticisms.(3) It appeared possible to develop the retrospective critique around these criticisms because the traditional methodological and philosophical positions were under challenge. What had been considered an established approach to science, sufficient to be called a 'paradigm' (Kuhn, 1962), no longer appeared unassailable. Some social scientists were even wondering whether a monistic position within the philosophy of science was possible, given the immense diversity of contemporary society (Bird, 1979). Others were asking whether the notion of a paradigm could be supported (Johnston, 1979). In fact, the whole epistemological context of social science appeared to be in some disarray (Giddens, 1979). As a result, some extremely interesting ideas were being generated within social science literature while the HMP was in progress.

This appreciation of the philosophical debate is significant for the development of this thesis because of

the nature of the research contract which provided direction to the HMP research unit (Appendix 2). The contract had made it extremely difficult to include the contemporary philosophical ideas in the research operation as it proceeded. In that sense, the HMP was a conventional contract research operation; an approach was described to the client through a research proposal (Appendix 3), the approach and methods were subsequently approved, and the research was then set in train. No provision was made for any subsequent philosophically-inspired changes.

Therefore, the idea which emerged for this thesis was to relate those philosophical ideas which had appeared in the literature, while the monitoring operation was in progress, to the actual approach and methods used for the HMP. These philosophical ideas could then be the basis for a critique of the HMP, providing a framework within which the theory and practice of the HMP, as a monitoring case study, could be examined. At the same time, the essence of both the philosophical ideas produced during those six years, and the HMP as an applied piece of social science research, could be described. This was the direction finally adopted for this thesis.

There were difficulties to be resolved when implementing the general idea. The major one was how and what to select from the wealth of social science literature published between, say 1974 and 1982 (years which bracketed the actual HMP contract period). By beginning with the most recent journals in geography, and selecting those articles which were oriented towards questions on theory

and method, other sources were identified. Many of these were from disciplines other than geography (e.g., Albrow, 1974; Giddens, 1979), and by following those references a social science 'network' began to emerge.

The extent and complexity of the ideas being discussed in the philosophical literature required a sharpening of the focus. This was achieved by approaching the literature from a particular perspective; one which meant considering the ideas being presented by each author in the light of the HMP experience, rather than reading the particular article from an epistemological viewpoint. The former perspective became the key to the reading which forms the basis of Part II. Understanding this distinction is crucial to a reading of the thesis. This is because the philosophical material was read in order to generate fundamental ideas on the logic and method of social science, with the ideas then providing insights into social and economic impact monitoring. By approaching the ideas within each work with that objective, it was possible to set aside questions on the veracity of arguments being debated; to recognize that many works contained sufficient debate to justify a thesis in themselves.

One interesting aspect of the approach described so far, was that it unintentionally involved some of the elements of the non-positivistic critique around which this thesis has been constructed. In particular, the basis for selecting the ideas which form the framework of Chapters 6, 7, 8 and 9, was purely personal and, therefore, subjective. That is, 'subjective' in the sense that the way I responded

to an idea depended to the degree it related to an experience from the HMP, or identified a corresponding idea which had emerged during the HMP itself. Another way of explaining it would be to use the term 'experiential', in that the experiences gained while monitoring the Huntly Power Project triggered off a reaction to a particular idea in the literature. In other words, the 'analysis' of both the literature and the HMP experience, was not carried out by way of a structured analytical framework, where the elements of the 'problem' were determined in advance and the material fitted into it. The converse actually occurred, with the ideas gradually suggesting their own framework, as explained in Chapters 7 and 8.

Consequently, the resulting thesis is a document wherein some ideas in a particular work are improved upon, while others simply serve to suggest connections with notions introduced through another work. The theory of action critique introduced in Chapter 7 provides examples of both of these developments, since some of the concepts (e.g., mediating frames of meaning) identify directly with monitoring, and can be developed as single notions. Other concepts, such as 'structuration' and 'time geography', evolve within the discussion as HMP examples are related to them, and another conceptual development is independently created. The new 'combination' is then able to be discussed as a contribution to the field of social and economic impact monitoring.

Organization

The balance of the thesis is divided into three parts: Part I presents aspects of the Huntly Monitoring Project; Part II is a critique of SIA monitoring, with reference to the HMP and the selected literature, as explained above; and Part III is a conclusion, within which the ideas contained in the the main body of the thesis are examined for their implications for alternative approaches to monitoring. The chapters contained within each part are expanded in the following sections.

The style of presenting information in the thesis varies in that it broadly reflects the contrasting perspectives of positivism and some of its alternatives. Thus, chapters in Part I that describe the HMP and its main findings are written in a style consistent with the postivistic approach used in the original research. This contrasts with the that used in describing and applying the alternative SIA monitoring options in Part II.

Part I: The Huntly Social and Economic Impact Monitoring Project and Setting

Chapter 1 introduces the Huntly Monitoring Project (or HMP), and describes the main features of the research contract. The years immediately preceding the formation of the HMP research unit (i.e., 1972-75), which form the context for social and economic impact (or SIA monitoring), are outlined. This discussion includes the introduction

into New Zealand of environmental impact assessment (or EIA) as a formal part of government development planning. The relationship between EIA and town and country planning is also discussed because the former was introduced as a parallel process to the existing statutory planning process operating under the Town and Country Planning Act, 1953.

Huntly Power Station, and its national, regional and local settings are described in Chapter 2. This chapter has a dual function; it provides the necessary background for Chapter 3, while also setting the scene for an examination of practical issues and assumptions affecting the HMP in Chapter 5.

A summary of the HMP's findings is presented in Chapter 3. Selected issues are reviewed, organized around six main headings: 1) local concerns and issues; 2) social integration and interaction; 3) education effects; 4) local authority effects; 5) local economic effects; and 6) population-related effects. Following that review, seven general conclusions are summarized under: 1) expected effects; 2) overseas experiences; 3) public participation; 4) policy generalizations; 5) implications for development planning; 6) HMP method; and 7) socio-economic monitoring information. In later chapters, when HMP examples are required to illustrate an idea based on recent social science literature, reference is made to Chapter 3.

Chapter 4 reviews developments in SIA between 1975 and 1981, as part of the national, and international, setting within which the HMP operated. The information on SIA and

monitoring helps establish the place of the HMP in its field, while also preparing for Chapter 5.

As the last chapter in Part I, Chapter 5 is the link between Parts I and II as it explains a number of practical issues which influenced the HMP operation, and identifies three themes which provide an initial framework for Part II. These themes are: 1) approaches to monitoring; 2) the world-views of individuals and professions; and 3) project management.

Part II: Social Impact Assessment Monitoring

This Part examines the critical material relating to both selected philosophical issues in recent social science literature and the HMP as an SIA monitoring case study. The material is presented so that the ideas which emerge from philosophical and case study issues develop from chapter to chapter.

Part II begins with Chapter 6 which introduces the SIA monitoring critique by describing the philosophical context, and within it, four issues which appear pertinent to SIA monitoring. The issues are, 1) the similarities between natural and social science, 2) criticisms of philosophy of language, 3) an over-simple revelatory model in social science, and 4) a lack of a theory of action. These four issues are related, through a matrix-type framework, to the three themes identified in Chapter 5 and this framework is used for the balance of the thesis.

The purpose of Chapter 7 is to relate the HMP experience to the philosophical issues introduced in Chapter 6. Within those four issues there are a number of ideas, such as Giddens' (1979) stratification model of action, which appear pertinent to this thesis once they are considered in the context of the HMP experience. Relating the critique of the traditional scientific paradigm to the HMP experience identifies some possibilities for an alternative SIA monitoring approach.

The combined effect of Chapters 6 and 7 is, in part, to identify the form of a paradigm which could be considered as an alternative to the traditional, positivistic one. The alternative is called the dialectical paradigm (Albrow, 1974), and Chapter 8 examines SIA monitoring in terms of that paradigm. The lack of a theory of action, one of the issues discussed in Chapters 6 and 7, is developed further with particular interest in Giddens' stratification model of action. Attention is also paid to recent work by Pred (1981a), where the theory of action model has been linked with the idea of time-geography (Hagerstrand, 1970).

Time-geography is examined in Chapter 8 as a possible way to incorporate the philosophical intentions of the dialectical paradigm in SIA monitoring. This is done by comparing the requirements of time-geography with those of seven SIA monitoring prototypes discussed in Chapter 4. The resulting critique brings the thesis to the point where alternative approaches to SIA monitoring can be explored more directly.

In order to do that, Chapter 9 considers the stratification model of action and time-geography connection introduced in Chapter 8. The ideas contained within them, such as 'structuration', are examined with reference to HMP experiences, and the implications for SIA monitoring are discussed. From that discussion a tentative position on alternative monitoring approaches is established, in preparation for Part III.

Part III: Implications for SIA Monitoring and Conclusions

Chapter 10 continues the theme of alternative approaches by summarizing the SIA monitoring options identified in Part II, classified according to the traditional scientific and dialectical paradigms discussed in Chapters 6, 7 and 8. The options considered to be consistent with the dialectical paradigm are discussed with reference to SIA criticisms in Chapter 4, before the thesis turns to the implications of the SIA monitoring alternatives for another HMP. The implications are discussed at both an abstract level, and in relation to the particular ideas of structuration and time-geography, developed in Chapters 8 and 9. Finally, in the Conclusion the Huntly Monitoring Project is reconsidered, as if it was being designed in the light of the results of this thesis.

PART I

THE HUNTLY SOCIAL AND ECONOMIC IMPACT
MONITORING PROJECT

Chapter One

HUNTLY SOCIAL AND ECONOMIC IMPACT MONITORING PROJECT

Chapter 1 serves as an introduction to the Huntly Social and Economic Impact Monitoring Project(1), and consists of three sections. The first section introduces the monitoring project by explaining the origins of the research and the preparation of the research proposal. The second section explains the state of environmental impact assessment and town planning between 1972 and 1975, the years just prior to and immediately after the 1973 decision to build Huntly Power Station. The application, during the same years, of those environmental and planning procedures to Huntly Power Station is also described. Finally, the third section addresses the research contract and methodology for monitoring the social and economic impact of the Huntly Power Project. The monitoring project's contract, as well as details of research management and the

approach adopted for the Huntly research are outlined.

GENERAL INTRODUCTION

The Huntly Monitoring Project was a University of Waikato research contract during the years 1975-81. The contract was with the Ministry of Works and Development, which initially paid the full cost. After 1979 half the contract cost was paid by NZ Electricity (a division of the Ministry of Energy). Huntly Power Station, located on the western bank of the Waikato River adjacent to Huntly borough, was the object of the research (Figure 2).

The Research Idea

The origins of the Huntly research can be traced from two initiatives. One was an approach, by way of a letter to the Commissioner of Works (MWD), in September 1974. The other initiative, which had occurred independently of the first, was an internal (or in-house) MWD research proposal to monitor the social and economic impacts of the Huntly Power Station.(2)

In the letter to the Commissioner I noted a need to monitor the social and economic effects of Huntly Power Station and the Taranaki natural gasfield (Maui project) development, and enquired whether the MWD was interested in

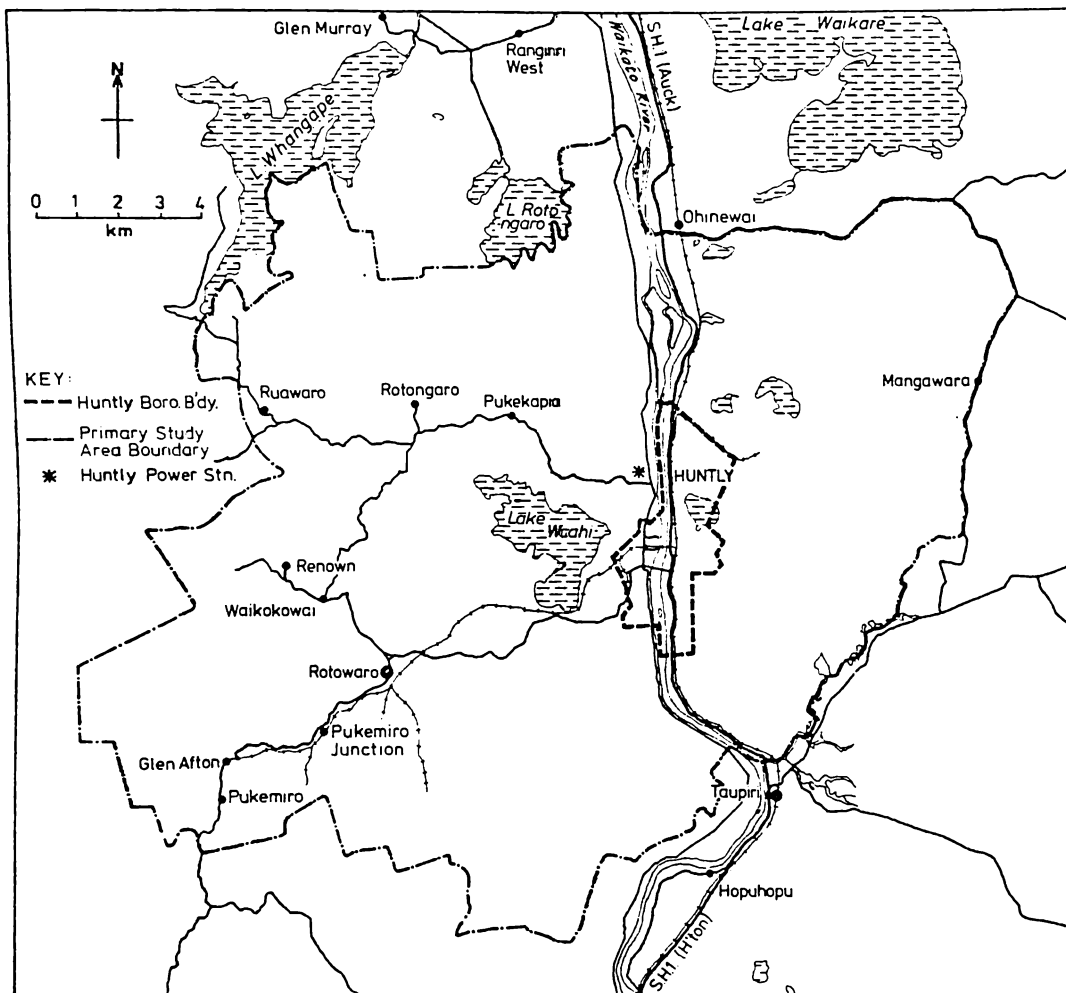


Figure 2. Huntly and District (Source: Fookes, 1981a)

such a study (see Appendix 3). The impetus for the initial approach to the Commissioner was provided in two ways. The first was through newspaper and other media publicity on the negative consequences of the power project anticipated by local farmers and the Maori community (Figure 3). The second was a 1972 Cabinet decision to include environmental impact assessments (or EIA's) in the evaluation of proposed public works.

The local concerns reported in the press suggested the need to document whether the effects did actually occur as anticipated, while knowledge gained from such a study could be a resource for the EIA's required by the Cabinet decision. If any justification for preparing the latter was needed at that time, it was to be found in the EIA's being produced in line with the Cabinet direction. One of these was the Shell, BP and Todd Oil Services Ltd (1974) assessment of the Maui offshore natural gasfield impacts on Taranaki. This environmental impact report (EIR) is singled-out for specific mention because it directly influenced my thinking on the inadequacies of EIA reports that were being done at that time. The perceived need for monitoring was a direct consequence because, in my estimation, the Maui EIR covered the social, economic, and planning effects in a very limited fashion. The deficiencies in that report led me to reflect on whether social scientists and planners were adequately prepared, in terms of methodology and knowledge, to participate with

A SELECTION OF NEWSPAPER HEADLINES

Auckland Star, 22 March 1973

Maoris seek more answers on power station at Huntly

A meeting yesterday between the Minister of Electricity, Mr McGuigan, and representatives of the Maori people of Huntly West ended with some Maori doubts removed but with many questions still unanswered in the controversy surrounding the building of a \$200 million coal-fired power station.

Auckland Star, 9 March 1973

Power Dept: Site study only at Huntly so far

Wellington staff

Thorough environmental investigations are being carried out on the proposed Huntly power station, says the general manager of the Electricity Department, Mr P. W. Blakely.

There took time, and this was the cause of present uncertainty about the scheme, he said. Mr Blakely was replying to an article in the Auckland Star last Friday on local Maori concern about the

foundation investigations, and is confined to the actual area proposed as a site for the power station. "This is the only work so far authorised in connection with the project, which is at present quite uncommitted."

Waikato Times, 22 March 1973

Maori Fears Dispelled Over Power Station Site

Staff Reporter

Some areas of doubt in Maori minds concerning the building of a coal-fired power station at Huntly were eliminated by the Minister of Electricity, Mr McGuigan, at a meeting at the Rakaumanga school yesterday.

Waikato Times, 15 June 1973

Huntly Maoris still concerned despite environmental report

Huntly Maoris are as concerned as ever at the likely effects of the proposed power station — despite the release of an environmental impact report by the Electricity Department.

Waikato Times, 3 Nov. 1973

FARMERS WANT SAY IN STATION

Waikato Times, 22 March 1973

TOWN'S MAORIS ASK: WHAT ABOUT PEOPLE?

Staff Reporter

Power and pollution. But what about people?

Waikato Times, 2 Oct 1973

MAORIS WANT SAY IN HUNTLY PLANS

NZ Herald 7 Oct. 1973

Primary School Classes To Be Held at Pa

Staff Reporter

Hamilton

Rakaumanga Primary School classes will be held at Wauhi pa this summer until the future of the school adjacent to the Huntly power station is clarified.

Waikato Times 2 Oct. 1973

Farmers seek power station communication

Waikato Times 19 March 1973

MAORI PLEA: BUILD ON NEW SITE

NZ Herald

NZ Herald

16 Oct. 1973

Talks Before Work On Power Site

Staff Reporter Wellington: The Deputy Prime Minister, Mr Watt, said last night that the Government hoped that work on the new Huntly power station would be under way shortly.

'Mickey Mouse' Gibe At Project

Staff Reporter

Hamilton

Arrangements so far for the Huntly power station were described yesterday as a "Mickey Mouse show."

Waikato Times 25 Sept. 1973

Power site meeting planned

Times reporter Wellington. — The Government has agreed to a special meeting with local Maoris to resolve "uncertainties" over the proposed Huntly power station.

Figure 3 Selected headlines on local concerns over Huntly Power Station, 1973 (Source: Fookes, 1981a)

other disciplines in environmental impact assessments.

There was another shortcoming in the Maui EIR, however. This concerned a lack of references to New Zealand social research, a deficiency which drew attention to the availability of local research which would provide some basis for assessing the likely implications of a proposed development. For example, in the Maui EIR the social and economic effects on New Plymouth (1971 population 35,000) were extrapolated from what was known about Australia's Bass Strait oil and gas development impacts on Sale (1971 population 10,500). The implication of that comparison was that the settlements and their surrounding regions were comparable. However, from my own knowledge I knew that New Plymouth was a main provincial centre, with an established export port serving a major North Island agricultural region. By comparison, Sale was a smaller service centre, only ranking fifth in the settlement hierarchy of the La Trobe Valley in Victoria (Office of Research and Social Policy, 1982:23).

The second initiative for the Huntly research, the 'in-house' proposal for a Huntly monitoring study, had been circulated within the MWD four months before the letter to the Commissioner (see Appendix 4). The proposal was prepared by the MWD Town and Country Planning Division's Research Section. The MWD's Development and Programming Branch supported the proposal, having earlier expressed concern about possible consequences for Huntly and the

Waikato arising from the power project (see attachment to MWD proposal, Appendix 4). It would appear that^{the} Town and Country Planning Division's proposal was a response to the concern of that Branch, as well as its own experience from preparing material for EIA. However, the MWD initiative lapsed, apparently for want of sufficient support within that organization. My letter was, nevertheless, passed on to the MWD staff who had been promoting the Huntly monitoring idea, and a meeting between them and interested academic staff at the University was arranged.

The letter to the Commissioner proposed a study of the two developments (Huntly Power Station and Maui offshore gasfield). However, in the discussions between the MWD and University staff the idea was considered unnecessarily complicated for a new research initiative. (As later chapters will explain, this would appear to have been a correct assessment of the situation since even one development proved sufficiently difficult to implement). Consequently, consideration was given to a single monitoring project, although even acceptance of such a proposal by the MWD was in doubt.

The way the Town and Country Planning Division's proposal (above) lapsed, was an indicator of the lack of support for the Huntly monitoring idea within the MWD organization. This apparent lack of support also meant that a relatively straight-forward proposal would stand a better chance than a very ambitious one. Negative attitudes towards the monitoring idea, as reported by Town and Country Planning Division representatives, were not

treated lightly by the University representatives.

Contact between the University and MWD was kept informal until it had been possible to prepare a strong justification for a monitoring project, some six months after the initial meeting.(3) By mid-1975 the 'climate' at MWD Head Office was reported to be more receptive to the idea.(4) Subsequently a formal proposal was submitted by the University to the MWD on behalf of the School of Social Sciences (see Appendix 1). It was approved in November 1975 and a research unit was formed at the University of Waikato, where monitoring officially commenced on 19 December 1975.

Research Proposal Preparation

The development of a formal proposal to monitor the social and economic impacts of Huntly Power Station occurred through close consultation between the interested parties, as explained above. The effect of that consultation can be judged through a comparison of the MWD document 'Impact Evaluation of the Huntly Power Project' (Appendix 4) mentioned above, and the University's research proposal (Appendix 1). The documents are similar in many details, which is to be expected given the existence of the MWD document when the University proposal was drafted, and the continuing exchange of views into 1975. It is important, given later developments in this thesis, to note the extent of this collaboration and, in particular, the research client's contribution to drafting the University's

proposal. Attention is drawn especially to the way the content of the University's proposal reflected as much the ideas contributed by way of the MWD document as it did the literature with which the academics were familiar. Chapter 4 discusses the social and economic impact literature, so no elaboration will occur at this point. However, a comparison of research aims provides an example of the way the MWD document influenced the University's proposal.

The MWD document itemised three principal purposes for a Huntly study and the same ideas can be found in the University's proposal, as the following comparison demonstrates:

MWD Document

The evaluation studies would have three principal purposes:

- (a) to provide identification of the problems and information on their nature so that appropriate remedial action can be taken;
- (b) to build up a fund of knowledge to assist in the future avoidance of administrative, planning and social problems associated with similar projects; and
- (c) to build up an appropriate methodology for the evaluation of the impacts of future major projects (Appendix 4:1).

University Proposal

The aim of a monitoring project is to provide a means of consistently identifying and measuring social and economic changes as they occur in a region over a period of time. A well developed

monitoring methodology will provide a framework for identifying potential problems early enough to ensure remedial action can be taken. It will also provide a fund of knowledge and experience which may help avoid administrative, planning and social problems on similar projects in the future. This is particularly important if future large development projects are to be located close to existing urban areas (Appendix 1:2).

Another example of the MWD's influence on the University's proposal can be found in the respective treatments of potential stress areas (Appendices 1 and 4). The MWD document includes a lengthy list of possible problem areas. All of those problem areas fall within six categories listed in the University's proposal: housing; employment; availability of material resources; provision of services including health, education, welfare; problems of community cohesion; and administration and decision-making. In addition an appendix to the MWD document contains a number of questions which a Huntly study should attempt to answer; these questions have been incorporated into the text of the University's proposal as well.

The resources required to implement the University's proposal match the MWD estimates only as far as research personnel are concerned; both identify two full-time researchers and part-time clerical support. In the budget area, however, the University's expenditure estimates (p.14) are below those prepared for the MWD document (p.6). In the latter case an annual figure of \$35,000 (1974 dollars) contrasts with a \$26,000 (1975 dollars) in the University's proposal.

A comparison of the two proposals also reveals that the one from the University includes content not in the MWD document. This additional material includes details on University commitment and resources (staff participation and services available), and research administration. An appendix to the research proposal also places the Huntly Power Project in the local and regional setting, as well as demonstrating the proposers' knowledge and skills. The additional content strongly suggests that more details are required for a research contract compared with an in-house study. Those details will be referred to again in Chapter 5 because the irony is that not all the expectations written into the University's proposal were met once the research project was underway.(5)

The above examples demonstrate how the initial conceptualisation of the research was guided primarily by the prospective client and not derived from the conventional academic process of literature search and review. When those examples are added to an awareness of local concerns and of the limitations in early EIR's, as noted in the Introduction, the circumstances influencing the content of the University's research proposal can be appreciated. The impression emerges of a proposed piece of research which was intended to address practical issues of immediate concern. Issues of academic significance, such as the nature of 'social impact monitoring', the dynamics of institutional power arrangements, or the clarification of social processes, were not perceived by the MWD representatives as relevant to the Huntly research

proposal. And because those University staff most directly involved in the negotiations, which includes the author, could see both the need for and the benefits from a monitoring project, they acquiesced. This is an important point, being especially pertinent to developments which are described in Chapter 5 where practical aspects of the Huntly research are discussed.

CONTEXT FOR SOCIAL AND ECONOMIC IMPACT

MONITORING: 1972-75

The close connection between the idea to monitor the Huntly Power Project and the introduction of formal environmental impact assessment (or EIA) into New Zealand, has been identified above. So too has the particular role of the Maui EIR in stimulating my interest in the need for social and economic impact monitoring. These two events form part of the context within which the research project developed. Consequently, tracing the recent history of EIA in New Zealand will help clarify the monitoring project's place in those new environmental management procedures. This description will be under four headings: 1) environmental protection and enhancement procedures; 2) interim procedures (1972-73); 3) Huntly Power Station environmental impact statements; and 4) town and country planning.

Environmental Protection and Enhancement Procedures

A ministerial portfolio for the environment was established in 1972. However, it was not until 1973 that a Commission for the Environment became effective and procedures for the EIA process were drafted.(6) In the latter year the Commission for the Environment introduced procedures to be applied to all major government projects, and all other projects that need government approvals or funds. Formally titled 'Environmental Protection and Enhancement Procedures' (or EPEP), they became operative in March 1974 (Commission for the Environment, 1973).

A distinction was made in the procedures between environmental assessment and impact reporting, with the latter occurring as a consequence of the environmental assessment. Both terms are explained in a Commission document, and a comparison clarifies the relationship between the two (emphases added):

3. Environmental impact assessment is a process whereby a conscious and systematic effort is made to assess the environmental consequences of choosing between various options which may be open to the decision-maker. At the most simple level the process need be no more than a mental check of the likely environmental consequences of a particular decision....Decisions of greater complexity...will justify a more rigorous examination backed by appropriate documentation....

4. Environmental impact assessments are to:

(a) determine and evaluate the environmental impact of possible actions to enable a choice to be made between various options;

(b) determine whether or not the possible actions being considered would affect the environment significantly and would not

require the preparation of an environmental impact report;

(c) determine whether or not any measures should be taken to improve the environment, minimise or avoid damage to it in the course of developing or implementing a proposal irrespective of whether or not an environmental impact report has been or is to be prepared.

7. The process of environmental assessment may determine that an environmental impact report should be prepared. An environmental impact report is a written statement describing the ways of meeting a certain objective or objectives and the environmental consequences of so doing. The statement is not to be a justification for a proposed action, but is to be an objective evaluation setting out clearly and precisely, with appropriate documentation, the environmental consequences of a proposed action and of the alternative to that action, and ways of avoiding or ameliorating any harmful environmental consequences.
(Commission for the Environment, 1973).

A series of questions were presented in the EPEP to assist government departments and other organisations decide whether an environmental impact report should be prepared. As far as our interest in social and economic impact is concerned, the interesting point about the questions is the number which are not addressing the physical or biological environment. Clause 12 even uses the term 'human environment', and out of 12 questions, eight were directed to human environments, namely:

(b) does the proposal affect existing communities or involve the establishment of new communities of a significant size?

(c) in respect of those living in the neighbourhood, is the proposal likely to have a long term effect on their living conditions or quality of life or their use and enjoyment of the environment?

(f) are scenic, recreational, scientific or conservation values likely to be affected?

(g) is the proposal, although not significant environmentally on its own, likely to stimulate further developments which would have a significant environmental impact?

(h) does the proposal affect any areas or structures of historical or archaeological importance?

(i) is the proposal likely to be one of substantial public interest?

(j) does the proposal create a significant demand on a resource which is, or is likely to become, in short supply?

(l) has the proposal already been fully considered under the procedures of the Town and Country Planning Act 1953 or the Water and Soil comprehensive examination of the impact of the proposal on the environment and provided an opportunity for public objection and appeal?

While the list of questions was not designed as a social and economic impact checklist, it does establish without any doubt that the Commission's sphere of interest included more than the effects on flora and fauna. When viewed from the perspective of social impact monitoring some of the questions, such as items (b), (c), (g), and (j) above, also imply a role for that activity. However, there is no explicit reference to monitoring in the procedures. Only paragraph 35 includes an implicit responsibility for implementing the proposal and any conditions subsequently imposed **are** given to the proponent organisation.

Interim Procedures (1972-73)

Although the Environmental Protection and Enhancement Procedures were dated 16 November 1973, to be operative from 1 March 1974, the Cabinet decision had already been put into effect through an Officials Committee for the

Environment. This interim procedure operated between 1972 and 1973. It was the Officials Committee which received the first impact reports, including the two Huntly environmental impact statements produced in October 1972 and March 1973 respectively (NZ Electricity Department, 1972; 1973). The latter was titled 'Supplementary Environmental Impact Statement', with the use of 'statement' (and the abbreviation EIS) rather than the word 'report', as previously used. This change reflected American usage resulting from The National Environmental Policy Act of 1969 (or NEPA) (Leopold, et al., 1971). The Officials Committee reported to Cabinet through the Minister for the Environment. The Huntly EIS's are reviewed below.

The Officials Committee operated without Cabinet agreement on the content of the EIA's, which is why it is not surprising to find those responsible for their production being guided by the American literature, such as the US Geological Survey Bulletin written by Leopold, et al. (1971). Selected MWD staff had been attending American universities for the purpose of studying the new environmental impact 'industry', the product of NEPA (Ministry of Works, 1972; Wilson, 1973a; 1973b). Furthermore, a matrix (Figure 4) for the assessment of environmental impact (identified as 'PW 27') had been prepared by the MWD for its purposes, based on a version published in the previously mentioned US Geological Survey Bulletin.

As with the document produced subsequently by the

2. HUMAN ENVIRONMENT		09		
1. CULTURAL FACTORS & TOWN & COUNTRY PLANNING NEEDS	4. OTHERS	01		
		02		
		01 Wilderness & open spaces		
		02 Wetlands		
		03 Forestry (native & exotic)		
		04 Pastoral farming		
		05 Cropping agriculture		
		06 Residential		
		07 Commercial		
		08 Industrial		
		09 Mining & quarrying		
		10 Recreation - Hunting & fishing		
		11 - Boating & aquatic sports		
		12 - Camping, tramping, picnicking		
		13 - Resorts		
		14 - Organized sports		
		15		
2. MAN-MADE FACILITIES & ACTIVITIES (INFRASTRUCTURE)	2. AESTHETICS & HUMAN INTEREST	01 Scenic views & vistas		
		02 Wilderness or open space qualities		
		03 Landscape design		
		04 Unique physical features		
		05 Parks & reserves		
		06 Rare & unique species or ecosystems		
		07 Presence of misfits		
		08 Monuments		
		09 Places of cultural significance (Maori lore)		
		10 Historical & archenological sites & objects		
		11 Noise level		
		12 Smells		
		13		
	3. COMMUNITY PATTERNS	01 Cultural patterns (lifestyle)		
		02 Interaction & accessibility		
		03 Health & safety		
		04 Employment & income levels		
		05 Population distribution & density		
		06 Land tenure		
		07 Economy - Local & regional		
		08 - National		
		09 Community services (social, educational etc)		
		10 Development potentials		
2. OTHERS	4. OTHERS	01 Structures		
		02 Transportation network (movement, access)		
		03 Communications		
		04 Utility networks & facilities (water supply etc)		
		05 Waste disposal		
		06 Corridors		
		07 Barriers		
		08 Urban & rural planning needs		
		09		
		01		
		02		

Figure 4. Human environment section of PW 27, EIA matrix for MWD use, 1973 (Source: MWD)

Commission for the Environment (and discussed above), the MWD matrix included a section for characteristics of the human environment (Figure 4). Under that section the principal subdivisions of the matrix were: Land Use; Aesthetics and Human Interest; Community Patterns; and Man-made, Facilities and Activities (Infrastructure). Each row of the matrix identified with a more specific characteristic. Inspection of Figure 4 will reveal, however, that under each principal subdivision the labels vary considerably in their degree of specificity; for example, 'wetlands' and 'cultural patterns (lifestyle)' are not registering the same degree of detail, although their position in the matrix suggest they are comparable units of analysis. However, issues of this type will not be pursued at this point since Chapter 4 will relate such criticisms to the emergence of social impact assessment (or SIA) as an activity in its own right. It is sufficient to note that the initial approach to EIA in New Zealand - as in the USA - viewed social impacts, but not economic ones, as part of the EIA process.(7)

Not only can the general nature of some categories included in the matrix be criticised. It is equally important to recognise just how much is expected of the social scientist if the questions implied within the matrix format are to be adequately answered. These implied questions also confirm the need for social and economic impact monitoring, as perceived by me in 1974. It may also

help explain why the Town and Country Planning Division's research section was so keen to promote a Huntly monitoring operation.

Huntly Power Station Environmental Impact Statements

Mention has already been made of the initial Huntly Power Station EIS's. Consideration of these examples of the early EIA process in New Zealand will help clarify the relationship between assessment of the physical and biological environment (or 'natural environment' as it is conventionally called), and the human environment. As explained above, the matrix method adopted by the MWD had a dualistic approach to the environment, separating it into human and physical components. It is interesting to see how this dualism was approached when it came to applying the method.

Since the 1972 Huntly EIS was the first to be attempted for a power station in New Zealand it is necessary to make some allowances; to give some acknowledgement that the staff involved were learning 'on the job'. Nevertheless, it is quite apparent from the content of the EIS that more emphasis was placed on the power station's impact on the natural environment than the human environment. A crude indication of that emphasis can be given by the list of major impacts given in the EIS, viz:

1. Chimney emissions, primarily of particulate matter

2. Coal and ash handling procedures
3. Depletion of existing coal reserves
4. Waste heat discharge to the Waikato River
5. Visual impact of the buildings, conveyors and transmission lines

(NZ Electricity Department, 1972:1).

The EIS provides an explanation for identifying the five categories above. Quite simply, the EIS was prepared on the basis that, 'the effects of the operation of the station over a 25 year period would be of greater importance than those which would occur during the construction of a station' (NZ Electricity Department, 1972:1). The absence of social scientists in the EIA team may partly explain this statement. It may also explain why it is possible to criticize the team for not identifying the social and economic effects expected during the construction period, since some effects could be expected to be more significant than those occurring during power station operations. Similarly, the conservative estimate of five years to commission the first unit (it took nine years) can be criticised. So too can the estimate of eight years to achieve full completion, with four generating units in operation. (At the time of writing, May 1983, the Prime Minister had recently carried out the official 'opening', but two units remain to be commissioned). Ten years seems a considerable period of time, in environmental and human impact terms, to be treated so casually when carrying out an EIS. Even conceding the unexpected nature of some of the delays met by the construction project, the

physical size of the power station (see Chapter 2) made it a major construction job, so that the estimated five years construction period was not inconsequential as far as environmental and human impacts are concerned.

The attitude which is conveyed by the treatment of the construction effects generally and social and economic impacts in particular, is revealed in an article written by one of the engineer-authors of the Huntly EIS (Bauer, 1974). Titled 'The Environmental Impact of Thermal Power Station Siting', and illustrated by Huntly Power Station data, this article also excludes construction effects.(8) Bauer explains:

In order to discuss the environmental impacts of power stations, it is first necessary to consider the physical effects of the station. These are the things with which the engineer is most familiar, such as the type and quantity of fuel used, chimney emissions, cooling water requirements, sizes of structures, and similar effects. These aspects are readily quantifiable, can be modified by the design of the station and its equipment, and the costs of various alternatives can be estimated. These physical effects are the things which give rise to the environmental effects (1974:249; emphasis mine).

To be fair, Bauer does introduce some more aspects when he turns to the section on environmental effects. The 'sociological' portion is, however, so brief, in relation to the rest of the report that it can be quoted in full:

3.4 Visual and Population Changes

These two effects are combined in this section since they are both primarily sociological effects which would be caused by any major industrial undertaking. The magnitude of the

effects and whether or not they are harmful or beneficial is largely a matter of personal opinion.

Considerably more effort has gone into the architectural aspects of power stations and other large industrial structures in recent years. Still, the visual impact of any large complex remains partly a matter of personal opinion. The effects of population changes, as with industrial expansion, means more people, more jobs and more business. Hence again one's attitude to such change will be influenced to some extent by the loss or benefit which can result (Bauer, 1974:252).

By extending the range of consequences to include jobs and businesses, and equating a power station with industrial expansion in general, Bauer is hinting at the possibility of other effects. At the same time the significance of them for local residents is dismissed by the phrase 'largely a matter of personal opinion'. The disruption caused by groups in the Huntly district expressing personal opinions, explained in Chapter 3, demonstrates the limitations of that type of thinking.

Returning to the Huntly EIS proper for a picture of the manner in which social and economic effects were treated, reference will be made to an earlier paper of mine (Fookes, 1976) (see Appendix 5). In a Research Memorandum I documented effects mentioned in the EIS which were unquestionably social or economic. Changes of a physical or biological kind were included, if they could have social or economic implications as well. For full sets of extracts from the EIS reference should be made to Appendix 5. However, a list of the headings used will identify the aspects included in the EIS:

- Loss of agricultural land
- Increase in road traffic
- Places of cultural significance
- Historical and archaeological sites and objects
- Scenic views and vistas
- Transmission lines
- Chimney as an obstruction
- Noise level
- Employment and income levels
- Population increase and density
- Economy, national
- Economy, local
- Atmosphere, quality .
- Placings of tailings, spoil and overburden
- Waste heat discharge

The list can be criticised for omissions, particularly on a number of sociological consequences, such as community cohesion. However, its length still conveys the impression that the EIA covered a wide range of aspects where social and economic effects could be anticipated. The adequacy of treatment, however, is only established by considering the specific content under each heading. A reading of Research Memorandum No 6.(Appendix 5) will reveal the superficial treatment and a tendency to view things optimistically. Three examples will illustrate this conclusion:

1.Employment and income levels

This factor should be beneficial to the region due to the employment opportunities during construction of the station, the requirements for operating staff at the station and the increased

employment in coal mining operations in the support of the station. The permanent station staff level would be approximately 300. The staff required during construction would be approximately 1,000 with an estimated 50% who could be locally recruited. It is estimated that 200 additional people would be required for mine operations in association with the station (p.8).

2. Population distribution and density

Increases in local population would be expected as a result of the construction staff and permanent station staff as outlined above. The overall effect would depend upon whether a permanent station village is established. In the long term there would be approximately a 20% increase in population association (sic) with the station staff and their dependents.

The requirements for staff housing and for increases in community services associated with the increased population will be discussed with local bodies in order to ensure co-ordination with present plans for the development of the region.

An interim report* has been written by the Town and Country Planning Division of the Ministry of Works dealing with the expected effects of station construction and operation. This has been forwarded to the Power Division of Ministry of Works for their consideration during the planning of station construction (pp. 8-9).

[*This report was not publicly released, with the copy obtained by the Research Unit marked "Confidential".]

3. Economy, local (in addition to the previous items)

The effects on the human environment naturally include the above effects [reference to major effects above p.9] but also include a generally positive effect of a stimulation to industry, particularly coal mining, as well as the increase in requirements for goods and services due to the construction staff and the permanent station staff (p.4.).

In short, the extracts from, and comments on, the Huntly EIS and Bauer's (1974) article, provide an indication of the way in which the EIA requirement of

Cabinet was being interpreted in the first three years. The report which the Officials Committee for the Environment submitted to the Minister on the Huntly EIS is another source. A summary of that report is also included in Research Memorandum No.6 (Appendix 5).

The Officials Committee expressed the opinion:

Whereas most of the impacts identified in the Statement can be suitably mitigated in the course of further design and development, some impacts on the Waikato River require further study before they can be fully assessed.

The potential impacts on the Waikato River mainly concerned water quality. However, the committee went on to identify eight other matters which it believed required further assessment. Five of them could be seen as areas of social and economic consequences, namely:

- Mining operations
- Population increase due to the construction force, and its implications for borough sewage treatment and river protection schemes
- Siting of the station, temporary and permanent staff accommodation, transmission lines, and coal transport
- Implications for Huntly borough
- Station structures on the visual scene - the need for landscaping plans

(NZ Electricity Department, 1973:101-102).

Finally, in a strongly worded section of its report, the committee drew attention to what it called 'certain implications and risks' if the power station should proceed without following the committee's recommendations. The first risk identified is particularly pertinent to this

discussion:

(a) It is noted that provision for the power station proposal should be made in the Raglan County Council district planning scheme. While such provision is not appropriate until a firm decision to proceed has been taken, nevertheless once a decision is made, early action under the provisions of the Town and Country Planning Act 1953 is desirable. The station, its ancillary operations, its construction and permanent staff requirements, and the transmission lines from the station, must have a very great influence on the future economic and community development of Huntly Borough, and this action would provide local authorities and citizens with a right of objection and appeal on matters which effect their interests...(NZ Electricity Department, 1973:102).

Ironically, the advice was not followed and the Government found itself facing severe criticism from groups within the Huntly community, as illustrated in Figure 3. By 1981 the power station was still not incorporated into the Raglan County Council's district scheme, although efforts were being made by the County's planning consultants to have it included in the reviewed district scheme (pers. comm., staff, Murray North Partners). This apparent reluctance on the part of NZ Electricity and the Power Division of the Ministry of Works and Development to open their plans up to formal and statutory perusal is relevant to the context for the Huntly monitoring research because it is indicative of an attitude towards public discussion of the departments' activities. It also introduces the subject of Town and Country Planning legislation which pre-dated the EIA procedures.

Town and Country Planning

There have been several references to town and country planning in this chapter. These references require some explanation of the place of planning in the general power station siting and EIA procedures. It is also important to have some clarification as part of the context for social and economic impact monitoring at Huntly. First there was mention of the Town and Country Planning Division in the Ministry of Works and Development. Later, in the description of environmental protection and enhancement procedures, one of the 'criteria' for preparing an environmental impact report, or not, was whether the proposal had 'been fully considered under the procedures of the Town and Country Planning Act 1953.' In addition, the MWD matrix 'PW 27' (Figure 4) refers to 'cultural factors and town and country planning needs.' Finally, the Officials Committee for the Environment drew particular attention to the need for Huntly Power Station to be subject to the Town and Country Planning Act 1953, and consequently, included in the Raglan County district planning scheme.

These references will have alerted the reader to legislation, procedures, and a part of the bureaucracy which deals with the planning of urban and rural development. The Town and Country Planning Act 1953 is the relevant statute, with its companion Regulations (1961). The bureaucracy spawned by that Act of Parliament operates in both central and local government spheres, with the Town

and Country Planning Division as the body which advises the Minister of Works on the administration of the Act. It maintains, therefore, an overview of developments in planning. It is also the body which represents other government departments when formal procedures are taken under the Town and Country Planning Act. This partly explains why the Huntly monitoring project was taken up by the Town and Country Planning Division, even though other divisions were directly involved with the power station (Power Division in particular) and the installation was being built for the NZ Electricity Department. The local government bureaucracy is generally less developed than its central government counterpart, as in the case of Raglan County and Huntly Borough Councils. Both local bodies had their respective County or Town Clerks function as 'planning officers', assisted when necessary by engineering staff and planning consultants.

The importance placed on town and country planning in the two districts directly affected by the power station project is illustrated by the Raglan County Clerk who told me, in 1976, 'That planning was dealt with on Friday afternoon.' Even allowing for some exaggeration, the statement is indicative of that officer's attitudes towards town and country planning. In the case of Huntly borough, it did not have an operative district planning scheme in 1972-73, although the Act of Parliament requiring its preparation had been in force for 20 years. It would be 1981 before the borough's first district planning scheme became operative. In the meantime, with the power station

under construction since 1973, the borough had neither^a land use plan, nor a code of ordinances, against which to consider power project housing needs and location.

In force since 1953, the Town and Country Planning Act not only pre-dated the introduction of EIA procedures, but it had by 1972 become firmly established as a major part of New Zealand's statutory measures for controlling development, including protecting the environment (OECD, 1981). Other legislation, such as the Water and Soil Conservation Act 1967 and the Clean Air Act 1971, also contributed to environmental protection. (9) The Town and Country Planning Act was also the only legislation which could be said to include social and economic effects in its 'terms of reference'. This is shown in the objective of town and country planning, namely 'to promote the health, safety, convenience and welfare of the people of any district, and to safeguard and protect the amenities of that district'. 'Amenities' are defined in the Act as 'those qualities and conditions...which contribute to the pleasantness, harmony, and coherence of the environment and to its better enjoyment ...' (Town and Country Planning Act 1953, S.2).

The principal technique for achieving that objective has been the zoning of land. Zoning operates in conjunction with ordinances which specify the type of land use permitted, the bulk and location of buildings, and other restrictions which the local body believes are necessary to achieve any objectives which it has defined within the terms of the Town and Country Planning Act. The

zoning objectives and ordinances are set out in a formally adopted District Scheme. These statutory requirements mean that social and economic impact monitoring should proceed aware of the requirements of the Town and Country Planning Act (and other relevant statutes), and the district planning scheme, its principal vehicle for statutory control over development.

There is one feature of the 1953 Act, however, which tempers the degree to which it could be seen to control all development. This has been noted in the reference above to the Officials Committee's recommendation to make Huntly Power Station subject to the Town and Country Planning Act 1953. The Crown (that is, Central Government) was not bound by the provisions of the Act. It could - and often did - opt to make a development subject to the Act, but it was not obligatory. This explains why the Officials Committee's recommendation could be set aside by the NZ Electricity Department. It also establishes a difference between the EIA procedures and the Town and Country Planning Act 1953, since the former, even though only a Cabinet decision and not a Statute, was required to be followed by all government departments.(10)

Sufficient has been said on the subject of town and country planning to show that the introduction of environmental protection and enhancement procedures could be seen in some quarters to be an intrusion into the established function of town and country planners. This opinion was held by senior bureaucrats, as confirmed by an internal MWD document commenting on the proposed EIA

procedures (Town, 1973). The essence of the comments was that town and country planning already included environmental protection, and if more was required it should be by way of changes to the existing Act and not something additional - and outside the mainstream government departments at that. Such attitudes led to a competitive feeling between ^{the} Town and Country Planning Division and the Commission for the Environment, at least from the former's point of view. They also help to clarify why the division began to take an interest in monitoring Huntly Power Station; by bringing as much 'environmental research' into its ambit as possible, it could later argue that the Commission's role was redundant (District Planning Officer, MWD, pers.com.). At the same time the budget of the Commission did not enable it to fund research like the Huntly monitoring proposal; in fact it is my understanding that it was Cabinet's intention that departments would undertake research for the Commission. This relationship between Town and Country Planning and the Commission is something which will be examined further in Chapter 4.

So far this introduction to the HMP has described two principal aspects of its background; events surrounding the idea to monitor the social and economic effects of constructing Huntly Power Station, and the introduction of EIA into New Zealand. It now remains to describe the HMP research contract, including the Terms of Reference and general research management, and the methods used in the research proper.

HMP RESEARCH CONTRACT AND METHODS

The location of the Huntly Monitoring Project within the University of Waikato, and its sponsorship by the Ministries of Works and Development and Energy, have already been outlined. What has not been explained is the contractual basis for the project; important in itself because of its detail and the way in which it was referred to by all parties during the life of the project.

The client body, through its agent in the Research Section of the Town and Country Planning Division, appeared to place considerable importance on the formal contract as a comprehensive document. The contract's format and the detailed specifications (see Appendix 2) went considerably further than the contracts routinely made with other government departments. (One example of a routine contract from the National Water and Soil Organisation is included as Appendix 6.) The HMP contract document functioned, therefore, as a formal means of control over the implementation of the research. The extent of that control depended, of course, on the client's wish to abide by the letter or the intent. For instance, at one stage the client attempted to carry out its own formal audit of all the project's financial transactions, but the University refused to co-operate and the matter was dropped.

This brief review of the contract and the monitoring method, which is inextricably linked with contractual obligations, is presented under six headings: 1) terms of

reference; 2) study phases and contract renewals; 3) funding and personnel; 4) research project management; 5) reporting and data security; and 6) monitoring approach.

Terms of Reference

The monitoring project's research objectives were stated formally in the contract as its 'Terms of Reference', and followed the intent of the research proposal. The terms of reference read as follows:

To measure, assess and report periodically on the social and economic effects of construction and operation of the Huntly Thermal Power Station on Huntly Borough and its immediate environs and on the Waikato Region including the area encompassed by the extreme boundaries of Raglan, Waikato and Waipa Counties and Cambridge Borough, and, in particular, to examine the effects on:

- (a) Housing,
- (b) Incomes, employment and manpower availability,
- (c) Availability of material resources,
- (d) Provision of services, including health, education and welfare services,
- (e) Community cohesion,
- (f) Administration and decision-making, and
- (g) Any other matters that either the Steering Committee or Commissioner of Works consider should be examined.

This examination to be carried out in order to meet three objectives:

- (a) Identify potential problems early enough to take timely remedial action.
- (b) Provide information relevant to the planning of future development projects, and

- (c) Develop effective and efficient procedures and methods suitable for future monitoring development projects.

(MWD Contract, 1975)

Study Phases and Contract Renewals

The research proposal suggested a project which would run for eight years so as to cover the construction, commissioning, and initial operating stages. The research contract was expressed in terms of specified phases subject to agreement to continue. The initial two phases included in the first contract covered two and a half years. The first six months were viewed as an establishment phase; monitoring proper would occur in the second phase which concluded in May 1978. At that stage a new contract was to be negotiated. The process of negotiation was protracted, so the balance of 1978 and all of 1979 saw the research continued on the basis of 'gentlemen's agreements' but no new contract (or agreed budget) as such. A contract was signed in November 1979 to apply retrospectively to that calendar year. That period could be considered Phase Three. The fourth (and final phase) began in January 1980 when the respective Ministers of Works and Energy agreed to jointly fund a further two years. The research project therefore ran until 31 December 1981.

Funding and Personnel

Direct external funding for the monitoring project

over the six years totalled 300,000 dollars.(11) In addition the University of Waikato provided accommodation and services (including computer services as a major item) which were estimated in excess of 60,000 dollars. Extensive use was also made of the various temporary employment schemes funded by the Department of Labour and Employment: approximately 30 people were employed over the six years under these schemes but the amounts are 'buried' in various accounts and are not available. (Not all of these were students under summer vacation schemes.) A one-off grant of 600 dollars was made by the Huntly Borough Council, which also provided office accommodation and other services on request. The research grant was indexed to inflation, so while the annual amount increased from 25,000 dollars in 1976 to 80,000 dollars by 1981, most of that was to off-set wage and other cost increases.(12)

Research personnel were initially identified under two headings: research unit staff, and part-time staff/graduate assistance. The research unit component began with two full-time research staff and a half-time secretary. The level of personnel was maintained until 1980 when the final phase funding enabled the unit to employ a clerical assistant to work with data management, and a part-time research assistant.(13) From May to December 1981 the unit gained the services of a University Post-doctoral Fellow. While originally intended as an additional senior position, it coincided with the departure of one of the full-time researchers. Consequently, it was judged to be more useful to engage more junior assistants

for the seven months remaining, so the salary was distributed over the equivalent of 1.5 full-time staff.

It was expected in the original research costings that there would be a major contribution to the research by academic staff and graduates - through adopting topics identified by the monitoring for their own research.(14) In practice this did not occur; graduate support was mainly gained through summer employment schemes. Only six graduates worked on topics as part of their degree requirements, mostly from geography. Four undergraduates in the School of Management Studies completed reports as part of their final year research topic. Active research support only came from two geography staff who prepared reports for the monitoring project.(15) To off-set the absence of a contribution in the economics area, the services of two consultants were engaged for a limited-term contract. A number of academic staff did, however, support the research through the Technical Committee, particularly in the first phase when the monitoring method was finally determined.

The disciplinary identification which dominated the project was clearly geography, beginning with the two full-time staff who were geographers. An anthropologist was involved part-time through 1980, and the Post-doctoral Fellow was an environmental psychologist, but the main 'thrust' of the research came from geography.(16)

Research Project Management

Under the contract three management 'units' were specified: a Research Unit for day-by-day monitoring, a Technical Committee to advise on research matters, and a Steering Committee to administer the contract and generally oversee the project. The contract laid down a 'terms of reference' for each of these and they are included as Appendix 2.

Research Unit

The detailed terms of reference for the Research Unit specified its role and laid down certain ground rules for its activities. This was the real contractual framework within which day-by-day decisions had to be made. The Town and Country Planning Division (MWD) provided liaison through its Senior Research Officer, and also used its Planning Officer at the Hamilton District Office to communicate with the research unit. This interest reflected the fact that the Town and Country Planning Division carried most of the funding until 1979 when the Ministry of Energy's Electricity Division agreed to contribute half of the amount required.

Technical Committee

In the first two phases of the research, arrangements were made for a technical committee to operate as an advisory body. Formal membership (with voting rights) followed the

same pattern as the Steering Committee, except that people were drawn from technical areas in the organisations (e.g., the Huntly Borough Engineer and the Huntly Power Project's Administration Officer). All academic staff with an interest in the research were encouraged to attend. Meetings were chaired by the Dean of Social Sciences. The frequency of the meetings depended on the need. Initially they were held monthly, but as the Research Unit settled down and a routine was developed, the meetings became infrequent.

Steering Committee

While the Research Unit, directed by the Project Co-ordinator, was responsible for day-to-day operations, the contract provided for a steering committee. The University and the government department(s) providing the research grant were represented. Initially this position was occupied by the Ministry of Works and Development until late 1979 when the Ministry of Energy (Electricity Division) joined the committee. In addition, it had been agreed between the University and the MWD, that someone representing the local authorities in the Huntly district (Raglan County, Huntly Borough, and Waikato County) be on the committee since this would give some voice to people directly affected by both the construction and research projects. The Mayor of Huntly came on the committee as that representative.

The Vice-Chancellor represented the University (and

served as Chairman) while the District Commissioner of Works represented MWD and the District Manager represented the Electricity Division. (The Registrar and the Dean of Social Sciences also functioned as members, but formal voting rights were only held by one representative of each body. The District Planning Officer [MWD] also attended for Phase Four.)

The Steering Committee's function was to exercise control over the research contract (see Appendix 2 for its terms of reference). The Project Co-ordinator reported monthly on the Research Unit's activities and expenditure. Reports were presented in draft form with discussion by the committee, and a final decision on publication. The committee also played a major role in the 1978/79 contract negotiations. This was the formal role as defined by the contract. It is important to note that the committee did more, a matter which will be discussed later in Part II.

Reporting and Data Security

Decisions on reporting research findings were made the responsibility of the Steering Committee. Publication required a unanimous decision. In most cases, areas of disagreement were resolved through debate and compromise, but there were occasions when University staff not formally part of the Research Unit exercised their right (as academics) to publish other than through the Huntly Monitoring Project's reports (see Chalmers, 1979, and Stokes, 1977; 1978).

The subject of data security troubled the Ministry of Works and Development to such an extent that it became a fairly major part of the contract (see Appendix 2, Clauses 10 to 14). Obviously, it was in the interests of the research staff to observe all conventions on data handling and security, and the more 'bureaucratic' requirements (like a 'data release policy') were observed in spirit rather than in the way spelt out in the contract.

Monitoring Approach

The approach adopted to monitor Huntly Power Station reflected both the Terms of Reference and the initial factors which stimulated the monitoring idea. It has already been explained in the Introduction how the research had its origins in an awareness of local concerns, professional needs, and academic questions. The research proposal, as outlined above, also identified two benefits which were expected from monitoring the power station and Huntly. Expected benefits, as spelt out in the research proposal, included establishing a framework for identifying potential problems early enough for remedial action to be taken, and the accumulating knowledge and experience to avoid administrative, planning and social problems associated with similar future projects (Appendix 2, p.2). Another benefit, implied in the proposal, was to be the development of social and economic indicators via the regular collection of data in significant areas for which statistics were not currently available.

The scope of the monitoring 'problem' was also depicted as a systems model in the research proposal (Figure 5). This model, therefore, provided an initial outline of the monitoring approach. The major component of the research was considered to be local and regional population and settlement change, affecting, and being affected by, other 'elements' in the complex system into which the power station was being introduced. Therefore, population and settlement change were used to link two sub-models: employment/housing; and services/community cohesion. Changes in these two sub-models were to be related to the central focus of population and settlement change. Employment, housing, community cohesion, availability of building materials and community services were elements of the sub-models, reflecting factors considered by the researchers to be 'at risk' with the construction of Huntly Power Station.

Early in 1976, discussions between members of the Monitoring Project, staff of the School of Sciences, and other interested parties, led to the development of a monitoring concept differing in degree from that in the proposal, but still based on a systems approach (Figure 6).

There was one main reason for the decision to change the approach from the one outlined in the research proposal. This was that impact monitoring involved following through effects as they occurred, in a dynamic situation, where every element is potentially related in some way to all others. This notion avoids the possible situation where specific impacts are predicted and the

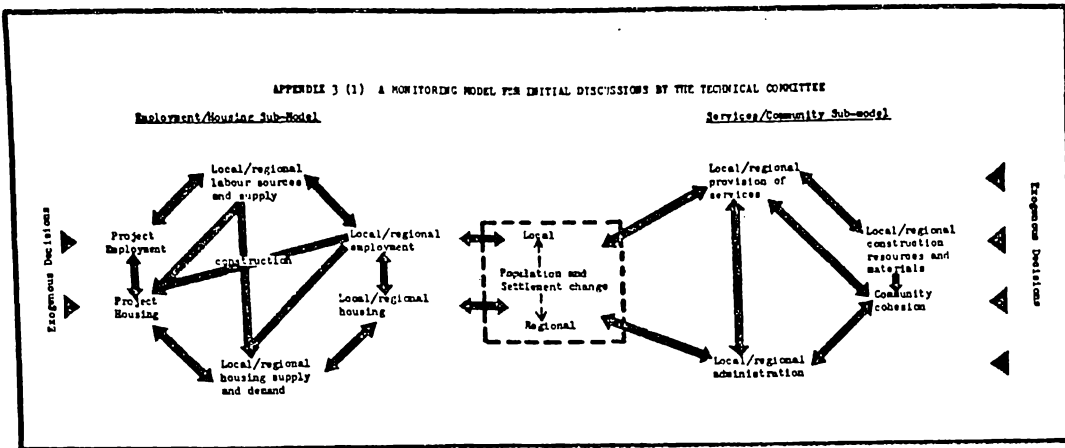


Figure 5. Initial HMP research model (Source: School of Social Sciences, 1975)

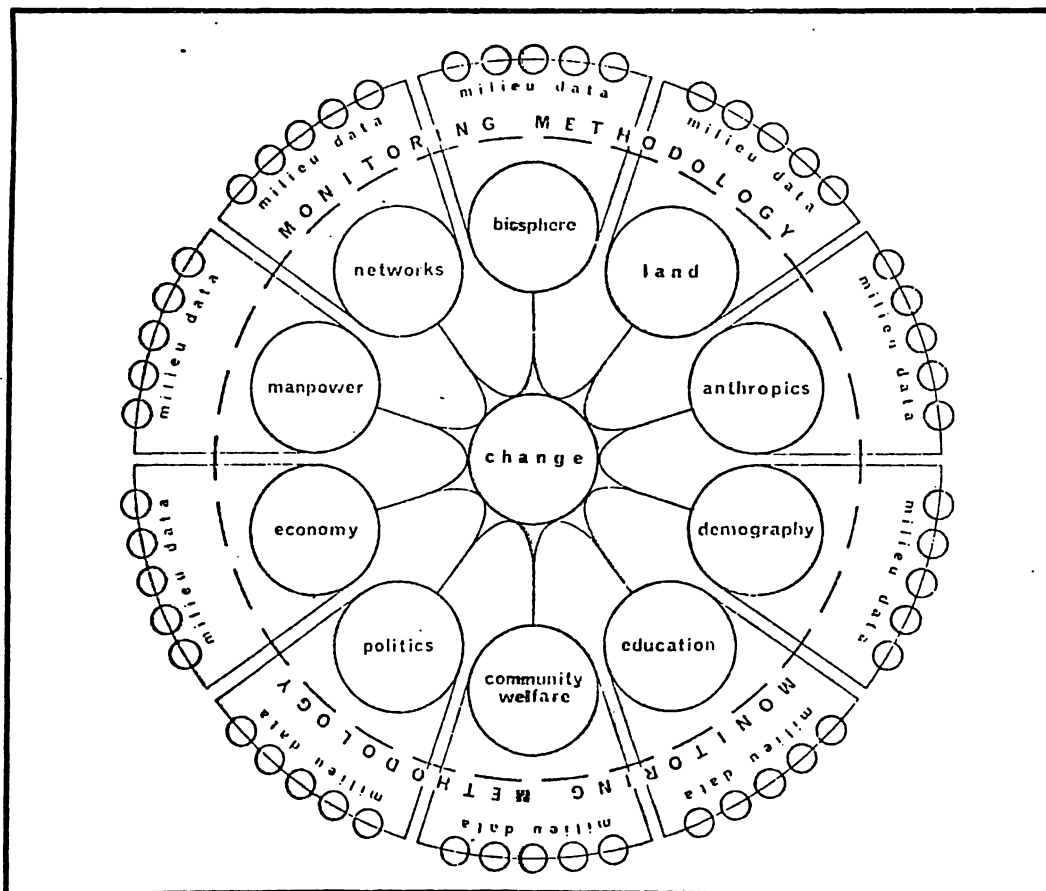


Figure 6. General model developed by HMP research unit, 1976 (Source: Fookes, 1976f).

research is focused on those predictions, only later to discover a change in some part of community life which was not being formally monitored. While it was recognized that the development of hypotheses and their testing could be of use for in-depth studies of observed systemic change, adoption of a broad-based methodology seemed better able to meet the research objectives. Identification of actual effects by the monitoring project without the need of prior specification, reflected ideas from Ekistics(17) and Christopher Alexander's writing on semi-lattices (Alexander, 1966).

Consequently, instead of following the conventional method of hypothesis development and testing, it was decided to describe a set of general parameters and variables. The appropriate data for these would be collected and analysed over the life of the research project. The scope of those data is indicated by Table 1. This change in the monitoring concept is a central element in the subsequent chapters when practical and philosophical issues are examined.

The three monitoring objectives in the Terms of Reference (above), implied separate, though interdependent, operations. However, the application of a systems approach was considered to be capable of meeting these differing requirements because the system-describing data to be collected by the Monitoring Project was expected to be both accessible and current. Furthermore, given that the

TABLE 1. HMP Parameters

HUNTLY MONITORING PROJECT FILE STRUCTURE	
PARAMETER FILE NAME	MONITORING MODEL PARAMETERS
BIOSPHERE	1. Physical environment 2. Social and economic changes as consequences of physical environment changes.
LAND	1. Use 2. Occupancy 3. Subdivision
ANTHROPICS	1. Physiological condition 2. Safety and security 3. Self 4. Family 5. Work 6. Recreation 7. Education 8. Religion
DEMOGRAPHY	1. Population attributes 2. Fertility and fecundity 3. Mortality 4. Migration
EDUCATION	1. Institutional characteristics 2. Student/pupil characteristics 3. Community educational record
COMMUNITY WELFARE	1. Health services 2. Public order 3. Leisure and recreation 4. Societal conditions 5. Social welfare services
POLITICS	1. Party affiliations 2. Political participation 3. Political leadership 4. Political power 5. Decision making 6. Legislation
ECONOMY	1. Domestic 2. Business
MANPOWER	1. Activity distribution 2. Employment conditions 3. Workforce attributes 4. Productivity 5. Employment opportunities
NETWORKS	1. Utilities 2. Transportation 3. Communication

(Source: Fookes, 1981a)

overall purpose of the project was to monitor effects over a considerable period of time (originally seen as 8-10 years) this open-ended systems approach was felt to be more capable of accommodating unexpected impacts and other changes than the frequently adopted method of hypothesis development and testing.

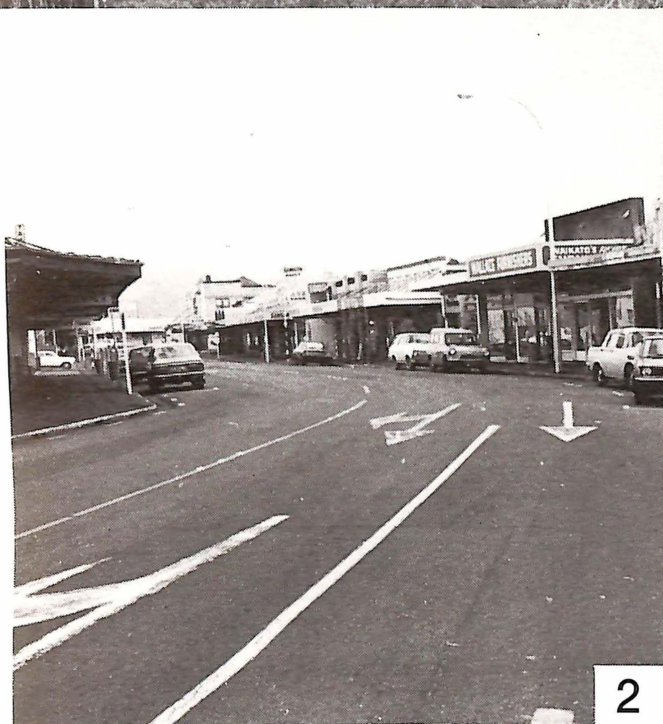
It was not the intention of the project to test the variables, in any formal or statistical sense, for any relationship with activities resulting from power station construction. The research unit staff saw their data collection and analysis activities as 'preliminary' to other research activity, only intended to examine changes in the variables. Once a change had been identified, the next step was to either assess the likelihood of any required remedial action, following the intent of the first objective, or carry out preliminary descriptive studies of the changes. If warranted, it was also envisaged that other researchers and monitoring project personnel, the latter subject to the exigencies of the project, would pursue further in-depth studies of systemic changes to establish causal linkages to the construction activity.

Having reached agreement with the MWD on the revised approach, the research unit proceeded with its task. The final outcome was published in the Final Report Series 1981 (Fookes, 1981a), while interim research papers were published as the monitoring work proceeded (see Appendix 7).

To help place the critique in Part II in its context, it is considered appropriate for this thesis to contain some of that published material. This context is described in the following four chapters. In Chapter 2, Huntly Power Station, and its social, economic and political setting are summarized. Five main issues identified in the HMP final report are outlined in Chapter 3, followed by a number of conclusions from the monitoring operation. Chapter 4 discusses developments in social impact assessment between 1975 and 1982, while Chapter 5 concludes Part I, with a description of a number of practical issues and criticisms raised by the HMP research unit as part of its reporting on the monitoring operation. Issues to be developed in Parts II and III of the thesis are highlighted throughout.



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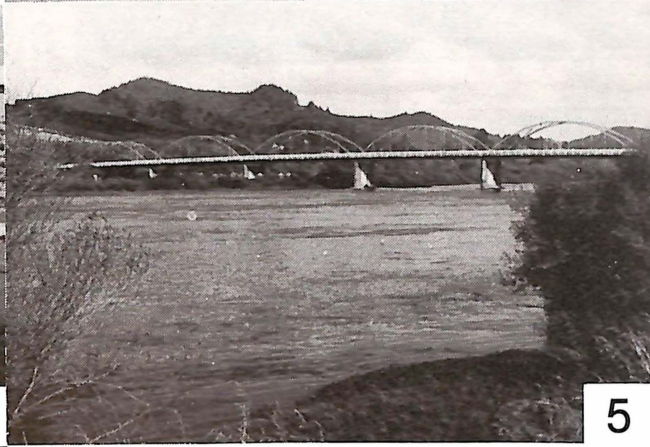
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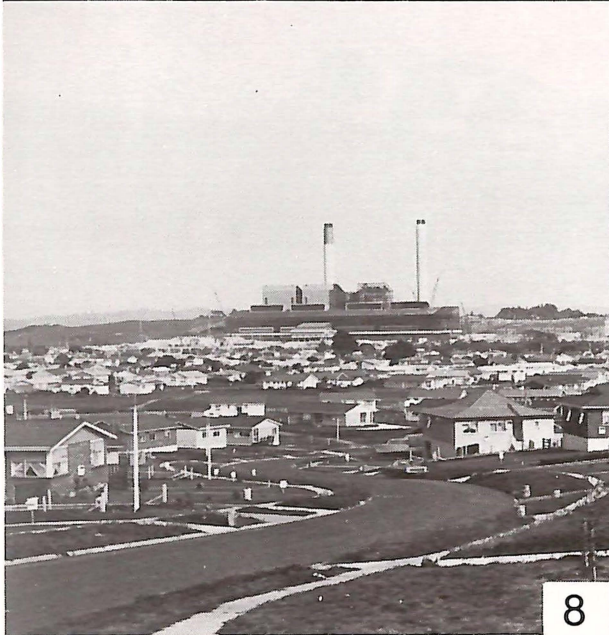


6

1. Waahi Marae in 1976
2. State Highway 1 bisecting the Town Centre, now bypassed (plate 9)
3. Main Street stores reflect Huntly's service function
4. Local industry: the brick works
5. The Tainui Bridge spans the Waikato River to link Huntly East and West
6. Kindergarten children at Huntly West



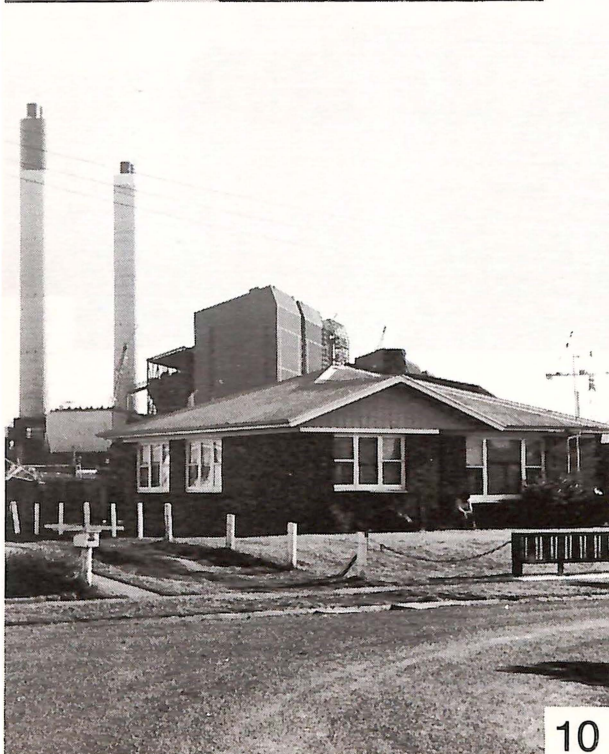
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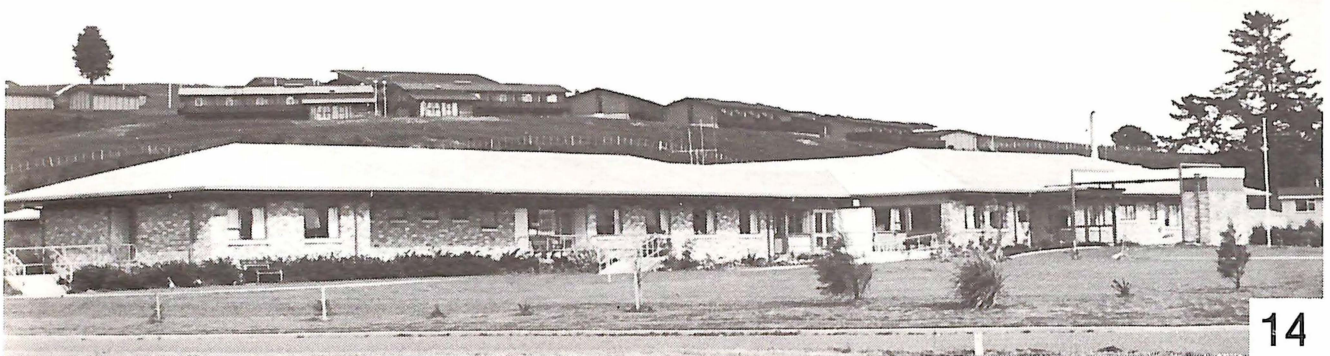
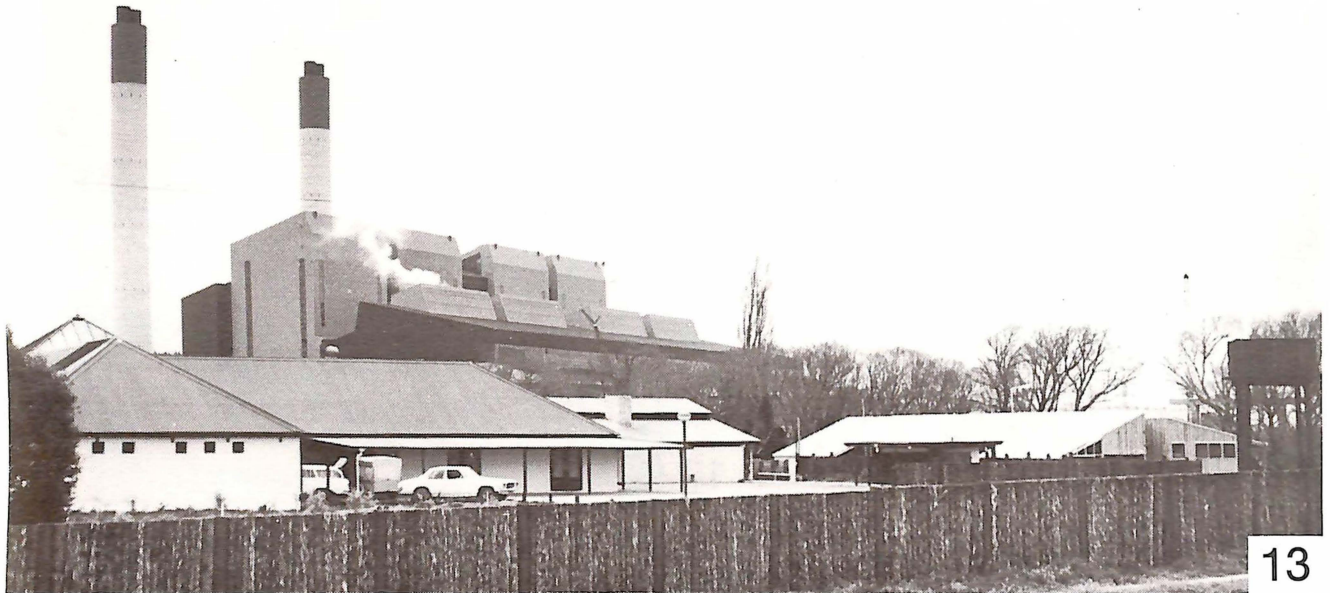


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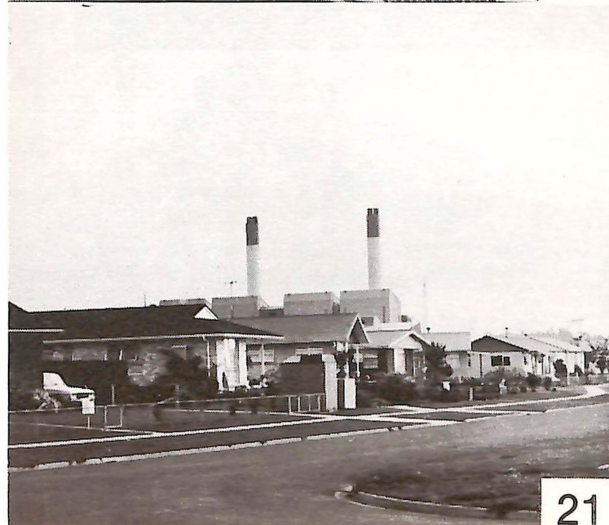


11

7. New classrooms and climbing tower: Rakaumanga School, 1979
8. Project housing in the Kimihia Block (Huntly East) April 1979
9. Town Centre bypass, completed April 1979
10. Marae housing and the power station
11. New public amenity: sports complex at Rugby Park, Huntly



12. Waahi Marae in 1981 after flood protection work (compare with Photo 1)
13. Waahi Marae: Miria te Kakara (dining hall) and associated new buildings on the filled section of the marae (September 1981)
14. Kimihia Home (for the elderly) located within the project housing area in Huntly East: NZ Electricity staff hostel on skyline
15. Riverbank reclamation and new amenities through NZ Electricity's Public Amenity grant



16. Former site of Town Hall (see cover of Paper No. 1) with the new Bank of New Zealand (opened February 1980). Old bank illustrated on cover of Paper No. 3
17. Public Library, opened May 1977, next door to the former site of the Presbyterian Church (cover of Paper No. 4A) and now intended for a new Post Office
18. Huntly Main Street (September 1981): shop facades and recent landscaping after traffic by-pass opened (see also Photo 2 & 3)
19. Huntly Bowling Club: an example of sporting facilities
20. Public tennis courts re-laid and fenced with NZ Electricity's Public Amenity grant
21. Kimihia Block, Huntly East: houses for power station employees (see also Photo 8)

Chapter Two

HUNTLY POWER STATION AND ITS NATIONAL, REGIONAL, AND LOCAL SETTINGS

By describing Huntly Power Station and its national, regional and local settings it is intended that Chapter 2 achieve three purposes. These are: (1) to provide a general picture of the power station; (2) to describe the setting within which the HMP occurred; and (3) to provide some background for the monitoring operation proper. The brief description of Huntly Power Station provides the reader with some understanding of the object which was being monitored. Some familiarity with the setting within which the HMP occurred is essential background for the presentation of monitoring results in Chapter 3. In addition, by reviewing the national, regional and local situations in the decade 1971-81 (the period covered by the monitoring research), the chapter also sets the scene for an examination, in Chapter 5, of practical issues and

assumptions affecting the HMP.

The government granted final approval for Huntly Power Station in 1973. Consequently, events around that year comprise a major part of Chapter 2, including those in the pre-construction phase (1971-72).(1) Changes in the national, regional and local settings between 1973 and 1981, as Huntly Power Station was built and monitored, are also summarized.

HUNTLY POWER PROJECT

The Huntly Power Project (or HPP) is the official title for the construction and commissioning phases which result in the formal establishment of Huntly Power Station as an operating facility. That is, within the MWD and NZ Electricity a distinction is made between construction, commissioning, and operations. The first two activities form the HPP, while the third occurs as Huntly Power Station. The HMP completed its six year research contract some six months after commissioning began. At the time of writing, May 1983, only two of the four units had been commissioned. The description which follows, therefore, principally relates to the construction activity.(2)

Huntly Power Station and the Construction Project

Located on the west bank of the Waikato River immediately adjacent to the existing town of Huntly, the power station site covers 63ha including a coal storage

area of 11ha. An extension of 27ha has been used during construction for equipment storage and materials assembly. With a floor area of 30,680 sq m the installation's bulk and superstructure is immense relative to the surrounding landscape: the main building is 260m long, 118m wide, and rises to 70m over the boilers (see Photographs 8, 10, 13, 15, and 21 above.) As the photographs demonstrate, however, it is the 151m tall pair of chimneys which really dominate the town by appearing on the skyline, whatever the vantage point.

Land Requirements and Housing

In addition to the land requirements for the site and temporary use areas detailed above there are a number of pieces of land elsewhere in the district which are associated with the power project. The coal conveyor easement covers 1.6 ha, while the new coal mine (Huntly West No.1) has a surface site of 28.8 ha. Other areas are the small public viewing site (0.33ha) and the new housing subdivisions (126ha). The total land requirements (229ha) are equal to the area of a small borough like Otorohanga with approximately 2,000 inhabitants. By comparison, Huntly with 6,500 inhabitants in 1981 was located on 784 ha.(3)

Sites for housing were the largest government land purchase item, requiring agreement with six owners. Rather than concentrate power project employees at one location in the town, land was purchased on both the east and west sides of Huntly (Figure 7).

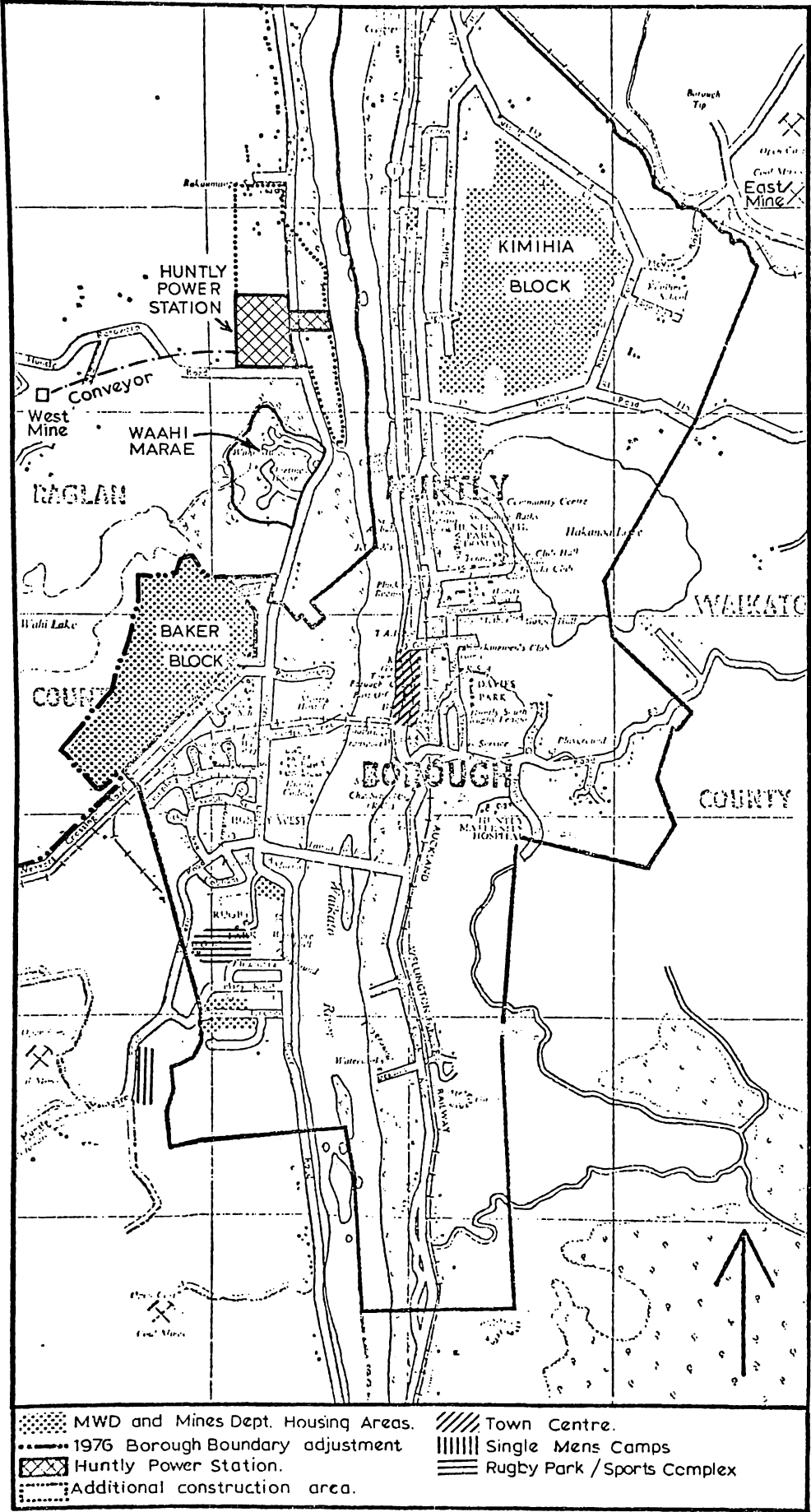


Figure 7. Huntly borough with power station site and project housing areas (Source: After Jasmad, 1975)

In Huntly West the largest residential development, the Baker Block, required 59 ha with additional housing to the south in what is called the Beazley Block (3.7ha). On the other side of the Waikato River, Huntly East housing is mainly in the Kimihia Block (54ha), while a 4.6ha block owned by the Ministry of Energy (Mines Division) abuts the Kimihia Block on the western boundary.(4) Two other small pieces of land in Huntly East (totalling 4.6ha) completed the housing land purchases.

Employment

The peak level of employment on the power project was 2,262 employees (see Figures 8 and 9). That number was employed in December 1978, five years after Cabinet gave it approval for construction to begin. Labour needs fluctuated over that time with a plateau effect in late 1975 and early 1976 as project planning was reassessed following a change in Government. The mix of workforce groups also varied over the years, reflecting the civil engineering and electrical and mechanical phases of the project construction. After December 1978 the employment picture began to change. Operations staff for the power station began to arrive and construction employees declined in numbers; by March 1980, for example, there were 465 fewer construction employees and an additional 129 operations staff. The turnover of labour had always been steady, holding off the need to declare people redundant

until October 1979 when the first notices were issued. By August 1981 (when research files were closed) 370 workers had been made redundant.

Two-thirds of the redundant wage-workers were married. Fifty-two percent of all redundant workers lived in Hamilton, compared with 22 percent in Huntly. By comparison, the place of residence figures for wage-workers were 41.6 and 37.2 percent respectively, but it should be noted that 'key' wage-workers (as determined by the HPP) were allocated project houses in Huntly and that group would not be first on any redundancy list.(5) Handymen and carpenters accounted for 49 percent of the redundancies with the remainder spread over the other 20 occupational categories, mirroring the changing character of project work. People aged between 20 and 30 years accounted for half of those declared redundant.

The ratio of redundant workers living in Hamilton and Huntly compared with the distribution of the total government workforce has been described, and the 'key' wage-worker housing policy has also been mentioned (above). That example serves to introduce an important feature of the HPP case, namely identification of a relationship between policies on accommodation, land purchases, and travel allowances. The types of accommodation provided, the pattern of place of residence, and the nature of the travel allowance are described below, while the relationship between them, and any implications are discussed in Chapter 3.

Land requirements for accommodation have been

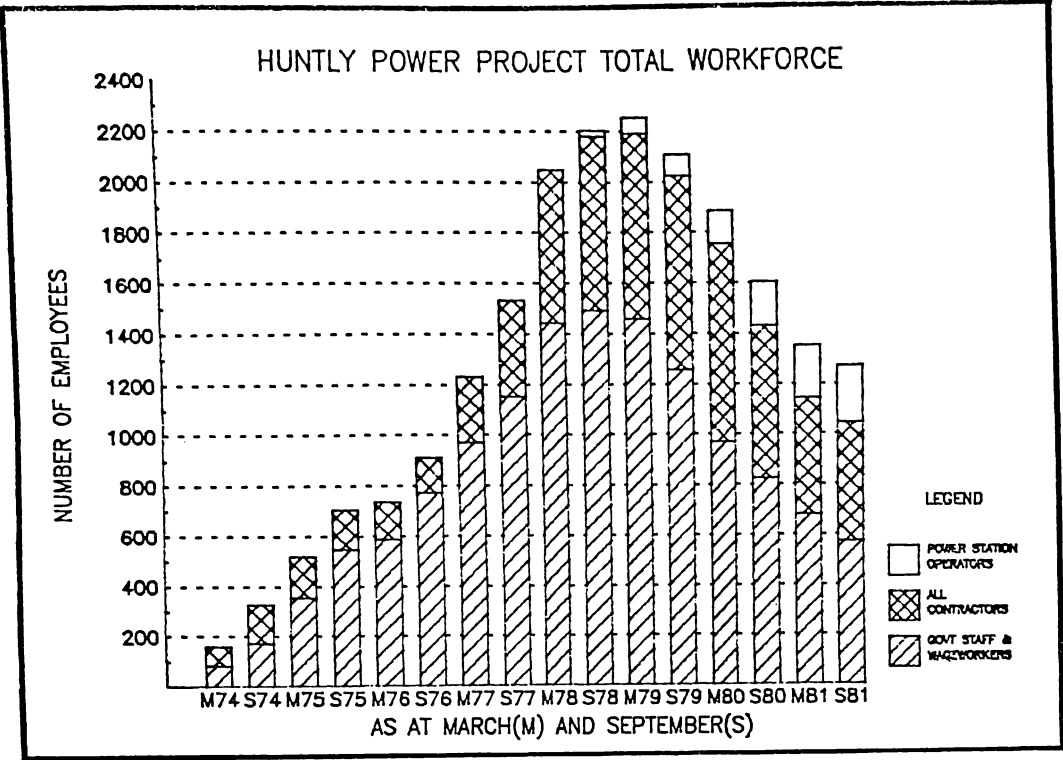


Figure 8. HPP total workforce, March 1974–September 1981 (Source: Fookes, 1981a)

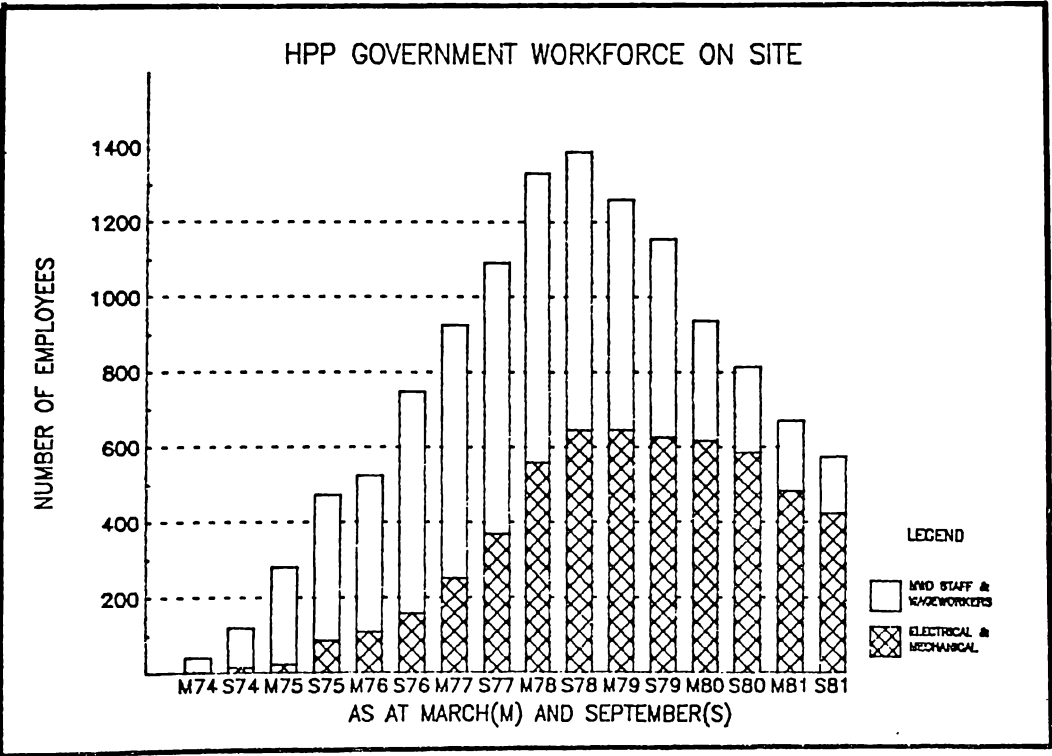


Figure 9. HPP government workforce on site, March 1974–September 1981 (Source: Fookes, 1981a)

mentioned above. On those sites were built a range of accommodation types - single family houses, a staff hostel, and a single men's camp - with single family housing as the major type. However, nearly two-thirds of project employees lived away from Huntly although a distinction has to be made between staff and wage-workers. Nearly 70 percent of HPP staff lived in Huntly or nearby whereas the comparable figure for wageworkers was less than 40 percent.(6) The reason for this difference can be found, in part, in the decision during project planning to allocate three-quarters of the staff houses to married employees, and to give priority for wage-worker housing to people in skilled areas where recruitment was proving difficult (the 'key' wage-worker idea). Other factors also influenced the employee's decision where to live, such as wife and other family employment opportunities, house and community attachments, education and family constraints generally. In addition, the project adopted a travel allowance for salary and wage earners, which in effect removed the cost disadvantage of commuting approximately one hour per day from Hamilton and other Waikato towns.

NATIONAL, REGIONAL AND LOCAL SETTINGS

It is important to place both Huntly Power Station construction, and the Huntly Monitoring Project in their national, regional and local settings. This is not only for the reason that they are the contexts within which each activity occurred, but also because events occurring in those settings affected power project-specific variables being monitored. It was also in the national, regional and local settings, that the social and economic effects to be described in Chapter 3, developed. Finally, for the HMP itself, it was those contexts that contained various forces which impinged on the research operation. Those forces will be examined in Chapter 5.

There is an interdependence between each setting, which means that events independent of, and geographically distanced from, both projects may be very important. As far as social and economic impacts are concerned, events at a national or regional level may even have as much, or even more, of an effect. An example of that situation, which will be discussed below, concerns the 1975 National Government's contraction of the national economy, which sent negative economic 'ripples' throughout the country. The matters being discussed include political, economic and social events in order to describe the scene around the date (August 1973) when the final decision was made to build Huntly Power Station.

National Situation 1971-73

For the purposes of this description, the national situation is discussed in terms of political events, as well as social and economic conditions. That is because the political change from a Labour Party to a National Party administration, brought with it certain consequences which had ramifications for the HMP, the power project, and Huntly itself.

Political Scene

In 1973 New Zealand was experiencing the first year of the Third Labour Government, with Norman Kirk as Prime Minister. Elected on a promise of change, the government moved to institute a variety of social and welfare innovations and restorations. Firmly installed in Parliament with a majority of 23 seats, the Labour government worked at a hectic pace. As Chapman describes events at the time:

Socially concerned but economically inattentive, the Prime Minister allowed (economic) recovery to turn into boom...(Chapman, 1981:368).

The operation of the Labour government was watched by a National Party which had begun to rebuild around a new leader, Robert Muldoon. The emergence of alternative political strategies was also evident in the early 1970s with the foundation of the Values Party, alongside the still fledgling Social Credit Political League. The former offered a non-materialistic conservation ethic, and Social

Credit a reformation of the country's financial base along the lines of the model initially spelt out by Major Douglas in Canada. What formerly had been a stable, two-party, political environment had become more volatile and pluralistic, reflecting a trend in the society overall as more people looked for alternative ways for achieving their objectives. A tendency to question government decisions was becoming more apparent, a development of some consequence for the planning of Huntly Power Station, as will be explained in Chapter 3.

Social Conditions

The political scene in 1973, as outlined, suggests the existence of a heady socialist government, with Labour having been in Opposition for 12 years. There was also a buoyant economy with local confidence and good export receipts to support it (see below). As Dunstall observed in his discussion on class in The Social Pattern (1940-80):

Despite a growing tension from the late 1960's between the ideal of equality and the facts of material life, (class) categories employed in the political rhetoric continued to be broad and all embracing: Norman Kirk talked of the 'little man', R.D. Muldoon of the 'ordinary bloke'. Even so politicians knew where to find their voters, and New Zealand politics remained class-based (1981:399).

Another perspective on social conditions at this time comes from Oliver (1981:458):

The 1970's heightened intensity of social concern has brought with it an abundance of prophets: agitators and officials, private citizens and public spokesmen, poets and political scientists....

Oliver writes of the 'temper of mind' informing a number of diverse movements; two he identifies - the movements for women's rights and for Maori rights. Both of these national 'vibrations' were to have implications for Huntly Power Station, and the HMP, after 1973.

Another factor which was to influence the national, regional and local setting for the power project and the HMP, was a demographic one. By 1973 New Zealand had ended its first decade of population reversal:

... a sharp fall in European fertility since 1962; marriage at an early age continued but families became smaller; the number of childless couples grew; new contraceptive methods gave a new freedom to women (heightening aspirations for self-fulfilment beyond the family); but ex-nuptial births grew by a third in the period 1962-73; population loss by migration (reversed briefly but spectacularly in the early 1970's) (Dunstall, 1981).

Economic Conditions

While the period 1971-72 had seen an improving national economy, by June 1973 there were signs that this state of affairs might not continue. At the time, authoritative sources (like the Bank of New South Wales) were noting difficulties in the boom conditions. The BNSW in its quarterly publication Review, for example, observed that: 'The New Zealand economy is now operating close to full capacity and shortages of productive capacity, labour, and materials are growing'.(7) However, New Zealand was still four months away from the shock which followed the October OPEC oil price increase.

Three months later the same bank observed:

Inflation now overshadows all other economic considerations in New Zealand. Business confidence is high, retail sales are booming, and immigration is surging ahead. The real growth of the economy, however, is well above 5% p.a. which is faster than can be sustained in the long term. Consequently, industrial capacity and labour resources are overextended, stocks are falling, imports are rising, and inflation is accelerating.

The overall impression of economic conditions prevailing during the first three-quarters of 1973 is shown by the steady upward movement of several growth indicators: retail and wholesale trade, dwelling building permits issued, new motor car registrations, the share price index, and employment.(8) However, late in 1973, at the time construction was beginning on the Huntly Power Station site, the buoyant conditions described by the Bank were undergoing a reversal. And the full impact of the October OPEC price increase had yet to be felt in the New Zealand economy.

Regional Setting

While a number of 'regions' can be defined to provide a wider setting for Huntly (see Fookes, 1973a; 1974a; 1974b), the regional study area set for the Huntly Monitoring Project has been adopted for this thesis (Figure 1, above). Based originally on the (then) Hamilton Regional Planning Authority area (plus Raglan County which declined to join the authority), this has become the core of the sphere of operations for the new Waikato United Council.

Political Scene

The region had Members of Parliament (or MPs) from both major parties after the 1972 election which had put the Labour Party into government. Western Maori maintained its support for Labour, with Koru Wetere.(9) The Raglan electorate, which included Huntly Borough, continued to be represented by a local farmer, Douglas Carter (now Sir Douglas), who had been a Cabinet Minister in the previous government. The two electorates covering the Hamilton urban population swung to Labour, with Dorothy Jellich and Anthony Rogers. The other electorate in the study region covered the rural area east of the Waikato River, and returned its National Party MP, Lance Adams-Schneider. Overall, the result saw the Government with its MPs in Hamilton and Western Maori - the latter giving Huntly's Maoris direct access to the Government - while Opposition MPs represented the general electorates on both sides of the Waikato River. The Hamilton seats were, however, marginal ones and they were to return to National at the next election.

The basis of regional political representation, as described, was to have interesting implications for both the power project and the HMP. For power project staff it meant negotiating with the Maori population knowing the MP for Western Maori was in the Government, and no longer in the Opposition. On the other hand, the decision to locate a major public work in a region which contained Labour seats would be attractive for the Government, something

which the MWD and NZ Electricity could capitalize on. Since the Maori community also supported the idea of a monitoring project, their access to a government MP was helpful in gaining Ministerial approval for the University contract. Chapters 3 and 5 will refer to those political factors, the former when discussing the monitoring project's findings, and the latter on practical issues surrounding the HMP itself.

Settlements and Population

The settlement geography of the region around 1973 has several characteristics pertinent to this study (Figure 1, above). The rapidly growing urban centre of Hamilton City, with 74,684 people in the 1971 Census, and one of the highest growth rates in the country (18.7 percent over the 1966-71 intercensal period), dominated the region. Across the region was a network of smaller towns, from Te Awamutu with nearly 7,000 people, to Otorohanga with just under 2,000. In between, scattered across the landscape, are many smaller centres providing basic goods and service for their immediate areas.(10) A general decline in rural population was evident, a trend particularly strong in Raglan County with its hill country farming.(11) The urban population trend varied among settlements. Hamilton had the most dramatic increase, but Huntly decreased over the 1966-71 period, as did Morrinsville and Te Aroha (towns just outside the study region). Otorohanga and neighbouring Te Kuiti, had only minimal increases, while Te

Awamutu and Ngaruawahia maintained steady growth as service centres for their farming hinterlands. Cambridge, along with Ngaruawahia, was increasingly assuming the role of dormitory towns for Hamilton. To some extent Huntly was also fulfilling that role, offsetting out-migration trends. In 1971 Cambridge provided approximately 369 commuters for Hamilton, while Ngaruawahia and Huntly had 722 and 196 respectively.(12) The residential expansion of Hamilton accounted for growth in the adjacent Waikato and Waipa Counties, with a Hamilton Urban Area population of 80,812 in 1971.

The network of road transport routes in the Waikato is much closer on the lowlands where farms are smaller and population densities higher than in the surrounding hill country. The type and number of retail and service outlets are also related to the population of, and number of functions in, the area served by each settlement (Fookes, 1972). The interdependence of settlements means they provided complementary services and demands; a change in one, such as the closing of a dairy factory because of tanker collection of milk and centralisation of factory operations, is known to affect other settlements. For example, the departure of factory workers and their families reduces the local market, forcing some shops to close and requiring the remaining residents to travel further to obtain the same goods and services. Likewise, any change in real or perceived accessibility and attractiveness of neighbouring settlements could be expected to induce changes in regional patterns of

interaction.

There were implications for the power project, and the HMP, in the settlement pattern, road network, and settlement inter-dependencies described above. For example, because a number of settlements and rural housing options were accessible to Huntly, that eliminated any immediate need for people to live in Huntly. Daily commuting throughout the region was an option for people intending to work at the power station site. There was a potential conflict of interest between business interests in Huntly, and those in other nearby towns (and smaller settlements), since the real estate and retail markets represented by power project workers would be appreciable. The way regional dynamics were to respond to the decision to locate a power station in Huntly, and their subsequent effect on Huntly Power Project housing and travel allowance policies, will be referred to in Chapter 3. The effects on the geographical area of actual impact to be monitored by the HMP will be mentioned again in Chapter 5.

Hamilton as the focus of the Waikato region generates most inter-urban interaction, while in turn, contributing to a larger network beyond the region focused on Auckland. Hamilton and Auckland are two major growth points in the North Island where rapid growth was expected to continue. Located almost halfway between them, along a transport and development corridor is Huntly (Fookes, 1973a; 1973b; 1974a). It is, therefore, important to consider Huntly's relationship with the Auckland Metropolitan Region, whose southern boundary (which is the same as that of the

Franklin County north of Raglan and Waikato Counties) is only 56 kilometres distant (Figure 1, above). The significance of Huntly's location on State Highway 1 is partly shown by reference to traffic volumes.(13) The 1971 Average Annual Daily Traffic (AADT), for a count station just south of Huntly, was 6,790 vehicles. By 1973 the count had increased to 9,280, while the annual growth rate averaged over the past nine years was 6.3 percent.(14) The settlement, economic, and transport geographies of the Auckland-Hamilton 'corridor', with Huntly close to its mid-point (see Fookes, 1973a; 1973b; 1974a), will be a relevant factor in the account of expected and actual impacts in Chapter 3.

Economic Conditions(15)

When considering regional economic conditions it is important to appreciate that by 1971 the region had a population of 147,450, having increased by 8.4 percent (or 11,468) since 1966. (Overall, the country's population increased by 6.9 percent.) In addition, a MWD forecast giving an annual rate of over two percent for 1971-76 - with growth mainly centered on Hamilton - provides an indication of regional expectations (Town and Country Planning Division, 1972). That forecast compares with the equivalent for Huntly of minus 1.1 percent (60 less people), and then zero increase through to 1991. The 1973 decision to build Huntly Power Station could be expected to change the basis on which those forecasts were made.

Over the decade to 1971 the regional labour force had grown to 55,425, at an annual rate of over three percent. At the 1971 Census 98.3 percent of this labour force was employed. About two-thirds of the actively engaged population worked within the manufacturing and trade and service sectors. Of the other regional industries, coal mining - an industry with relevance to the Huntly district - accounted for only 1.7 percent of regional employment, compared with agriculture and forestry at 17.4 percent.

Annual income per capita in the region stood at \$1,160 in 1971, compared with \$1,260 nationally (and Huntly at \$1,030). The trend in recent years had been for actual income to increase at a steady rate, reflecting the general inflationary condition of the national economy. Real income (allowing for inflation) had, however, increased only slightly (Figure 10).(16)

Huntly and District

During the early 1970s, the image presented by Huntly people who have lived there for many years, was of a well balanced, stable, long established small town, providing the usual service functions for the farming district (Jones and Arnold, 1972). Although that was a description that applied to several other Waikato towns of comparable size, Huntly was quite distinctive among Waikato country towns. The reason for that was its local coal mining, a commercial activity in the area since the 1870s (although most of the important mines were opened after 1918). This coal mining

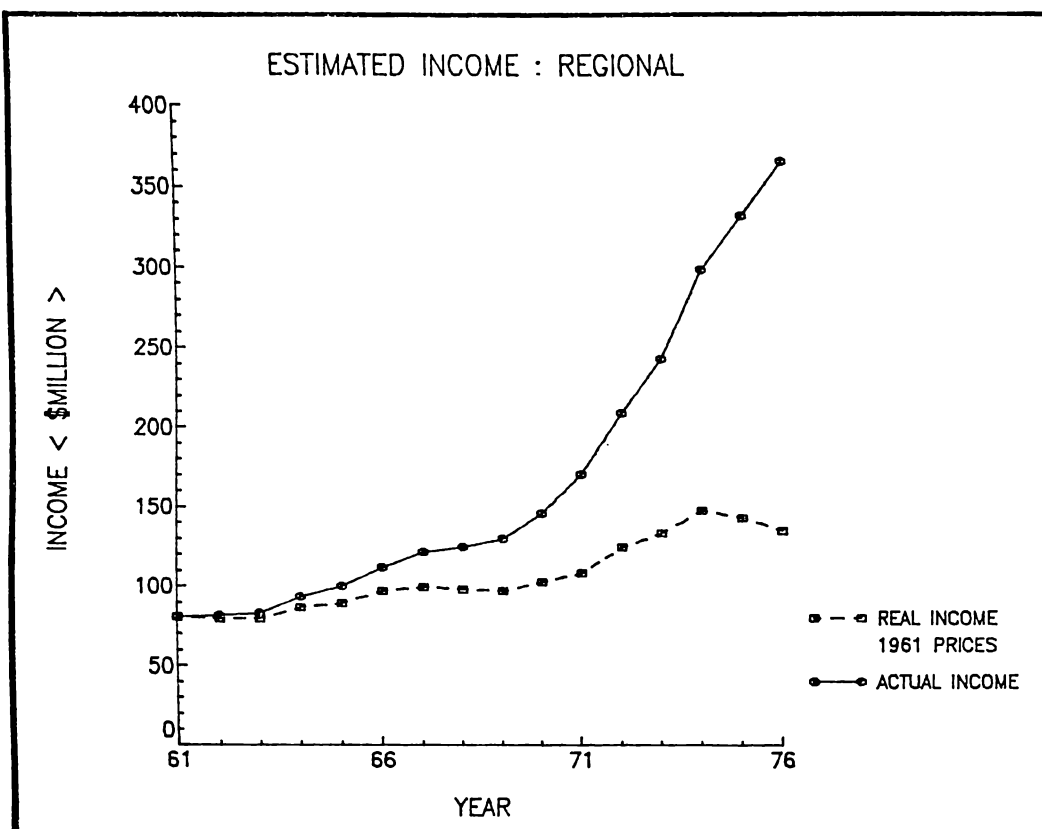


Figure 10. Regional income (est.), 1961-76 (Source: Fookes, 1981a)

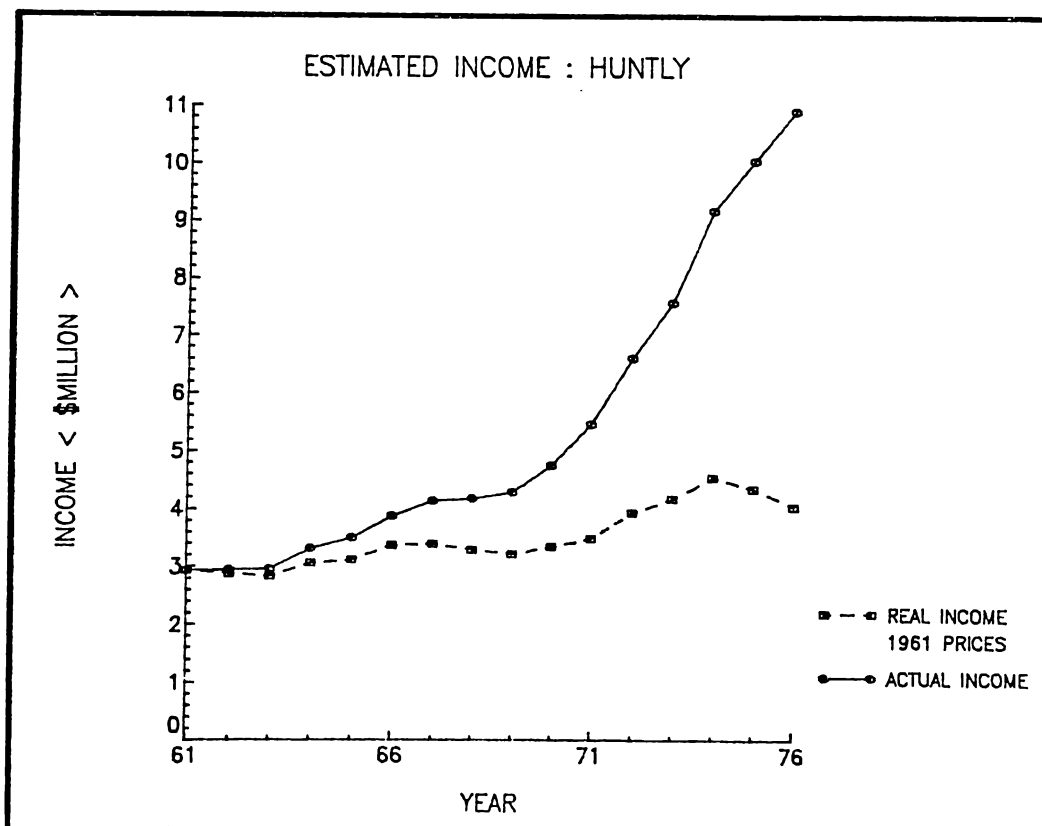


Figure 11. Huntly income (est.), 1961-76 (Source: Fookes, 1981a)

heritage is an important element in Huntly society and townscape, and stands as a factor of potential significance when considering local attitudes towards a new industrial endeavour like Huntly Power Station. The association between power station and coal mine, with a new underground mine to be built three kilometres to the west, was expected by the HMP research unit to be a positive factor in shaping attitudes. At the same time, it was appreciated that difficult labour relations in the past between government and the coal mining union, meant local memories could be fanned into open resentment. Such a situation would be likely to have negative repercussions for industrial relations on the power station construction site, but it could also put coal supplies in jeopardy; hence the coal storage areas on site and the availability of an alternative fuel - natural gas. The industrial relations history of the district, explained further below, was to affect the HMP as well. Its MWD sponsorship meant suspicion by unionists (officials and rank and file members), culminating in a refusal to agree to a survey of NZ Workers Union members as explained later in Chapter 5.

The site of Huntly is itself a relevant factor for understanding the physical and social geography of the town (Figure 7, above). The Waikato River bisects the town, requiring flood protection schemes. Huntly West, separated from the town centre to the east, is linked by a traffic bridge and a second pedestrian crossing on the railway

bridge. In 1973, Main Street, the spine of the shopping centre, doubled as State Highway No.1. That meant all road traffic travelling between Hamilton and Auckland was funnelled through the shopping centre. With 1973 average annual daily traffic (AADT) flows in excess of 9,000 vehicles (many of them heavy transport vehicles), the negative impact on the town's image is self-evident. A further divisive element was the Main Trunk railway located immediately east of the shopping centre, coming between it and the residential area of Huntly East (Figure 7).

Social Setting

The social and demographic character of Huntly prior to the power station decision has been described in a study by sociologists from the University of Waikato (Jones and Arnold, 1972:38):

Huntly could be considered a one class town with most people being lower middle class when classified in terms of education, income and occupation. Few have pursued their education beyond two years' secondary, most having left school by the age of 14 or 15 years. Incomes are not high and most fall in the range of \$40-\$70 per week.

The population was reported to be five years older than the national average, caused by large numbers of retired couples and widows, and a corresponding absence of young people. As Jones and Arnold described Huntly:

The town has, in many ways, a unique character. Its age, occupation, and class structure combined with the presence of a large proportion of British immigrants, give it a character all of its own. Now, after a long association with coal mining, the town is in the process of an

industrial decline. There is a felt need for more industry and more employment opportunities, while there is no apparent desire by the people to leave the town. An air of insecurity hangs over the town as to its economic future - in which case the establishment of more industry in the town could be beneficial, not only from the point of view of retaining existing population and developing the town, but in order to give members of the community greater peace of mind (1972:38).

It was emphasised that 'Huntly is a community based upon the family, where people and social interaction are important.' The family was reported to be 'the central and most important social institution in the town....' However, while home-based activities were reported to be major means of leisure, attending meetings or engaging in social and sporting club activities were still mentioned.

Those observations by Jones and Arnold provide something of a picture of the town immediately prior to the social changes which the power project could bring. They certainly do not provide any indications of a community containing a large, well-educated middle class group which would have the skills necessary to assess the likely consequences of the construction project on the town. Rather, their report suggests a town more likely to accept any promises that a new industry like Huntly Power Station, with its new mine, would bring positive economic benefits. As the review of the Huntly EIS in Chapter 1 indicated, that was the message conveyed; Chapter 3 will describe the consequences of those promises and the peoples' acceptance of them.

The Jones and Arnold report suffers from one major

omission, one that some would claim was apparently repeated in the government's siting of Huntly Power Station (see Figure 3, above). That was the absence of any acknowledgement of the importance of Maoris in the local population, nor of the significance of Waahi Marae to the Waikato Maori people. Jones and Arnold make no mention of any ethnic mix in Huntly's population, and yet the one missing element of Huntly's society as reflected in the above conclusions is the local indigenous people - the New Zealand Maori. In fact there is no mention of any ethnic mix. But the 1971 Census of Population and Dwellings recorded 952 Maoris in the Huntly population, or 18 percent of the total. (Other minority ethnic groups accounted for a further 1.8 percent.) The comparatively high proportion of Maoris in Huntly (for New Zealand overall, the figure in 1971 was 8 percent) reflects their longstanding occupation of the district. The present day pattern of Maori settlements, in the form of maraes, has both a practical and spiritual significance which justifies further discussion in this paper. Chapter 1 has already indicated the role which the Huntly Maori community played in stimulating the idea to monitor Huntly Power Station, so it is timely to explain briefly the background to their concerns.

Huntly Maori Community(17)

There are three maraes of direct relevance to this background account, Waahi, Te Kauri and Rakaumanga (Figure

7, above). Waahi Marae and its associated houses, and the related settlements of Te Kauri and Rakaumanga, are immediately adjacent to the power station site, but outside the boundary of Huntly Borough. Waahi Marae was in a flood prone area, and was prevented from being developed further for several years, until its people agreed to a Waikato Valley Authority flood control scheme. (The scheme was completed in 1981.) It is important to understand the place of flood protection proposals because they were to feature in the arguments over Huntly Power Station. The resentment which prolonged negotiations over different protection schemes had brought would also be compounded once the adjacent power station site was revealed. Various protection schemes had been suggested over some 20 years prior to 1973. Where stop-banks had been involved there had been pressure on the Maori community because the banks meant some relocation of buildings (and people). It had also raised the fear of physical and psychological separation of the marae from the Waikato River, regarded by the Maori community as both a key economic resource for traditional food, as well as the physical embodiment of tribal mana and spiritual prestige.

To power station planners, the appearance of Waahi Marae belied its importance to the Huntly Maori community and the Waikato tribe in particular. To non-Maoris Waahi was just another pa, with a meeting house, and old hall, some tumble-down house and a bit of grass. The fact that it was the birth place of Dame Te Atairangikaahu, the Maori Queen, and also of particular significance to the Waikato

Maori people and the (Maori) King Movement, was not widely known. As already mentioned in Chapter 1, that was one of the factors to emerge as part of local resentment against the power station siting decision (see also Chapter 3).

The importance of Dame Te Atairangikaahu's mana, and the emotional reaction at the time to suggestions of any further land requirements in the area, must be understood in terms of the history of the Waikato tribes. Large areas of land were confiscated from the Waikato and their allied tribes after the wars of 1863-64. The Waikato people suffered most heavily, losing all their best lands in the areas of what are now Ngaruawahia, Pirongia, Te Awamutu, Cambridge and Hamilton. Waahi became the central focus of the Maori King Movement after 1864 and is still the home marae of the Maori Queen. Turangawaewae at Ngaruawahia, which was the centre of the King Movement before 1864, was only re-established as a ceremonial centre in the 1920s under the guidance of Princess Te Puea Herangi.

Although monetary payment was begun some years ago to the Tainui Trust Board as a form of compensation for the confiscated lands, resentment of what is seen as forcible alienation from traditional tribal territory is still very much alive. What may seem an illogical, irrational reaction to the European, seems a very reasonable reaction to the Maori, whose traditional emotional and spiritual ties to tribal land are much stronger than the European. Although the number of Maoris residing in or close to their marae 'Waahi', in 1973 was barely 300, there was a large number of people (said to be some 2,000 people at times)

whose kin and tribal ties bring them back from the places to where they have migrated (for better job opportunities - mainly Auckland and Wellington) to participate in family and tribal rituals (such as a wedding or funeral); or simply to renew spiritual and tribal associations in a rural setting away from urban pressures.

As explained above, it was that strong emotional attachment to their ancestral marae, the peoples' spiritual link with the Waikato River, and the presence of 'their' Queen, which fuelled their objections to the decision to locate Huntly Power Station within 50 metres of Waahi, and between it and the other two associated maraes of Te Kauri and Raukamanga.

An understanding of the Huntly context for the power station clearly requires some familiarity with the history of Maori residence in the district. Similarly, it is essential to appreciate something of the social implications of coal mining, which has been occurring in the district since 1876 (Stokes 1978b; 1978c; 1978d).

Huntly Coal Miners and Coal Mining in the District

Writing about coal miners in the Huntly district, Stokes explains that these men were more than just an occupational group:

In a century of coal mining in the Huntly area, several generations of coal miners and their families have formed an identifiable, cohesive community which has played an important and distinctive role in the social history of the Huntly area (1978c:Introduction).

Discussing this further she points to 'a shared history', which comes from 'a strong family tradition of coal mining passed on from generation to generation.' But the notion of a shared history is also based on trade union history, mentioned above. As Stokes (1978c:1) explains:

It is inevitable that union activities, particularly the major disputes, loom large in the social history of a community of coal miners. Even though the job of coal mining is changing in the 1970s with increased mechanisation in the mines (both underground and opencast) nevertheless, there is still a legacy of the traditions of the older miners among the coal miners of the Huntly area which can be expected to persist for some years yet.

It was explained in the HMP research proposal (Appendix 1) that the coal industry has been a traditional one in the Huntly area, with both underground and opencast operations. In the mid 1970s the Huntly coal field still produced one-third of New Zealand's coal, most importantly 45 percent of all sub-bituminous coal. The main coal measures, between Huntly and Rotowaro, also contain carbonaceous siltstones, known locally as fireclays, the basis for the Huntly brick industry (Figure 2, above).

Substitution of electricity and natural gas for coal, the increasing mechanization of underground mines, and increasing emphasis on open-cast mining, were factors in recent years which had affected the social and economic conditions in Huntly and the smaller mining settlements to the west. It has been claimed that there have been some important consequences which can be attributed to those changes. For instance, several underground mines closed so

that employment in mining decreased (although total and per capita productivity increased). On the Huntly-Rotowaro coalfields the labour force involved in underground mining decreased from 1,297 in 1950 to 625 in 1970 (School of Social Science, 1975:vii). The reduction in coal mining employment provides an explanation for the decline in Huntly's population mentioned above. In addition, within the surrounding district small settlements based on coal mining declined. According to the figures in the HMP research proposal, the combined populations for the four main mining settlements in the district declined by 629 inhabitants (or -64%) between 1956 and 1971 (School of Social Science, 1975:vii). It was also explained that alternative roles were emerging for some places. Pukemiro Collieries and Pukemiro Junction, with 110 and 201 inhabitants respectively in 1956, were not listed as settlements in the 1971 Census and had mostly disappeared into the scrub and fern. In the four main settlements referred to above, many of the old houses had been purchased cheaply by people from outside the district - retired couples, occasionally Aucklanders wanting holiday homes in the country, some families prepared to commute longer distances in return for cheaper houses and low rates. These communities had survived, but their character changed. However, the housing stock was under-utilised, often because vacant houses were in poor condition. Finally, it was noted in the HMP research proposal that the mining labour force also tends to be older. It gave a 1974 New Zealand mining workforce statistic, namely that 46

percent of coal miners were in the 40-60 age range. It was stated that 'this would seem to apply as well to the Huntly area' (School of Social Sciences, 1975:viii).

By 1973 prospects for the coal industry had changed (Mines Department, 1974). Higher prices for petroleum, and a need to reduce electricity consumption, increased the demand for coal, particularly for domestic use. A change in government policy to revitalise the industry meant the abandonment of the earlier policy of reducing the labour force. In the Huntly area, the New Zealand Steel Company plant at Glenbrook had become a major consumer since 1969, and the Meremere power station remained a regular, though variable consumer. Looking ahead, the Huntly power station would also become a major consumer. In addition, the Mines Department was proposing to develop mines to the west of the Waikato River for the power station and to the east of the river for commercial markets, meaning an input of 200 additional miners into the coal mining community. Most of them were expected to live in Huntly, although it was thought that some could possibly commute from Rotowaro when the mines there were worked out in five or six years (i.e. 1980).(18)

Population and Economy

The negative expectation for an increase in Huntly's population has been mentioned above, although the cautious optimism reflected in the Mines Department (1974) report was not included in the MWD forecast. It should be noted

that it was the 1966-71 period which registered the decline, when there was a 1.7 percent decrease following 15 years of increased population. Most other comparable Waikato towns continued growing through the 1966-71 period with an average rate of 4.3 percent. By 1973 Huntly's population appeared to have stabilised at about 5,300. During the 1951-66 period, the town grew by 1,586 to reach the 1966 peak of 5,401 (School of Social Science, 1975:i).

Business activity in Huntly in the late 1960's reflected the population picture; retail turnover increased by only half the national figure of 81 percent; building activity declined 31 percent between 1961 and 1969 (the national increase was 47 percent). Armishaw (1972) writing on the Huntly economy between 1966 and 1968 presented some sorry comparative figures:

TABLE 2. Economic Indicators: Huntly and
North Island, 1966-1968

	Huntly	North Island
Employment	-6.3%	0.0%
Wages	-4.1%	+6.6%
Production	-8.5%	+3.6%

Source: Armishaw (1972)

The employment structure for Huntly Borough in 1973, relative to New Zealand, provides a further negative

picture of the town.(19) The service role of the town is shown by the 68 percent employed in retailing, transport, finance, real estate, administration and personal services. This can be compared with 53 percent for New Zealand overall in those combined categories.

Another perspective on the town (and its rural ties) can be gained from Vautier (1977:11-12) who commented on Huntly's performance during the national recession of 1966-68:

...the town is very dependent on its agricultural hinterland and, like any town servicing the farming community, it is susceptible to fluctuations in farmers' incomes. The 1967/68 Census of Distribution suggested that, in comparison with other boroughs, Huntly was particularly vulnerable to the falling level of farming income at that time. The 1972/73 Census of Distribution, conducted at a time when there was a very substantial rise in farming income throughout the country, showed that Huntly noticeably improved its position relative to other Boroughs. This could suggest that, traditionally, Huntly has tended to fare worse in economic downturns, (i.e. when farmers' incomes are adversely affected as well) and better in economic upturns, than other similar towns (emphasis mine).(20)

Political Situation

The subject of politics has been discussed under the National and Regional headings, in particular the situation where the local MP was in the Opposition (National Party). What is also interesting is how, within the traditionally National electorate of Raglan, the town vote had been heavily in support of Labour. Looking at the polling booth figures for Huntly since 1969, the Labour vote has averaged

67.4 percent, but the contribution of the town vote to the electorate overall is less than 20 percent. That Labour party support is easily offset by the farmer vote which has traditionally supported the National party (C. van der Beek, 1980).

Another political factor of interest is the percentage of the electorate which votes. In 1972 there was a nine percent drop in those who voted in Huntly compared with the 1969 election, even though the population eligible to vote increased (mainly through the change to 20 years of age). An analysis of voting patterns also suggests that in the 1972 election Huntly was sensitive to the New Zealand tendency, in those years, to swing to Labour (C. van der Beek, 1980).

THE CHANGING SCENE: 1973-81

The previous section described the national, regional, and local settings for the Huntly Power Station and the HMP between 1971-73. The purpose of this section, which considers the eight years which followed, is to describe the nature of political, social and economic changes which were to have an influence on both projects. In the same way as the previous section was related to later chapters (particularly 3 and 5), this section will also provide further background for the chapters to follow.

The Nation

Faced with expressing the complex events of eight years in a few words, the task appeared a daunting one. Why was this? Because on the surface it looked straightforward enough. In fact, the period 1973-81 has turned out to be an extremely volatile period of New Zealand's social, economic and political history. This is illustrated by one commentator who chose to view the 1970's as if historians were viewing the decade one hundred years on (Appendix 8). Easton (1981) constructs his 'review' around two crucial ideas. The first is that 'the economic performance of the 1970s compares best with that of the 1920s and the 1930s rather than the prosperous three decades in between', and second, that 'too many institutions failed to respond to a changing world and a changed New Zealand society.'

The complete 'review' is included in this thesis (Appendix 8), in order to to present, for the country overall, a picture of the period being considered. In the economic area the elements are there: signs of continuing inflation ("consumer prices trebled..."); rising unemployment ("...unemployment to a post-war record."); and an oblique reference to the OPEC oil price 'jolts' (beginning in October 1973) and continuing through the period. The reference to institutions was based on the three main groups: economic, social and political. But it is the latter two which seem to receive most comment, stemming as they do from the underlying economic conditions

which Easton mentions. Take for instance: the urbanisation of the population - and particularly the Maoris; the continued farmer influence in the National Government Cabinet re-elected in November 1975; the criticisms of local government ("...a motley of local councils, with insufficient power, overlapping functions and illogical boundaries."); the suggestion of a more interesting society ("New Zealand was moving...into a variety of lifestyles. The rugby, racing, and beer syndrome no longer dominates."); changes in the way men and women defined their respective roles ("The environment preservation lobby and the women's liberation movement were leading to a more balanced view of society."); and last but not least, his mention of progress in social policy.

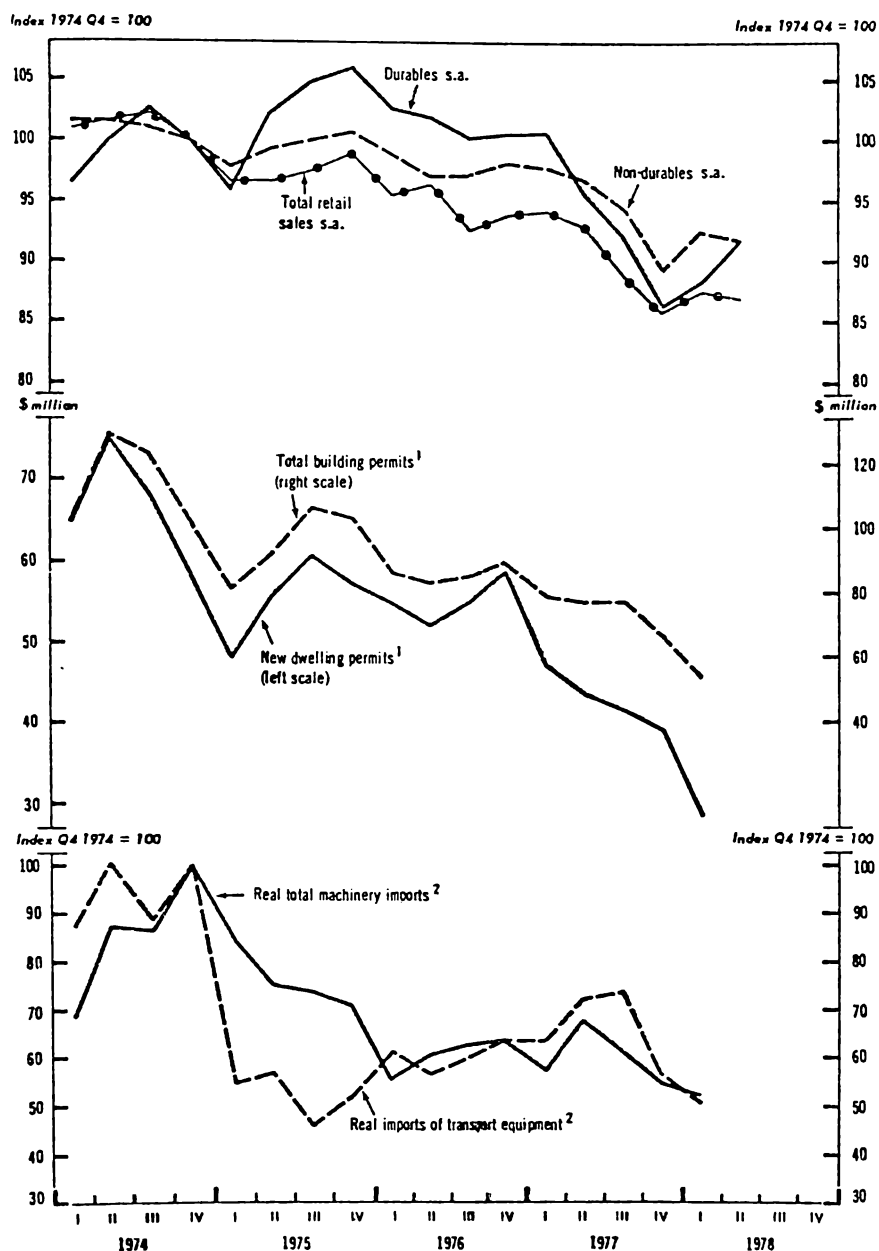
A visual impression of the economic trends basic to Easton's analysis is provided by an OECD graph for the 1974-78 period (Figure 12). The negative trend overall is readily apparent, showing quite clearly New Zealand's worsening recession through the period when Huntly Power Station was being built, and the HMP was busy monitoring social and economic change in Huntly and its region. It is clear why, mid-way through the study, the HMP research unit was concluding that national-level influences were having as much, if not more, of an effect on Huntly and its region, than the power project. If anything, the power project's expenditure - particularly the salary and wages component - was offsetting some of the negative effects of the national recession (Fookes, 1978a).

EXTRACTED FROM: OECD Economic Surveys-New Zealand, Jan.1979,p.7

New Zealand

7

Diagram 1 Recent economic indicators



1 Value of permits deflated by Building Industry Advisory Council Cost Index.

2 Deflated by import price index.

Sources: Monthly Abstract of Statistics. New Zealand Treasury.

Figure 12. Economic indicators: New Zealand, 1974-78 (Source: Fookes, 1981a)

The Region(21)

Given Easton's gloomy description of the state of the nation, it is logical to expect a mixed rural-urban region like the Waikato (where inflation hits farmers, manufacturers, and wage earners alike, while unemployment looms particularly large in the life of the urban population) to reflect national trends. Consequently we find, by way of illustration, an annual population increase averaging 1.5 percent instead of the projected rate of over two percent (this meant less than 11,500 additional people, instead of nearly 34,000). Furthermore, the region's actual labour force increased by four percent per annum between 1971 and 1976(22), while regional unemployment, as at March, rose from a 1973 level of 103 to 2951 by 1981.

The state of regional incomes was also unsatisfactory. While per capita incomes appeared to increase, this was the effect of inflation, and incomes were not increasing in real terms (in 1974 and 1975 per capita incomes had actually declined)(see Figure 10, above). Farm incomes were very unstable through the period (with highs and lows registered) and overall during the five year period between 1973-78 income in real terms declined. Finally, retail trade, measured as an average increased turnover per store between 1973/74 and 1977/78 rose by 66.5 percent, an annual rate of around 16-17 percent. That was barely maintaining sales at the inflation rate.

Employment in the building and construction industry was one economic indicator which went against the national trend, due partly to the Huntly Power Project and related coal mining developments. By 1976 the region was registering an eightfold increase in construction workers (1976 Population Census), whereas manufacturing employment increased by only 56 percent over the five years. Similarly, we find the Waikato coal industry revitalised; a result of the OPEC oil price increases bringing conversions by industry to coal, and the decision to build a dual fuel (coal/gas) thermal power station in the region. Even though some mines had closed, new mines had managed to hold the total number at eleven. The number employed had also held at approximately the 1971 level (665 workers), even though the number of open-cast operations had increased their share of the workforce from 50 to 66 percent.

Huntly and District

Viewing the national (and related regional) economic trends from the stand-point of Huntly with major construction and coal mine projects in the district, it is interesting to see how the national situation was impinging on the local economy (see Figure 11, above). It is useful to recall Vautier's (1977:12) observation that '...Huntly has tended to fare worse in economic downturns (i.e. when farmers' incomes are adversely affected as well) and better in economic upturns, than other similar towns'.

To begin with, the borough population by March 1981 had reached 6,452 representing an average annual growth rate over the decade of 2.2 percent (compared with the national figure of 0.2 percent). It is, however, considerably less than the 10-12,000 estimate made by Jasmad Planners (1975) and their revised (1976) figure of 7,000 to 8,000 (Figures 13 and 14). On the subject of employment, labour force changes for the period 1971-76 included almost 150 more actively engaged, but they also showed a 42 percent increase in the number unemployed (compared with a 6 percent increase in the total labour force). Unemployment generally paralleled national trends (Drury, 1980). Huntly unemployment peaked at April 1981 with 315 registered with the Department of Labour.

Average per capita income stood at \$1,970 in 1976, compared with a national figure of \$2,390, and a regional figure of \$2,480. The number of businesses identified in the February 1980 Labour Department survey had increased by some 42 firms, compared with April 1971 - with manufacturing increasing most. (The construction industry was limited to a relatively small number of firms but with a large total workforce).

Retailing businesses increased slightly by February 1981 but there had not been any large changes in the structure and amount of retailing. No large retail operations were attracted into the town. Between 1973 and 1978 retail turnover (sales) increased by 60 percent; but this was less than the national increase of 87 percent (and the consumer price increase of 91 percent).

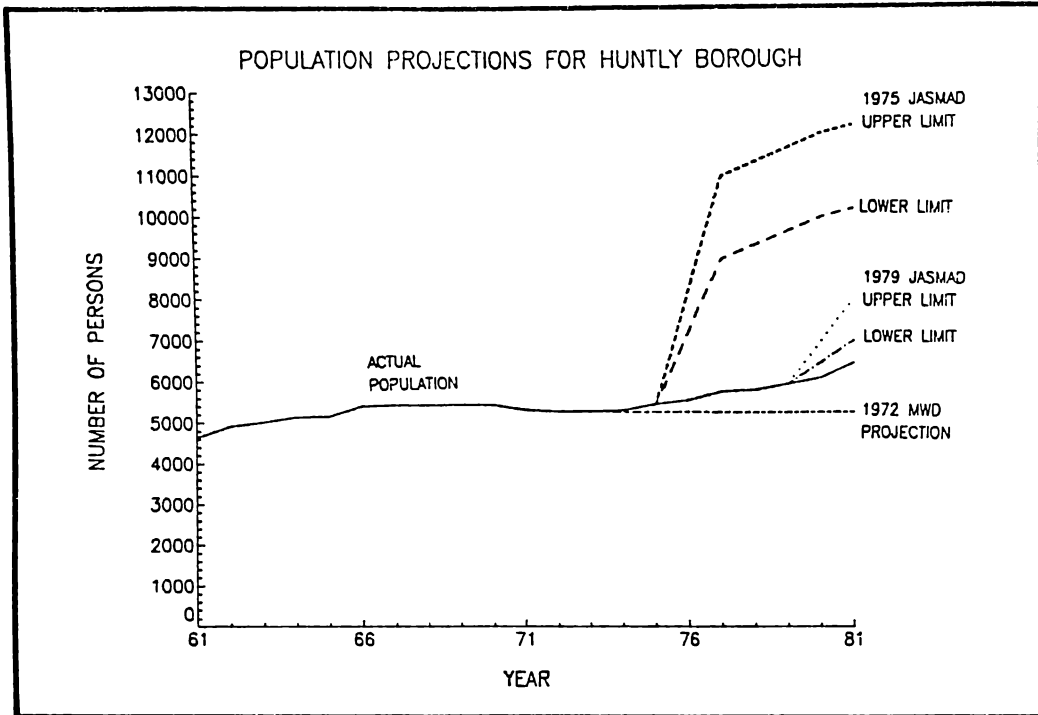


Figure 13. Huntly population projections, 1972-90
(Source: Fookes, 1981a)

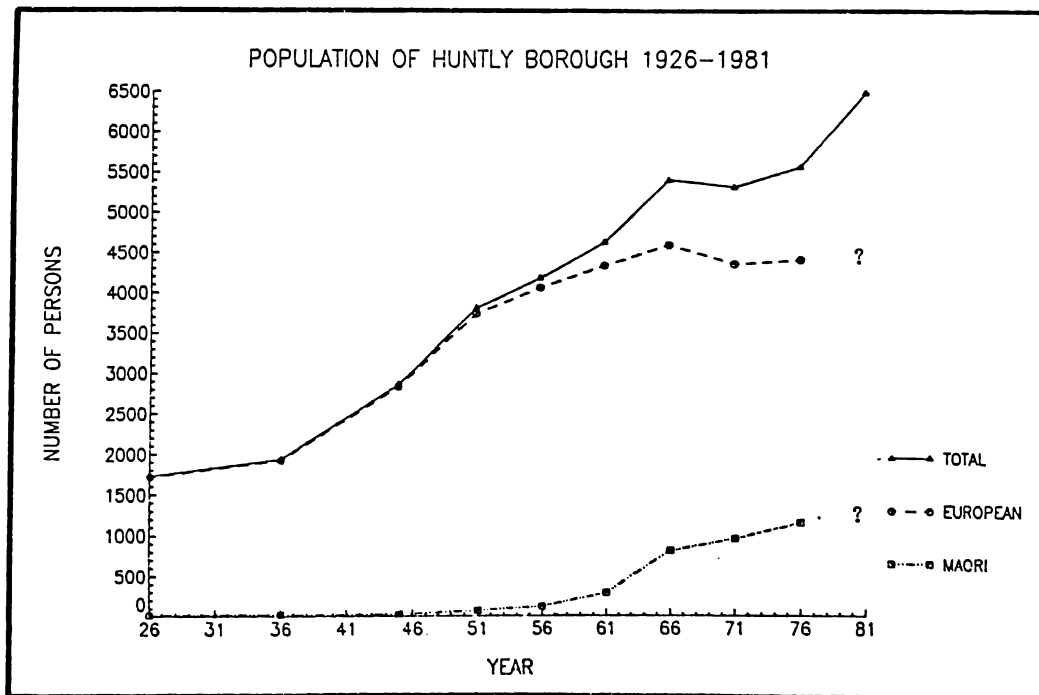


Figure 14. Huntly population, 1926-81 (Source: Fookes, 1981a)

IMPLICATIONS FOR HUNTLY IMPACT MONITORING

It has been difficult to avoid an emphasis on the economy and things economic (like unemployed labour) in this chapter, because of the persistent recession through the period 1973-81. Decision makers are influenced in this way; although we ask questions about the quality of life, current practice means policies and decisions are based on an assessment of the quantity of life. At the same time it is appropriate to maintain that emphasis, since many expectations about the power project's positive effects were economic. Take, for example, the expected boom which local retailers said they were told to expect (Paper No. 4A). From the previous information on the national, regional and local economies, it is quite apparent that the extra trade and profit which businesses expected back in 1972/73 - when the economy was booming - would not be forthcoming in a recession with high inflation. But the new business coming from the projects would help support local firms which otherwise could expect to slump badly.

On another front - supply and demand for labour - the turn-around from a national boom to a recession between 1972 and 1976 altered the possible impact situation in the region. Marshall (1978) found that firms which were complaining that the power project was unfairly competing for scarce labour had, by 1976, been happy to off-load

their now surplus labour onto the project. So what could have been a serious regional impact was defused by a change in the national economy.

Similarly, the economic boom under the Third Labour administration was putting pressure on the building industry. If it had continued through the period when the project was trying to build some 530 houses, then labour (and possibly materials) shortages would have made that a difficult target to meet, thereby placing greater pressure on the existing house market in Huntly and the region, and also on the local authorities (as people would have tried alternatives, such as caravans and trailer camps).

However, that observation anticipates the intent of Chapter 3, which follows, where five main issues identified in the Huntly research are outlined.

Chapter Three

HUNTLY MONITORING PROJECT FINDINGS IN SUMMARY

It is now appropriate to address the substance of the monitoring research having described the HMP and the power station, as well as the political, social and economic background. As mentioned above, the HMP Final Report series (Fookes, 1981a) has presented a comprehensive account of the research, its findings, and conclusions. A report in excess of 1,000 pages, it is neither necessary nor possible to repeat the detail contained within it. Consequently, Chapter 3 is only intended to summarize the main points arising from the research as reported, while identifying particular aspects which will be referred to later in Part II of this thesis.

Chapter 3 contains two main sections. The first summarizes six issues which have been selected for both their importance in the full set of events monitored, and

their role as illustrations for aspects discussed in Part II. The second section presents a number of conclusions. Reference will be made in both sections to Chapters 1 and 2, as appropriate.

SELECTED ISSUES IN OUTLINE

As explained above, in order to provide some idea of the findings of the monitoring project six main issues have been selected from the final report. They are presented under the following headings: 1) local concerns and lessons; 2) social integration and interaction; 3) education effects; 4) local authority effects; 5) local economic effects; and 6) population-related effects.

1. Local Concerns and Lessons

The background to local concerns has been briefly outlined in Chapters 1 and 2. It will be remembered that during 1973 two main groups emerged, their concerns articulated through newspaper publicity. These two groups were the Maori community and local farmers (see Paper No. 4A and 5). As mentioned in Chapters 1 and 2, with the power station sited virtually next door to the Waahi Marae there were fears that the project would affect Maori values, the community's quality of life, and be a threat to their land. The community's representatives were also upset that the project had been planned with what they considered as insufficient consultation.

All of these claims were denied by the two government departments involved with the project (MWD and NZ Electricity), apart from acknowledging the short-term construction effects of noise and extra traffic on local roads (NZ Electricity Department, 1972). However, there were other construction-related changes involving Rakaumanga Primary School, and the Maori Queen's farm. Rakaumanga School was relocated from next door to the power station, to a new site in one of the new project housing areas (Baker Block). A 50ha farm block immediately north of the construction site was leased from the Maori Queen for (temporary) construction use while the power station was being built.

Before construction began the local farmers' concerns were a mixture of matters directly related to the coming of a major project and other concerns which would have had to be resolved by central and local government in any event. Examples of the first group are transmission lines, and impact on borough streets leading to the site. The second group included shopping centre development, construction of a state highway by-pass of the town centre, and an up-graded telephone service. NZ Electricity and the MWD were also criticized by the farmers for not sufficiently involving them in the early planning stages.⁽¹⁾ Once construction began the farmers became very vocal about the deteriorating condition of some country roads. This emerged as their major issue, embroiling several government departments and local authorities, as described later in this chapter.

When compared with the apparent state of farmer and Maori agitation, the townspeople seemed eager to have the project, subject to reassurances that negative effects would be minimised and the standards set by statute would be more than adhered to (like chimney emissions under the Clean Air Act, 1972). This point of view is illustrated by a reported statement in 1973 by the then Mayor of Huntly (Mr Tom Gavin), on being told of the decision to build Huntly Power Station: 'Great News. Huntly deserves this boost'.(2)

In light of the Mayor's expressed delight, it is ironical that, when viewed with the benefit of hindsight, there were a number of consequences which provide lessons at the local level. Most of these focus on several matters with local economic implications, such as:

- (a) A need for advance agreements on cost-sharing for new residential services, otherwise the borough may have to finance these as 'short-term debts' on overdraft;
- (b) Public openspace and landscaping in new residential subdivisions should be approached with caution. The subdivision scheme may look good as a plan, but the borough will become responsible for long-term maintenance which could be an unexpected cost;
- (c) Temporary housing of all types (including caravans and trailer homes) should be approached with caution. It is important to consider what could happen to individual sites, and the residential area generally, when it is

time for the buildings to be removed. There are also implications for new borough-financed services which may have been installed, and the same can be said for schools, once construction is completed and houses become surplus to station operation requirements.

On the positive side, the infusion of new housing stock into the borough should be seen as a real 'plus', injecting new life into the local residential environment. Countering this, of course, is a prejudice in some people's minds against 'Government', 'State', or 'Company' housing, a feeling encouraged by clustering the housing in easily identified 'blocks'. Periods of extended vacancies, with houses left unoccupied and looking neglected, only confirm the prejudice.

2. Social Integration and Interaction

It is important to appreciate several things about the Huntly situation when discussing the workforce's integration with the host community, and the more general question of community cohesion. In the first instance, it is necessary to remember from Chapter 2, that only 40 percent of the workforce lived in Huntly, with the rest travelling each day from other places in the Waikato (and even as far away as Auckland).(3) However, out-of-town commuting aside, the main group living in the town consisted of married staff and key wage-workers employed by the two government departments involved in the Power Project itself (most of these MWD/ NZ Electricity people

were on transfer). Some workers on the new coal mine (Huntly West No.1) lived locally. Contractors' employees, in general, commuted. Finally, as Chapter 2 explained, single staff and wage-workers, whether in the government or contractors workforce, could live in hostels/camps, but occupancy levels in these were very low. One camp, for the coal mine contract, was never commissioned.

It will be remembered from Chapter 2, that the married employees' housing, while still grouped in recognisable subdivisions, was placed in three main locations within the borough (although one subdivision was initially in Raglan County until a boundary adjustment in 1976). Two of the housing areas were in Huntly West (the same side of town as the project site) while the third filled in a low-lying area being farmed within the built-up area of Huntly East (see Figure 7, above). That distribution of single-family housing improved the chances of project families interacting with a cross-section of Huntly residents. For instance, MWD employees could have had their friends living in another part of town, and as a consequence meet their friends' neighbours who otherwise would not have been in contact.

It is my impression, however, that the government workforce had developed a definite community spirit arising out of a tradition based on 50 years of construction projects located throughout New Zealand. There was a sense of 'community' within the group, strengthened by common work experiences, and marriage. Employees' children (and grandchildren) were also joining the MWD and NZ Electricity

workforce, consolidating that 'family' feeling. Friendship networks had emerged over the years. Families had developed ways to handle the stresses and strains which sometimes came with moving from one place to another, sometimes quite some distance away. The strategies for dealing with these moves usually involved contact with other project families, rather than with 'real strangers'. The 'tradition' described, and the methods for dealing with frequent moves, influenced the degree to which HPP residents socially interacted, and integrated, with the Huntly people. Friendships were, therefore, more likely to be among project families than beyond that group.

However, the location of project housing in relation to schools also means that project families could potentially associate with people in particular parts of town through their children's friendships. Project housing areas were within the catchment of one of four State Primary Schools. There was also a Catholic primary school (St. Anthony's), and Huntly College (the State secondary school).

Mention was made in Chapter 2 of the ethnic composition of the Huntly population. When the geographical distribution of each race is studied, it is found that they are not distributed evenly through the town. While 20 percent of Huntly's population was Maori, in Huntly West it was 36 percent (1976 Census).(4) The figure for the project's Baker Block was 18 percent. Across the river in Huntly East the proportion Maori was only 10 percent, while in the area containing the project's

Kimihia Block it was 15 percent.

The ethnic composition of Huntly West meant that the two project housing areas in that part of Huntly, with project families mainly of European descent, were likely to have Maori 'neighbours'. Depending on individual attitudes, that could influence social interaction and friendship-making.(5)

Another view of the race situation is to recognize that the project has halted a decline in the number of non-Maoris in Huntly West. The 1976 Population Census revealed that without the additional 92 project people living in the new Baker Block, there would have been 151 fewer non-Maoris at that time, when compared with the 1971 population (an 11 percent decrease).(6)

Another factor influencing social interaction between the wives of project employees and Huntly residents, was that for several years a number of project households seemed to prefer shopping in Hamilton or Auckland for other than essential items. The effect of that decision was to reduce opportunities for contact with Huntly retailers and other residents generally. Some local people even resented this reluctance to shop locally.(7)

When all the above aspects are collated, it is probable that project families would socialise within the power project group. In that way they would be building on previous common experiences and work-place contact. That certainly happened at Huntly, but at the same time the churches, sports clubs and other types of community organisations (service clubs, and groups for arts/crafts

and cultural activities) reported project families contributing positively to their organisations (Meade Rose, 1981). However, from what we have been able to discover, in an informal way, these 'extra-curricular' associations do not always carry over to continuing social contact outside the particular organisation, although people act in a cordial way in casual contact.

As far as local behaviour towards newcomers is concerned, nothing has come to our attention over the last six years which would suggest that project people had been treated badly. Obviously we could expect some individuals not to get along, and there were cases of this occurring. At the same time, it has been mentioned (in passing) that the local people had not gone out of their way to develop friendships, and this could possibly have caused some individuals to feel resentment - and I have already noted some resentment over not shopping locally. The important point to make, however, is that whatever individual difficulties occurred, they did not build up into an obvious issue. It is fair to observe, then, that the newcomers seemed to mix when it suited them, but maintained their previous social connections as much as possible; and the same can be said of the 'host' community.

Of course, all of the observations above refer to the construction project, where the people involved see themselves as 'being temporary'. The permanent operators, and their families, face (potentially) a longer stay in the town, and can be expected to view 'the locals' differently. Similarly, attitudes in the town towards the power station

operators will improve, once people appreciate there is a difference between 'the Power Project' and 'the Power Station'.

As explained above, the Huntly experience itself showed no signs of direct clashes between townspeople and newcomers. It did not provide, therefore, any obvious signs of a reduction in community cohesion. However, friction between local residents followed the initial expression of the Maori community's fears about the power station site. This did lead to some local (non-Maori) resentment.

The potential for stress between members of individual families, especially husbands and wives, and also within the families of newcomers as they try to adapt to the place and job, means that attention also should be paid to those aspects of individual and community stress. Since the HMP did not pursue any in-depth studies of the stress issue, the Huntly case does not help to clearly articulate an answer to either of the aspects noted above. However, the literature on projects overseas provides an indication of the nature of the problem. For example, Krawetz (1981a) draws on her knowledge of case studies in North America to focus on two kinds of 'stress signals'. These are conflicts (both group and individual), and stress experienced by individuals dealing with a number of things in their lives which are changing.

Taking the problem of conflicts first, much of the North America literature discusses conflicts between newcomers and oldtimers. That conflict occurs because of

differences in values and lifestyles, which results in a 'we versus they' type of conflict. That type of stress did not appear to be a major issue in the Huntly case, as Krawetz explains:

One -- the rate of population growth was slower than expected, so such conflicts were less apparent. (They are more readily observed in situations where there are large influxes of newcomers within a short time period, making the newcomers more "visible".)

Two -- this is a sociological topic, and there were no sociologists as such on the study team. The methods used by the research unit were not necessarily the most appropriate ones to study this kind of problem. By this I am not implying the Unit's methods (which had a heavy statistical emphasis) were improper, but rather that they were more suited to researching some kinds of topics than others. (The Unit recognised this problem, and managed to budget for a part-time social anthropologist in 1980 to look at some topics: see Paper No. 9 in the Final Report series. Some suggestions directed towards this short-coming are also set-out by Mr Fookes in paper No. 13.) (Fookes, 1981b:14-15)

The second kind of 'stress signal' Krawetz dealt with concerned individual people having to adjust to change. As she explained:

On an individual level, the more changes in your life (and in a short period of time) the more stressful this is likely to be - regardless of the changes themselves. This means that a person who gets happily married, moves to a new town and starts a new, higher paying job - all say within a month - could be under as much stress as a person who is the unwilling party in a divorce, changes residence and gets demoted at work - all within a month. It is the adjustment to so many changes in a relatively short time that is stressful; so stressful in fact, that it is likely to result in serious illness within two years. This situation has real implications for local medical and social services (Fookes, 1981b:16).

The application of these conclusions to Huntly, as a

town hosting a project, has to be qualified in light of the slower than expected growth. Nevertheless, changes which in turn affect individuals have occurred. As Krawetz observes:

It is the number and kind of such changes experienced by people that accounts for this type of 'stress signal'. Such towns need to look to the informal and formal services in the community to help people 'at risk'; to ensure that the relevant social services are there to listen for the 'signals' (Fookes, 1981b: 16).

Another kind of conflict did show up at Huntly. Krawetz noted a 'gentle tension' between Maori and European people in the town. As she expressed it:

Quite frankly, both groups have different values and lifestyles and tend not to mix more than is necessary; the Maori people are also more widely represented in Huntly West than in the town overall. There does not appear to be a great deal of hostility between the two groups, but rather a tacitly acknowledged difference - that's why I used the term 'gentle tension'. This tension remains beneath the surface of community life. However, when the project was announced, the tension rose to the surface, as I will explain. Both groups were not against the power station being near Huntly, but because a final site could affect Maori land, the Maoris became involved in a number of issues which directly affected them (such as land acquisition, construction nuisances). The close proximity of Waahi Marae (home of Dame Te Atairangikaahu, the Maori Queen) introduced questions which had nothing to do with European values and lifestyle. As the Maori community articulated their concerns it also became necessary for them to respond to other townspeople who interpreted their actions as being anti-power station; they had to explain they were anti-site not anti-project. To me, such 'we versus they' concern would not have been expressed if this 'gentle tension' wasn't already there. This suggests that a project introduces social change which can disrupt existing balances between community groups - conflicts between longtime residents' groups can erupt for all to see. The basis for such conflict usually pre-dates the project (it is part of the community's history and life), and the project (or aspects of it) becomes a vehicle through

which these conflicts are expressed (see Paper No. 4A)(Fookes, 1981b:15-16)

Involvement with local organisations has already been mentioned, but there are two further points on the subject of 'change' which should be noted. The first is that the transient nature of project families meant clubs had to learn to deal with a membership which changed more frequently than they were used to. That was unsettling for some, familiar as they were with a stable population. The second point is a positive one: some clubs experienced a boost in the number of financial members. That improved the clubs' ability to raise funds, or pay-off previous expansion work. As the permanent operators (Huntly Power Station) joined clubs from 1980, they were expected to offset any loss due to construction workers leaving (Meade Rose, 1981).

The general topic of stress and social adjustment introduces the subject of crime, which is itself a difficult topic to analyse formally. That is to say, it is not a straight-forward case of analysing official statistics because so many things influence the data, such as local population characteristics, qualities of police operations, data collection and presentation (L.L.M. van der Beek, 1980). Variations in any, or all of the influences could explain changes in crime before we even try to assess the contribution of a major construction project like the Huntly Power Station. Complicating the picture even further is the regional distribution of

project workers and their families. To take a hypothetical case, to what extent would any increases in crime in Ngaruawahia, be explained by new project workers living there? To begin with, an answer to that question requires both police and court data, including the name of employer, before any definite connection may be suggested between the perpetrator and the power project. The difficulties in data collection generally are addressed in the second section of this chapter, and fully in Final Report Paper No.12. However, in the context of the above question, it is salutary to note that court data of the type required were at least three years old.

While bearing my cautionary words in mind, the research unit collected and analysed police data.(8) When viewed in its regional setting, Huntly's statistics did not show any changes which would suggest a particular local influence, such as a major construction workforce. For example, the average annual number of total offences reported (one category of police statistics analysed for the period 1971-80) places Huntly fifth in a list of seven local centres. Huntly's annual increase was 15 percent, compared with Ngaruawahia at 28 percent (Figure 15). Taking population size into account provides another comparison (see Figure 16).

With the exception of 1976, a statistic which even Police Headquarters cannot explain, Huntly's trend is similar to the one above, and its ranking by 1980 for offences reported per 100 population had changed from second to third place.

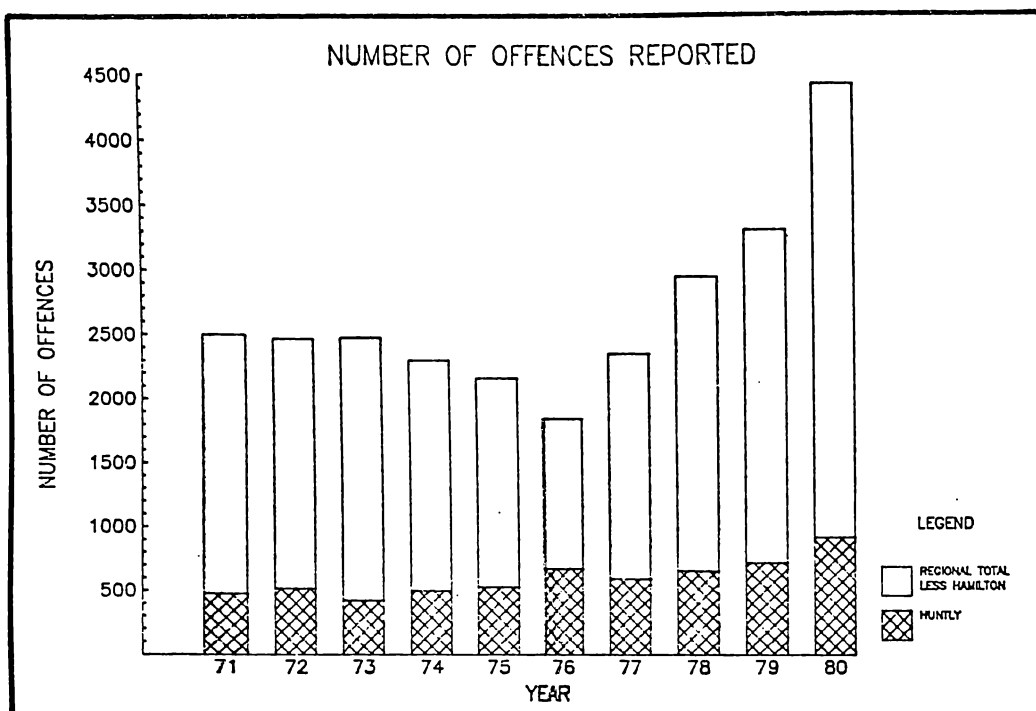


Figure 15. Offences reported to police: Huntly and region, 1971-80 (Source: Fookes, 1981a)

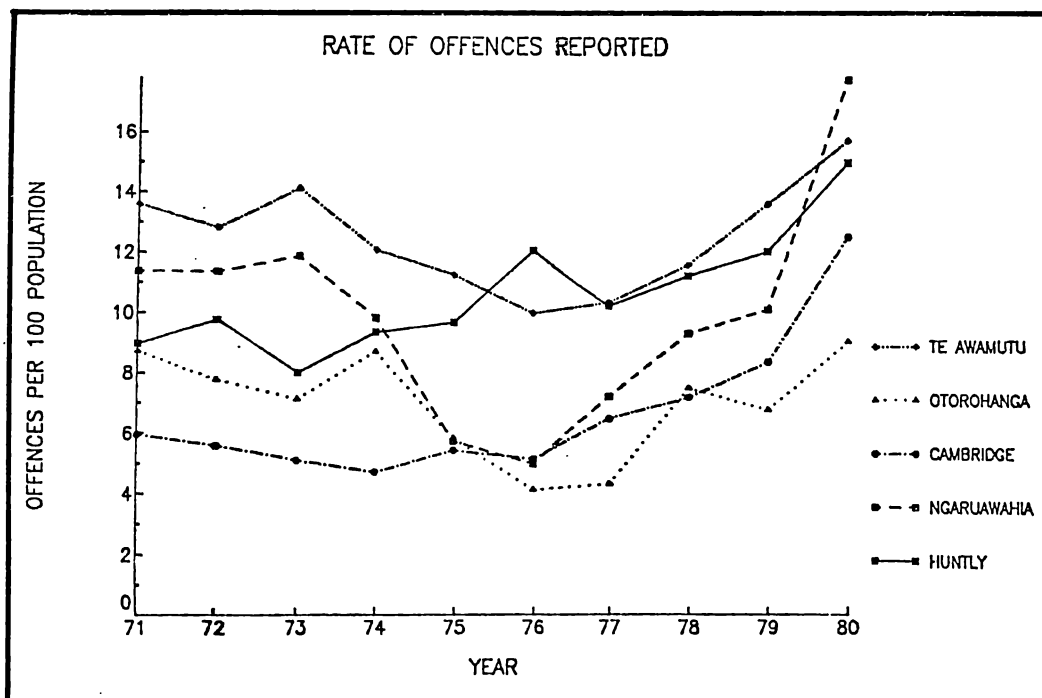


Figure 16. Rate of offences reported to police: selected towns, 1971-80 (Source: Fookes, 1981a)

If the age of offenders is analysed there have been changes over the 10 year period, with the youth and juvenile proportions increasing (Figure 17). After 1978 the 'youth' age category was increased by one year, from age 19 to 20. We are unable to say to what extent, if any, the change in juvenile and youth offending is related to the power project. However, the local expectations were only for increases in the adult offending following an expected influx of construction workers, with many living in the single men's camps mentioned in Chapter 2. The adult statistics reviewed above, suggest that was an expected outcome which was not realized.

3. Education

It was expected, of course, that the Huntly schools would experience increases in their rolls. The trend for Primary Schools since 1971 (project influences show from the 1974 year), can be compared with the average for the study region (Figure 18).

In 1971 three of the five schools were below this average but after 1977 two of them had climbed above it. It should be noted that the regional average had remained virtually static through the period. In the group of three schools noted above, Kimihia and Rakaumanga have project children attending from the Kimihia and Baker Block housing areas respectively. St. Anthony's, the third school in this group, is the only non-State school in the district and run

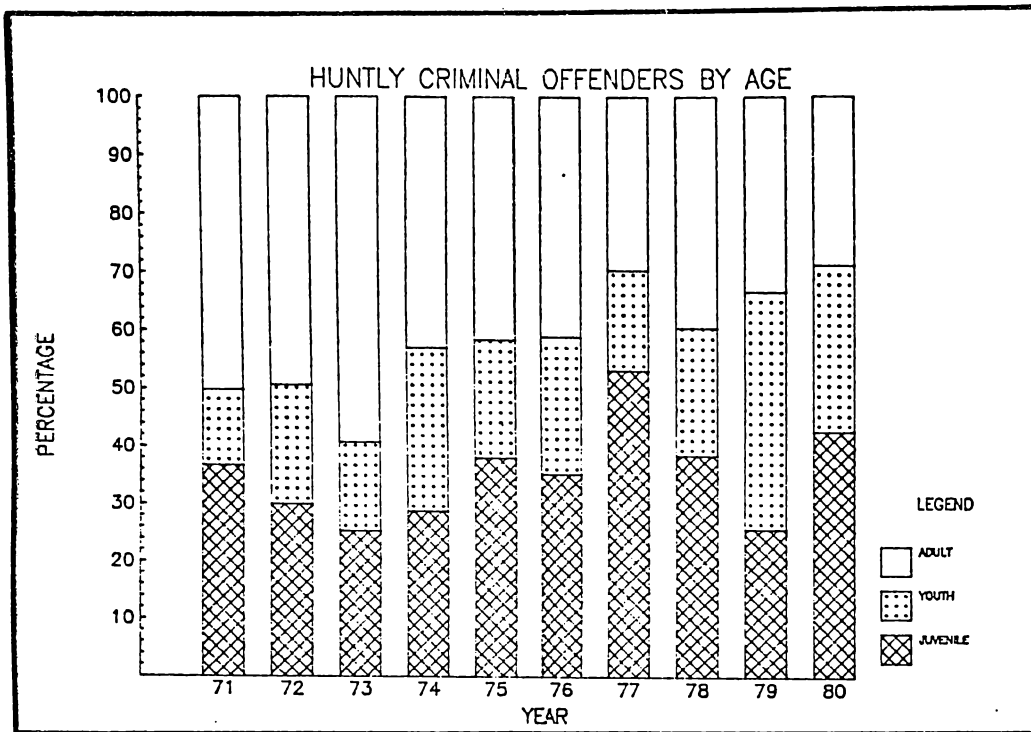


Figure 17. Huntly offenders by age, 1971-80 (Source: Fookes, 1981a)

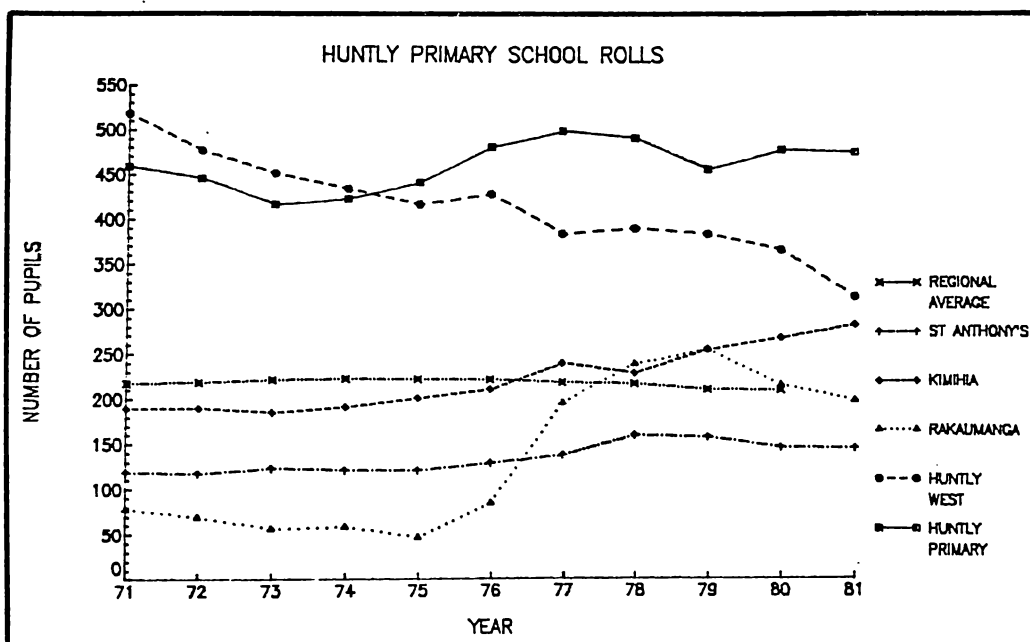


Figure 18. Enrolments: Huntly primary schools, 1971-80 (Source: Fookes, 1981a)

by the Catholic Church.(9) It too has had an increase in pupil numbers, peaking in 1978/79. The dramatic increase occurred, however, at the Rakaumanga school which was moved in 1975 from its location immediately north of the power station site, to a new site in the project's Baker Block.(10)

The two schools above the regional average, Huntly Primary and Huntly West, show a diverging trend after 1973 (when the power project was finally approved). The overall negative trend for Huntly West is unexpected if one is looking for project influences, since it would have been expected to reflect population increases on the west side of town. However, the September 1981 roll places Huntly West at 313 pupils, an accelerated decline over the previous two years; but according to the Huntly West Principal, 180 children cross the Waikato River each day to Huntly Primary. He also noted that some 25 years ago the school children at Huntly West were 80 percent European; today they are 80 percent Maori (pers.comm.). There seems to be a combination of power project effects and the 'gentle tension' between Maori and European, referred to earlier by Krawetz (above), when we look at the Huntly West and Huntly Primary School data.

Another important aspect to note, however, is what happened in the three years after 1973. The expectation was for a surge in enrolments but the actual pattern (with the exception of Rakaumanga) was of a gradual increase

spread over all the schools (or a pause in the decline in the case of Huntly West). What we see on the graphs is a reflection of population characteristics: with a young, married workforce the population had a larger pre-school component than expected, and a larger commuting workforce.(11) The pre-schoolers moved into the schools a year or two later, by which time the workforce had peaked and people began to move away again. In some schools they would be replaced by the children of power station operations staff. Kimihia Primary, in particular, seems to be reflecting most the build up of these more permanent families.

Staff-pupil ratios identify the change in Rakaumanga's position and the annual variations due to Education Board adjustments (Figure 19). Schools which had ratios fall below the regional average in 1974 were Kimihia and Huntly West, while Rakaumanga moved into a very favourable position for two years, owing to the Education Board over-anticipating roll increases. Uncertainty over pupil numbers seems to be reflected in the annual variations shown by schools directly influenced by the project: Huntly West, Rakaumanga, and Kimihia.

Changes in the income and expenditure are illustrated by Figures 20-21. The previously mentioned expectation of increased rolls shows up clearly in the capital expenditure from 1973 through to 1976. Capital improvements went into Huntly West in 1973, followed by Kimihia and Huntly Primary, and then the major investment in the new Rakaumanga school in 1975/76. After 1976 the pattern seems

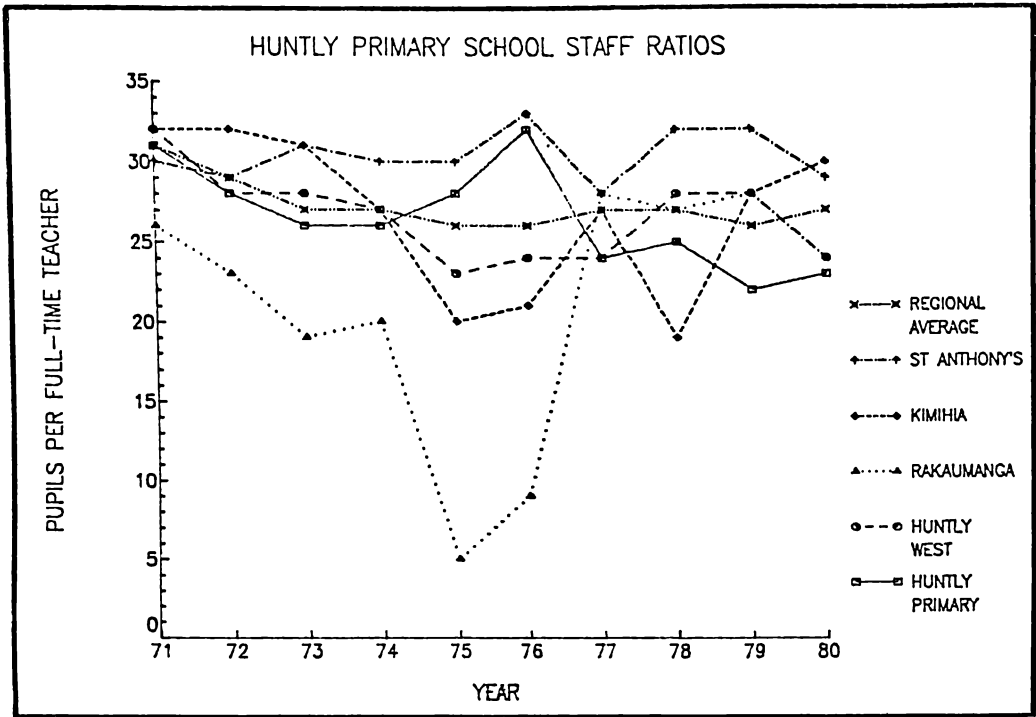


Figure 19. Staff/pupil ratios: Huntly primary schools, 1971-80 (Source: Fookes, 1981a)

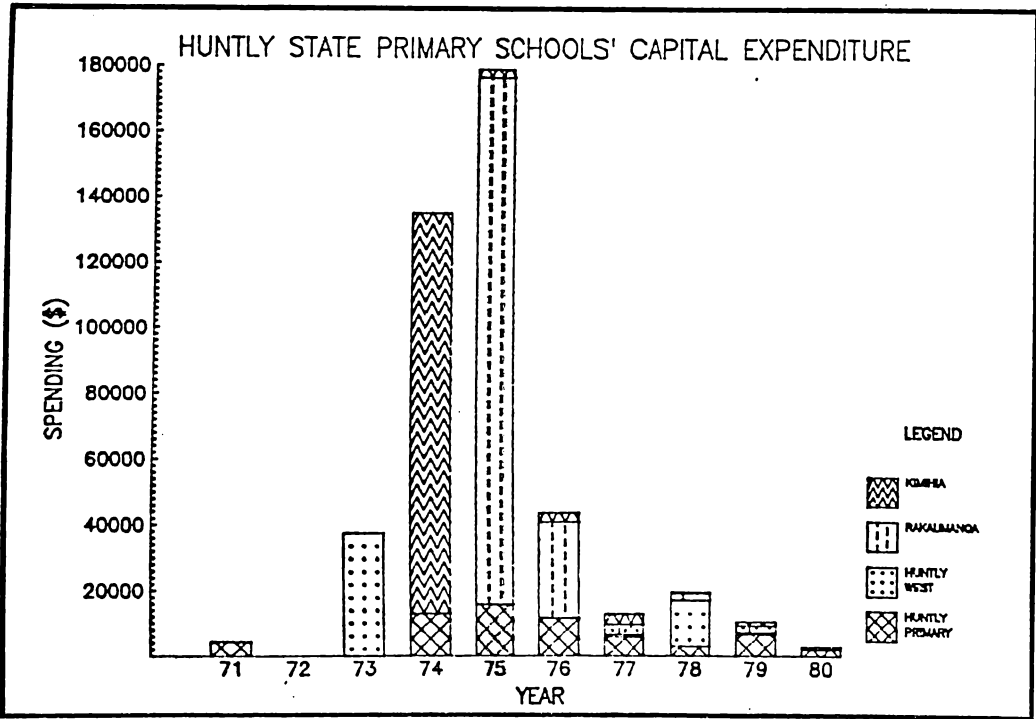


Figure 20. Capital expenditure: Huntly state primary schools, 1971-80 (Source: Fookes, 1981a)

to have stabilised, reflecting New Zealand-wide constraints on Education budgets. Expenditure for items other than capital improvements is shown in Figure 21. The comparative picture is of interest here. The pattern is very irregular from one year to the next. If a conclusion can be drawn it would seem to be that the post-1974 picture shows the two schools whose rolls appear to have been affected most by the power project (Kimihiia and Rakaumanga) have, in turn, dramatically increased their non-capital expenditure. This is indicative of a good response by the South Auckland Education Board to the expected demands on Huntly schools with the power project, but it also suggests that the Huntly allocations were probably at the expense of some other district. That is just one of several examples noted by the research unit, where reallocations of resources, or plant, occurred because of the priority being given to resolving difficulties caused by the power project. These are the hidden impacts which can never be completely tied to the project because the decisions which are involved can be explained, or rationalized, in many plausible ways. The subject of rationalizing decisions made will be considered fully in Chapters 8, 9, and 10 in Part II.

As mentioned above, Huntly College provides the secondary school education for the Huntly district. A comparison of the Huntly College roll with the regional average shows a close correspondence until 1979 (Figure

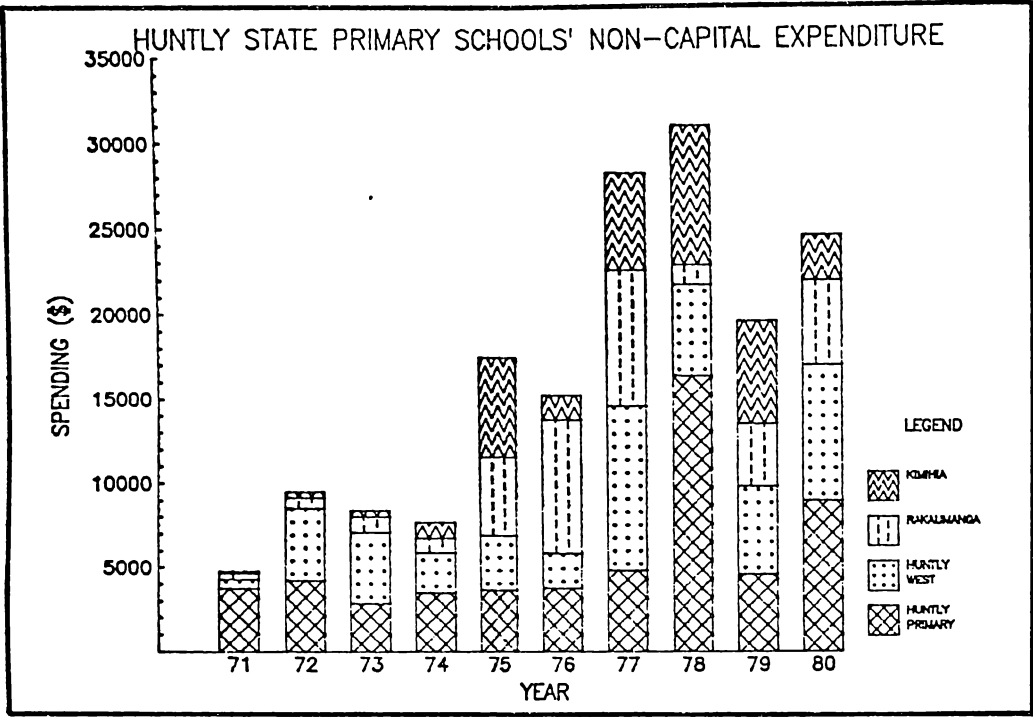


Figure 21. Non-capital expenditure: Huntly state primary schools, 1971-81 (Source: Fookes, 1981a)

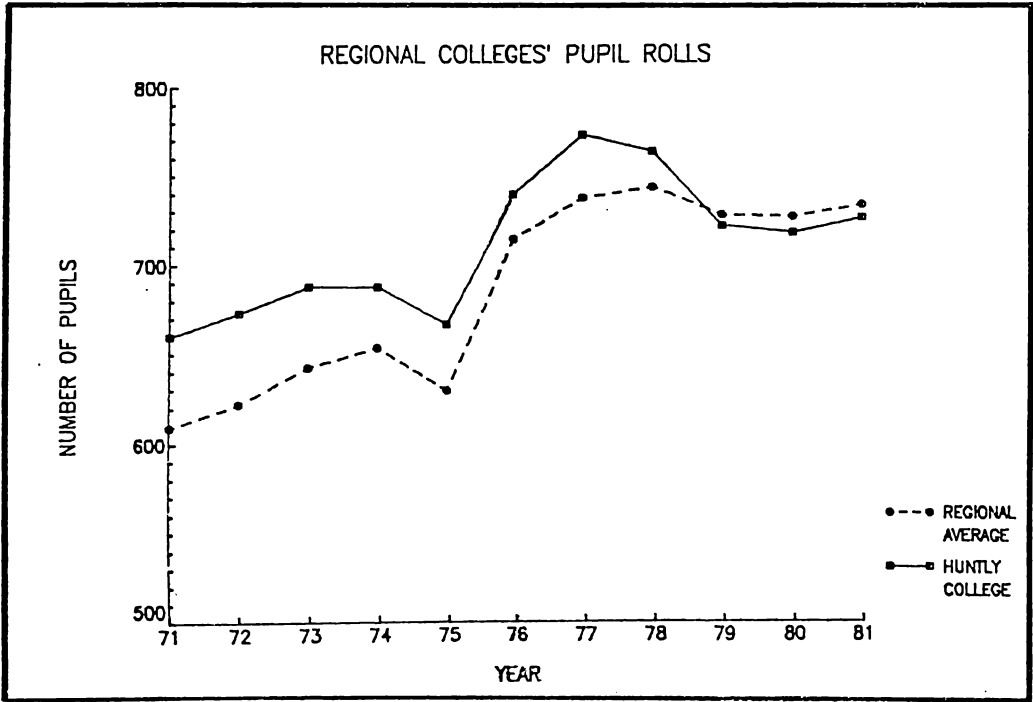


Figure 22. Enrolments: Huntly College and regional average, 1971-81 (Source: Fookes, 1981a)

22). In that year the two trend lines cross and Huntly College no longer has an above average number of pupils. However, it continues to trend parallel to the regional average. The 'cross-over' reflects changes in the regional situation as well as the Huntly roll, which seems to have settled down (for three years) at about 720 pupils.

Back in 1979, the Huntly College Principal is on record as telling the research unit, '...that people were leaving the district. Some of these (he thought) were construction workers, but coal miners were also leaving' (pers. comm.). This was his explanation for the 1979 estimate of third form enrolments being lower than the actual numbers which eventuated. The college's share of regional enrolments has only fluctuated between 4.9 and 5.4 percent over the last decade, however.

4. Local Authority Effects

With the power station site in Raglan County, but immediately adjacent to Huntly Borough, both territorial local authorities were to become involved with the project. At times Waikato County, surrounding Huntly on the east bank of the Waikato River, would become involved, as with discussions over a temporary bridge crossing north of Huntly. The Waikato Valley Authority (or WVA), with statutory responsibility for flood protection works on

the one hand, and controlling the taking of water and its discharge into rivers, on the other, would also become involved. It was, in fact, an appeal before the Town and Country Planning Appeal Board over the granting of a Water Right which gave the Maori community one of its earliest public opportunities to express its concerns.

The role of Huntly district territorial local authorities in the power project began in earnest in August 1973, once government made the decision to begin construction. Prior to that date there had been discussions between the government departments and local authorities affected. However, as explained in Chapter 1, by not being required to initiate any town planning proceedings under the Town and Country Planning Act 1953, there was no formal pre-decision activity required of territorial local authorities. Nevertheless, after the August decision both Huntly Borough and Raglan County became closely involved as the project's plans were finalised and implementation began. Raglan County's involvement was mainly in the areas of roading and coal mine development; the role there was to keep informed and, in some cases, approve the proposed work which the Ministry of Works and Development carried out. However, no alterations were made to the Raglan County District Planning Scheme in recognition of the new coal mine or power station, a matter discussed further in Chapter 4.

Huntly Borough Council had a wider role to play. The housing plans, for example, meant subdividing land previously considered unlikely to be used for residential

development because of flooding. In this way the borough council had to become a 'partner' with the MWD, to bring together the water supply, stormwater discharge and sewage requirements with the house construction programme; and to agree on the land subdivision scheme (street layout, recreation reserves, and intended house siting). The borough also had to negotiate with Raglan County over servicing the Baker Block which was located just outside the borough. Eventually, the land involved was brought into the borough, requiring formal procedures as well as informal discussions. Both local bodies were also directly involved in negotiations over NZ Electricity's one percent (or public amenity) grants. These were payments made at the Minister of Electricity's discretion, as explained below. On top of these tasks, the borough also had to face up to the fact that it did not have a district planning scheme (or town plan). It had to set to work to prepare that while at the same time dealing with power project-related work. It was not until 1981 that the borough reached the stage where it had an operative district scheme, a requirement legislated for in the 1953 Town and Country Planning Act! That situation alone helps explain the degree of preparedness which existed before the power station decision; it also says a great deal about the administrative and political competence of the borough council. The issue of local body preparedness is addressed further in the second section of this chapter.

By having a role to play in the activities surrounding the construction project, neither of the local councils

were able to stay completely free of conflicts which seemed to be exacerbated by the power station and/or coal mine projects. Mention has already been made of farmers' concerns over road impacts. At one stage the debate over the conditions of Waikokowai Road came to a head with the Rotongaro Branch of NZ Federated Farmers expressing no confidence in Raglan County's handling of roading in the Pukemiro Riding, and deciding to approach the Local Government Commission.(12)

Huntly Borough Council had its difficulties too as the previous observation on its planning confirmed. One involved pressures on its staff resulting in some resignations, and the creation of the position of Town Manager (in place of Town Clerk). The whole administration of the borough was gradually changed after 1976 when the last Town Clerk resigned, to be replaced by the former manager of the local brick works as Town Manager.

Another example of conflict involving the borough council came with the Lower Waikato Rugby Union's proposal to develop a multi-purpose sports complex. The sports complex scheme was announced as a scheme approved to be funded by the provisions of NZ Electricity's one percent grant. It was immediately criticized by those sports clubs not included, and under the resulting pressure, Huntly Borough Council withdrew from being the 'sponsoring' local body (Figure 23). Later, Raglan Council took over this role and 'Rugby Park' was vested in it. These examples serve to illustrate that local bodies must expect additional stresses and strains to be felt, by its staff

and councillors, when a major project comes town.(13)

The public amenity grant (or one percent clause) became a major feature of the power project. The subject begins with a clause in the NZ Electricity Act, 1968. Section 11(2)(g) gives the Minister of Electricity the discretion to spend up to one percent of the cost of a power project on public amenities. The word 'discretion' is stressed because it is important to remember that grants are neither automatic nor necessarily going to total one percent of project costs; that depends entirely on the Minister.

The origins of the one percent clause date from the hydro-electric power projects of the 1960's (as at Benmore). Since these projects created large lakes behind the dams, it was logical for the MWD/NZ Electricity to spend some money providing basic facilities so people could use the lakes for recreational purposes (boating in particular). In 1970 the Auditor-General drew the NZ Electricity Department's attention to the fact that the Electricity Act as it then was, did not permit this type of spending. The reason for this was that the expenditure was not directly related to their authorised task of spending public funds to generate electricity. Boat ramps and toilet blocks, it was ruled, did not contribute to the country's supply of electricity or directly to the construction project. Consequently, the Act of Parliament was amended, with the clause described above being added.

This background is important for the Huntly case because while we have a power station, it is a thermal one,

Waikato Times, 29 Oct. 1975

Govt agrees to \$600,000 sport centre at Huntly

Times Reporter

Wellington. - Huntly is in line for a \$600,000 sports and recreation centre - thanks to the 1000-megawatt thermal power station being built there.

Electricity Minister Bailey, today confirmed the Government's agreement in principle to the Electricity Department contributing most of the cost in establishing the complex.

The proposal, put forward by the Huntly Borough Council with the support of Raglan County Council, provides for extensive development of Huntly's Rugby Park.

It includes terraced seating, formation of an amphitheatre, pavilion, softball clubrooms,

tennis and netball courts and a caretaker's house.

Mr Bailey said he had given his support in principle to the project on condition that the facilities are administered by the Huntly Borough Council, and are to be available to the general public.

"I am well aware that the influx of workers to construct the Huntly station will strain existing facilities, and under the Electricity Act we are able to make provision for this."

The Minister said he was aware several recreational groups in Huntly had sought assistance for individual extensions to existing facilities.

"However, I also know that both councils, with widespread community support, favour the development of Rugby Park for all, and this is in line with the Government's recreation and sports policy. "Not only will the complex be of benefit to construction workers and permanent residents of Huntly, it will also be a valuable asset to the entire lower Waikato."

NZ Herald, 17 Nov. 1975

Govt Grant Irks Clubs

Herald Correspondent

Huntly
Concern has been growing in Huntly over the proposed government grant of \$450,000 for a sports arena to be built at Rugby Park in Huntly West.

A deputation from clubs which said they had not been contacted for their views on the development of the area, met the Minister of Electricity, Mr Bailey, in Hamilton, on Friday.

The chairman of the Waikato Rugby League Club, Mr W. L. O'Callaghan, on behalf of representatives from the Huntly South and United league clubs, swimming, soccer, tennis, bowling and yachting clubs, told the minister that his deputation considered that most sporting clubs in Huntly had not been contacted.

Many of these clubs wish to develop their present facilities and consider their interests have been neglected

by the proposed arena, which they say will cater mainly for rugby football during the winter.

Plans include a three-storey pavilion with changing sheds, toilets, practice sheds and kiosk, a caretaker's residence, athletic track, long jump area, softball diamond, an amphitheatre for tennis, wrestling, boxing and drama and netball courts.

Mr O'Callaghan said last night that Mr Bailey was surprised the clubs had not been contacted and said that in a meeting with a deputation from the Huntly Borough Council and Raglan County Council he had been assured the entire community was behind the proposal.

Mr Bailey has now directed the deputation to contact the Huntly Borough Council to resolve the matter saying that no money would be made available until final detailed plans were presented and approved.

Waikato Times, 17 Nov. 1975

Views to be heard

Huntly sporting bodies will have every opportunity to make submissions to the borough council on plans for the town's \$664,000 sports and recreational complex.

Huntly Mayor Mr R. A. Wright said this today in reply to criticism by some sporting clubs that they had not been contacted for their views on the development of the area.

He rejected claims that the clubs' interests had been neglected and said their criticism was premature at this stage.

As soon as the 15-acre block of land being ceded to the borough council by the town's Rugby club to site the complex was handed over, submissions from the clubs would

be called for by the council, he said.

"We are arranging at present for the transfer of the land."

We would like to see the whole business of the land transfer tidied up by Christmas, and it will probably be the New Year before we advise for interested bodies to make their submissions."

Mr Wright said Electricity Minister Bailey had agreed to the project in principle, and it would now be a matter of obtaining comments from the sporting codes on where and how they could be fitted into the plans before a final plan was presented for approval.

Present plans could be subject to modification, he said.

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Many of these clubs wish to develop their present facilities and consider their interests have been neglected by the proposed arena.

PUBLIC AMENITIES GRANT REACTION 1975

Figure 23. Newspaper reports on sports complex decisions, 1975 (Source: Fookes, 1981a)

which does not create a new lake. There was, however, this relatively new provision in the previously mentioned Act which permitted a large sum of money to be spent on 'public amenities' (which are not actually defined in the Act). Attention shifted, therefore, from a fairly narrowly defined range of amenities (such as boat ramps and lakeside amenity buildings) to facilities in an existing town likely to be affected by incoming workers. Local sports clubs and community organisations generally, had fairly high expectations that the Government would come to town with a large money bag, and all would benefit. However, a conservative interpretation by departmental officers was put on the words 'public amenities' and great importance was placed on the Minister's discretionary power to grant any money.

The whole public amenity grant issue is extremely complex, but it can be simplified as follows:

(a) communication about the grant has to be through a public body, normally seen as a borough or county council (in the Huntly case, Huntly Borough and Raglan County) ;

(b) 'public amenity' was defined as including clubs etc. where the public body maintained control over the site and capital improvements (in case the organisation disbanded);

(c) access to the facility should not be limited to a particular group - it had to be open to 'the public'.

Consequently, a case for assistance had to be made through the local borough or county council, and the site (at least) had to be vested in that local body. This effectively narrowed down the number of organisations eligible (the Huntly Golf Club would have had to vest its land in the Raglan County Council, for example). Not all clubs and other organisations were put-off by the requirements; the most notable was the Lower Waikato Rugby Union which proposed a major sports complex (see photo 11 in Chapter 1) centred on its existing rugby ground, which it was prepared to give, as its contribution, to the local body.(14) Local reaction to this proposal is illustrated by newspaper reports at the time (Figure 23, above).

In the case of the Huntly Maori community, the requirements posed real difficulties. The major ones, were whether any assistance for their community facilities could proceed if they involved land on Maori title, and (even if that could be overcome) whether assistance to the marae specifically was possible since public access was subject to some degree of control. Eventually the difficulties were overcome by first recognising the Tainui Trust Board as the necessary public body.(15) The second decision was to accept that, while certain courtesies prevailed when entering a marae, it did function as a public space, with various formal and informal events, such as local fund-raising evenings, and school visits. As a result grants were made under the conditions of the 'one percent clause' to the Maori community. The grants made are summarised in Table 3.

TABLE 3. Summary of Grants to Tainui Trust Board
for Public Amenities Under Section
11(2)(g), Electricity Act 1968

TAINUI TRUST BOARD	\$
(1) Redevelopment works at Waahi Marae in conjunction with flood control works of WVA and Raglan County Council	473,000
(2) Taniwharau Rugby League Club (for interim facilities during marae re-development)	22,500
(3) Restoration of buildings at Kaitimu marae	10,000
TOTAL GRANT:	505,500

(Source: Fookes, 1981b)

Some emphasis was placed by the Minister on using the one percent grant to help the Borough Council improve the amenities of Huntly generally; this covered several projects (Table 4) with the major ones being riverbank reclamation, a new Civic Centre complex (with Library and Cinema), and improvements to the Huntly Domain (see Photographs following Chapter 1).

TABLE 4. Summary of Grants to Territorial Local
Bodies Under Section 11(2), Electricity
Act, 1968

HUNTLY BOROUGH COUNCIL	\$
Riverbank reclamation	160,000
Huntly Domain development	286,000
Central business area development	260,000
Civic Centre development	238,000
Miscellaneous amenities	55,500
Total HBC grant	1,000,000
 RAGLAN COUNTY COUNCIL	
Huntly West Sports Complex	590,000
 GRAND TOTAL	 1,590,000

(Source: Fookes, 1981b)

It is important to note that NZ Electricity does not hand over a 'blank cheque' to the responsible local body. The plans for each of the schemes agreed to by the Minister are subject to scrutiny by departmental officers (and even the Minister if he wishes). Payments are made by the department once the work has been satisfactorily completed, on receipt of the accounts. Where the Minister has said so, the scheme may be subject to increases in the grant to cover inflation. The emphasis in the Huntly Borough

allocations on the council itself rather than local clubs, reflected both the Minister of Electricity's, and the Council's, views of spending which would readily improve the amenity of Huntly, since the works mainly improved public places.

It should also be quite clear, from what has been said, that the one percent clause was not intended to cover the much wider area of mitigation (payments to overcome negative effects on the local community). While there were attempts to loosen up the department's interpretation of the clause, it remained focused on providing public amenities. Some other payments, such as those for costs for street up-grading, and those involved in extending water and sewage services to project housing areas, or moving Rakaumanga School, came from the main project budget. Other costs normally borne by other government departments or statutory authorities (such as the Central Waikato Electric Power Board) continued to be carried as part of every-day operations. In other words, there was no one project expenditure category which could be called 'mitigation payments.' This comment on mitigation is an important one which will be referred to again in Chapter 5 when the subject of monitoring objectives is discussed. Monitoring for mitigation purposes is one suggested monitoring objective in a number of possibilities outlined in Chapter 5 and discussed further in Part II.

5. Local Economic Effects

Any discussion of the effect of Huntly Power Project on local economic effects is likely to start with employment since that was the most obvious, and officially emphasised effect (NZ Electricity Department, 1972). At the same time, any discussion of power station effects on local employment has to start by acknowledging the major change which occurred in the national economy after 1975, as described in Chapter 2.

As explained in Chapter 2 when discussing the national economy, it is important to note that the construction industry generally was one of the first to feel the effects of attempts to control the economy. This had an effect on the power project, in that firms which had begun to express concern about a drain of skilled labour to the Huntly site, now saw the advantage of having a job source for people they no longer could keep on. By early 1977 the expressions of concern over competition for labour had been replaced by ones of relief that there was somewhere for their redundant employees to go (Marshall, 1978).

Another survey about the same time as the one above, suggested to the HMP research unit, that where firms had good industrial (and personal) relations with their staff, and business prospects looked reasonable, the staff tended to stay on (Goddard, 1977). One firm which complained particularly loudly about labour losses seemed to have a high turn-over of staff prior to the power project's recruitment. While noting this, it is also fair to say

that, initially, there was a tendency for labour to be attracted to the project for what appeared to be overall pay advantages. On the question of firms being forced out of business, there were claims made to that effect, but it was very difficult for us to prove it - one way or the other. Project staff were adamant that the project was not responsible - with plausible explanations offered - but the issue could not be entirely resolved. It will be noted in Chapter 5, that research unit efforts to study the whole question of labour attraction and allowances were blocked by trade union opposition (Barclay and Cumpstone, 1978).

On the question of jobs for women in Huntly, we did find in one survey, that 28 percent of staff wives had jobs outside the home and these were likely to be in a skilled occupation - such as clerical and typing positions, and teaching. Our enquiries did not explore the question of employment for women to the point where I can say anything about 'problems', but an analysis of employment data revealed that between the years 1973/74 to 1977/78 full-time jobs for women had increased by nearly 90 (or 20 percent).(16) The construction industry accounted for 48 jobs, while there were 21 in real estate and business service, and 19 in apparel manufacturing. But over the same period there were 39 less jobs in retailing, and 15 less in transport, storage and communications.

One suspects, therefore, that the local full-time job market would have suited some wives but not others. On the other hand, the number of part-time jobs had increased by nearly 170 (or 232 percent) over the same period. On the

the question of 'hidden unemployed', a comparison of the 1971 and 1976 Censuses shows 18 and 26 (respectively) women unemployed. (That is 3.8 and 4.8 percent of the female workforce.) The proportions of female adults identified as 'housewife' (33 percent) and 'salary or wages' (12.5 percent) remained the same between 1971 and 1976 (other categories not included). Informal enquiries by the research unit also revealed 'employment opportunities for wife and family' given as one reason for project families not living in Huntly.

It was expected within the Huntly community that there would be a local multiplier effect from the additional jobs available at the power station site (Pollard, 1976), that is, for jobs in Huntly outside the construction industry, in retailing and business generally. No specific figure can be documented for those initial expectations, because it appears to have been one of those self-evident truths which people tend not to ask to have clarified. That is, part of the taken-for-granted world which will be discussed in Chapters 7 and 8. As for the actual effects, HMP research unit calculations revealed that less than one job for each additional eight in construction was created.(17) In some years, however, employment outside the mining and construction industries actually declined; both findings tend to confirm the overseas conclusion that the local effect of major projects is increased productivity per worker (that is, increased business profit) rather than more service-related jobs (Garrison, 1972). If staff are under-worked that may mean a substantial increase in extra

patronage can be handled without employing additional staff.

The disappointment of retailers mentioned in Chapter 2 would seem to have come about as a result of several factors.(18) For instance, there were fewer employees living in the town than expected, the larger shopping centres in Hamilton and Auckland were an attraction, and a casual approach of some Huntly retailers towards the newcomers was said to have sent project people to other towns. The greater than expected level of daily commuting, and the travel allowance, mentioned in Chapter 2, were blamed by Huntly retailers for lower than expected project business. However, power project personnel told the research unit that they shopped outside Huntly because local retailers did not seem interested in catering for their needs (Fookes, 1978a).

To the question, 'what economic effect has there been on the town?' it is possible to conclude that it has been to support the town, thereby offsetting the likely effects of the most recent recession which coincided with most of the construction period. So while expectations of additional business activity had not always occurred, firms were kept in business. What this meant in money terms can be seen by some sample statistics for the period 1976-81: gross wages and salaries paid to employees resident in Huntly: \$28.3 million; HPP expenditure on goods and services from Huntly firms: \$12.0 million; and the 2.09 million dollars spent on public amenities in Huntly and district. The power station had also provided a stimulus

to the coal industry, with longer term economic benefits to the local economy as well, as explained in Chapter 2.(19)

Underlying the whole issue of economic benefits and costs, was a state of affairs described in the North American research as 'the Boom-Bust Syndrome'. By way of clarification, this occurs when towns hosting major development projects grow very rapidly over a few years, and then see the reason for the growth, the construction stage, pack up and go, causing an equally rapid slump in local business activity. So people expect increased economic opportunities during a boom. However, Huntly didn't experience this rapid, or boom, growth and therefore the business activity didn't increase in the way that local business-people expected. As will be explained further in Chapter 5, the absence of an economic boom was important for the HMP, in terms of its monitoring objectives and people's expectations of its performance. It was obviously significant for the town as well, since Huntly didn't reap the big economic benefits to then suffer the consequences of a slump when the construction phase 'wound down'.

6. Population-Related Effects

Reference to the power project 'winding down' introduces questions about the dynamics of phasing out construction workers and introducing operations' personnel to run the power station. To what extent was there any relationship between permanent operators coming into the town, and offsetting the out-flow of construction workers?

Central to that issue is the subject of housing. The power station operations' staff were provided with construction accommodation, which was, in the main, new single-family houses. As it had been planned, the 551 houses made available for the power project were used to provide the accommodation 'pool' from which both the power station and State Coal Mines staff would draw their housing. By September 1981 the housing situation (reduced to 551 houses) was as described in Table 5.

TABLE 5. HPP Housing Summary: September 1981

Power Project controlled housing:	226
Houses sold to Huntly Power Station (under Housing Corporation control):	193
Houses sold to Mines:	103
Houses sold to others (not specified):	29

(Source: Fookes, 1981c)

The expected number of staff required for the power station operation is 365, and, therefore, if the proportion of staff living in Huntly remains at 85 percent (as it was at September 1981), the expected housing requirement would be 310 dwellings. That would leave 109 of the project's allocation to be taken up by either State Coal Mines or sold to the Housing Corporation (or private buyers). There is some uncertainty in this whole area, but if coal mine expansion, described in the 1981 and 1982 Energy Plans,

goes ahead (irrespective of another power station), it seems likely that the loss of population after construction ends will be offset by other people coming into the town. At worst, the figures suggest a population loss of about 400.

Alongside this analysis I must place the uncertainty introduced by the April 1981 government decision for the Housing Corporation to take over control of the power station housing. This means NZ Electricity has to apply to the Corporation for each house it needs to accommodate Huntly Power Station staff. It also means that the town could see the available housing being allocated to other people who qualify for Housing Corporation accommodation. If the houses are seen as filling a wider regional demand for rental accommodation, then the town's population may not see any decrease. However, the power station may have to build more houses if it finds former power station houses are already allocated to other State tenants. Or staff may express a preference not to live in a Housing Corporation controlled housing area, and instead select a Hamilton suburb. In that case, local benefits from the power station will be decreased.

As far as the post-construction effects are concerned, on the wider economic front it appears that the station operators are offsetting the probable effects of a construction run-down. Houses are being left vacant; as at September 1981, there were 74 project houses empty (one-third of its assigned number of 226).

The object of this first section in Chapter 3 has been to present a summarized account of the main issues established during the Huntly research period. However, there are a number of general conclusions which may be drawn from the research and the balance of this chapter sets out those conclusions.

SUMMARY CONCLUSIONS FROM HUNTLY RESEARCH

The conclusions which were presented in the HMP Final Report series (Fookes, 1981a) have been placed in two groups for this summary. The first group relates to research findings from the HMP on impacts and other issues resulting from the construction project, while the second refers to the HMP's findings on research methods.

1. Conclusions on Impacts and Other Findings

The first set of conclusions addresses the following subjects: a) expected effects; b) overseas experiences; c) public participation; d) policy generalizations; and e) implications for development planning.

(a) Expected Effects

By comparing people's statements on the effects they expected from the Huntly Power Station, with events subsequently recorded by the monitoring project, several general conclusions emerged, in addition to the detailed

effects described above (and Paper No. 4A). These conclusions are that:

- (i) Government officials involved in project planning are faced with a dilemma. They are working in an area where there is considerable uncertainty in engineering design and site planning as the project evolves.(20) At the same time, they are expected to ensure steady progress with planning (so the project keeps to programme) and also discuss the project's possible effects - negative and positive - with the local community. By treating the possible negative effects too openly there is a risk that the community will become overly apprehensive, and bring pressure to have the project stopped. Consequently, officials tend to present an optimistic view about minimising possible negative effects, and their cautionary statements are not emphasised;
- (ii) Lay people expect that the plans for a major installation like Huntly Power Station are worked out prior to the decision to build being made. In fact, the opposite is closer to reality since plans are in a continuous state of flux due to the complexities of the design and planning operations.(20) Project engineers themselves may not know all the answers to the community's questions, at the time particular questions are being asked. And yet there is a common public misconception to the contrary. As a result, people may unfairly accuse the engineers of

withholding information;

- (iii) Local objections to a project, or the specific arguments produced in support of it, may be directed to achieving other objectives as much as the apparent one. This is illustrated by the issues, described above, which involved the Maori community. In that case, the project precipitated a debate which went far beyond the immediate issue of siting Huntly Power Station. Longstanding Maori grievances with the pakeha (Europeans) dating back to the Land Wars of the 1860's were revived so that the centre of the debate was not really the power project, as much as the broad political and cultural dissatisfactions which people wished to express. This is not to say that there were not any valid issues related to local maraes. Construction effects, such as pile driving and heavy traffic, and the dramatic proximity of the station itself, explained above, illustrate that. The same can be said of the farming community whose submissions seemed to suggest a broader strategy lay behind their declared interest, to identify the way the power project affected them. Their actions and statements were also intended to draw attention to several matters dealing with local planning and the provision of services while it was a time of intense local activity. This is a logical community negotiating strategy, and should be expected by project planners; the project's proponents want something from the

community, so why should the latter not try to extract some extra benefit for themselves? It should not matter whether community expressions of concern are directed at specific project impacts, grounded in past experiences of general government activities, or based on current concerns of a wider nature, this use of a project should be expected and addressed positively. It could be seen as a necessary quid pro quo;

- (iv) Community expressions of concern and a desire for more information, particularly by groups perceived as 'minorities', reflect a degree of local familiarity, knowledge and identity with the district and its environment. The Huntly experience suggests it is politic to capitalise on that interest. It also confirms a lesson of other similar experiences involving individuals and local groups, such as the campaigns against raising Lake Manapouri, and milling of the Westland Native Beech forests (Wilson, 1982). That lesson was that the initial fears expressed by local people are generally proved to be sufficiently pertinent for project planning, for opinions from these quarters to merit respect;
- (v) The expression of concerns about the Huntly Power Project reflect a parochial focus. This is evident in the examples mentioned above, with the absence of any comparable degree of attention being paid to regional implications unless required by statute (as with the issuing of a Water Right). The introduction, since

Huntly Power Station, of a regional level of government should redress this imbalance if used effectively. (Paper Nos. 3 and 5 contain further information relevant to this conclusion.); (vi) The problem of prediction at the planning stage has implications for people beyond the immediate group of engineers responsible for project design. The margin between under and over-reacting to a possible effect is very small. One cannot afford to pretend to be dealing with a precise 'science', because other decisions are being made on the basis of information on expected effects. However, the position often taken by project engineers when dealing with the public is of unqualified confidence in the predictions. The over estimation of accommodation requirements for single men, and the under estimation of commuting generally, provide examples of the prediction problem; (vii) An operation such as the Huntly Power Project can be a catalyst for changes which may be negative or positive. The former may be a rekindling of old divisions in the community, reflecting its heterogeneous character, as illustrated by debates over the rugby-centred sports complex. On the positive side, there was an improvement in Huntly's image and self-esteem, built up by the presence of the power station itself because it is an important symbol of 'Progress';

(viii) Expectations on likely economic effects from projects like Huntly should be clarified for the public, since the HMP confirmed that projects in small towns and rural districts appear more likely to support a local economy than add significantly to it. While the former is still important to a town, people are generally led to expect additional employment in retailing and service industries. Local businessmen develop heightened expectations for increased turnover, productivity and higher profits. The conventional use of simple ratios to suggest there will be a multiplier effect from project employment and new residents creates tensions, since the ratios currently being used appear unrealistic. It is too easy for local business people to develop unrealistic expectations, including thinking they do not have to do anything more than stay in business to see major improvements in their profits.

(b) Overseas Experiences

To help place the Huntly Monitoring Project (or HMP) in a context wider than New Zealand, the University of Waikato made a Post-Doctoral Fellowship available to the HMP research unit. In this way it was possible to have Dr N.M. Krawetz come from Edmonton, Canada, and contribute a paper on lessons from the overseas literature (Paper No.4B). The following group of conclusions is drawn from her work.

Krawetz (1981a:2) identifies several community expectations which seem to appear irrespective of the type of energy project, or the type of community in which is located. These are:

- (i) Local knowledge about the project is generally low;
- (ii) Local benefits, for example, more job opportunities for local people, are generally overestimated by people in favour of growth, and, therefore, the project is a disappointment to them;
- (iii) Local costs, for example, upgrading roads for heavier vehicles, are expected, but often underestimated both in terms of amount and kinds of costs;
- (iv) The extent to which benefits are said to outweigh costs, and how they are seen by local people) depends on who is weighing them up; and
- (v) Preparedness for changes in the way the community manages itself and other, non-economic changes, for example, developing a more professional and formal local government, is generally low, because local people have had little experience with these kinds of changes.

It is important to note her qualification attached to the list: namely, 'The magnitude, or size, of these effects varies, and ranges from extremely high and severe (such as boomtowns) to low, with little apparent effect on the existing community.' It is also relevant to add her observation:

The same categories of effects apply to the HMP findings. However, building the Huntly Power Station did not result in a boomtown (that is, in rapid growth of Huntly), so the HMP findings are further along the range of effects, toward the 'low magnitude' end.

(c) Public Participation

There are six conclusions relevant to public participation:

- (i) That the two committees which were formed for the purpose of community liaison, namely the Huntly Planning Forum and HPP Liaison Committee, were useful. Each committee has said in letters to Government Ministers, that their respective committees should be considered for other projects;
- (ii) That the timing of liaison was a key issue amongst those concerned with access to information, thereby raising the question as to what is the most appropriate stage in project planning in which to convene local liaison-type committees?
- (iii) When explaining the proposal and its expected benefits, project proponents need to be alert to the danger of raising the affected community's expectations too high. Any sign of over-exuberance on the part of local people in anticipating expected benefits should be monitored and appropriately tempered;
- (iv) While the statutory processes create proponent and 'opposition' groups (an adversary approach), it should be possible for the project planning process to widen the scope of public involvement. Participation should aim to be before decisions are made, particularly at

the investigation and pre-design stages, instead of afterwards when the response is reactive;

- (v) Interaction with Maori communities requires sensitivity to Maoritanga and the underlying mistrust of the pakeha's (European's) actions with respect to land acquisition. Public participation involving Maori communities should, where possible, adopt the traditional marae-centred ways of discussing matters of community concern;
- (vi) Since communication between the project and the affected community usually occurs through a small number of individuals identified variously as 'representatives', there should be a widely representative public forum to which all parties can bring matters of concern and generally exchange information. To defuse rumour mongering such a forum should be established when the project is announced - if it has not been possible to create such a body to participate in the initial planning phases.

(d) Policy Generalizations

A major finding, built-up from several instances noted by the HMP research unit (see Paper No. 6), is that during the initial planning stages of a project there are a number of basic matters which, when decided, set the scene for its development. Such matters generally assume the status of 'policies' for project staff and, consequently, influence

planning decisions. Furthermore, there are three generalizations which have been expressed as summary statements; these are:

- (i) The consequences of separate policy decisions made in the early stages of a project, may go beyond the 'problem' being addressed. This means paying attention to the wider social and economic effects which are likely when making these decisions.
- (ii) Society's changing attitudes and values have implications for a number of project planning matters (such as housing and single men's camps, the demographic characteristics of the workforce, and factors affecting its recruitment). The implication of that finding is that there should be ways and means for the changes to be identified and fed into project planning.
- (iii) The introduction of a major construction project changes the context for existing public and private sector organisations. In particular, the resources of local bodies (especially in staffing and finance) need to be assessed; if necessary, steps should be taken to strengthen the capability of organisations to respond to the new situation.

(e) Implications for Development Planning

In order to assist engineers' better understanding of the socio-economic parameters which need to be considered in project planning, Krawetz identified three parameter groups from Huntly findings and the overseas literature (Paper No. 8):

First: Community Characteristics; that is characteristics that have implications for a community's ability to handle the social impacts associated with a new project. The characteristics relate to a community's ability to absorb any project-related growth (e.g. economic and/or population), as well as its ability to benefit from a new project.

Second: Project Characteristics; that is features of the particular project proposed that have implications for a community's ability to handle social impacts associated with the project. Again, these characteristics relate to the community's ability to absorb any project-related change (e.g. economic or population growth), as well as its ability to benefit from a project.

Third: Social Processes Affecting and Affected by the Interaction of Community and Project Characteristics; that is social characteristics that are much more abstract than those listed in the previous two sections. While these parameters are less easily discerned than those listed previously, they play a role in shaping the likely social impacts of a project and are, in turn, shaped by that project.

The individual parameters included in each group are summarised in Table 6 and explained in detail in Paper No. 10.

TABLE 6. Parameters of Concern

I. COMMUNITY CHARACTERISTICS

1. previous experience with social change
2. size of the local population
3. population density of the local community
4. regional population size and density
5. proximity to a regional or metropolitan centre
6. characteristics and diversity of the local population
7. prevailing pattern of population change
8. economic base of the community
9. cultural organization
10. value orientations of the local population

II. PROJECT CHARACTERISTICS

11. characteristics of the technology
12. scale of the project
13. scheduling/urgency of the construction period
14. organizational character of the project's sponsor

III. SOCIAL PROCESSES AFFECTING AND AFFECTED BY THE INTERACTION OF COMMUNITY AND PROJECT CHARACTERISTICS

15. differentiation
16. integration
17. stratification
18. extra-local linkages

(Source: Krawetz, 1981c)

In her discussion of the parameters Krawetz draws an interesting conclusion; that:

...in general, projects located in highly industrialized, densely populated areas are more easily absorbed into that area than projects located in isolated, sparsely populated areas. Whereas, say, an 1000 MW coal-fired station would have minimal social impact if it was located in Auckland, the same project could result in a boomtown if it was located in Waitomo County at Piopio (population 545) (Paper No. 8, page 25).

The social processes included in Table 6 (see III.) provide a framework within which the later philosophical and theoretical ideas developed in Part II of this thesis can be applied to an SIA monitoring situation. This occurs in Chapter 9 as part of the examination of alternative approaches to SIA monitoring, where the parameters listed above are explained and applied in a time-geography setting. However, a considerable amount of supporting description and explanation is required before that stage of the thesis is reached, including the following conclusions on research methods.

2. Conclusions on Research Methods

This summary addresses two aspects of the Huntly research approach: a) HMP method; and b) socio-economic monitoring information.

(a) HMP Method

In the closing stages of the research, the HMP methodology was reviewed in two ways. For the first, the Project Co-ordinator and his staff described what was originally intended, and how it worked-out (Fookes, Drury and Meade Rose, 1980). The contents of that review are discussed in Chapter 5, below. The second approach involved Dr N.M.Krawetz, as someone not previously involved with the project, who reviewed the project's methodologic intentions and practice in light of the overseas literature. It is from the second review (Paper No. 10) that the following conclusions have been drawn, taking up the principal points of the argument developed in that paper.

For this review of the HMP methods, monitoring was been defined as:

a control activity involving the measurements of change(s) in the light of specific objective(s). SIA monitoring is such a control activity but occurs at the final stage of the SIA process (Krawetz, 1981c:10).

The measurement of change is a difficult concept to operationalise and SIA monitoring is fraught with methodological problems related to this. It was concluded,

therefore, that while the approach used in SIA monitoring obviously depends on its objectives, at least seven such objectives can be identified from the literature; that is, monitoring for: 1) compliance; 2) knowledge; 3) short-term management; 4) project control; 5) future planning; 6) research and development; and 7) credibility.

Furthermore, all objectives are not compatible, and each one implies a certain kind of study approach which is not necessarily shared with other objectives, although they may have elements in common. Where multiple objectives are to be achieved, establishing priorities amongst objectives is one way to manage incompatibility. In addition, since SIA monitoring should be part of an organization's management process, it requires certain conditions (or commitments) in order for it to be achievable.

The HMP objectives were essentially monitoring for: 1) short-term planning; 2) future planning; and 3) monitoring for research and development. Conditions were such that only two of the three HMP objectives were achievable, namely 2) and 3), above. Priorities amongst objectives were established when the contract was re-negotiated in 1979. Before then, all were assumed to be of equal value. This point will be discussed further in Chapter 5.

Nevertheless, the HMP study approach limited the achievement of Objective 2, monitoring for future planning, by placing heavy emphasis on description and data collection, as opposed to interpretation and analysis in

the context of relevant decision-making systems. Objective 3, monitoring for research and development, was met in terms of the operational aspects of such programmes, that is, day-to-day strategies for data management rather than in terms of system design. Objective 1, monitoring for short-term management, could not be met, as will be explained in Chapter 5.

It was also concluded in Krawetz's work, that the HMP and its findings, when considered from a methodological standpoint, will be useful as long as they are kept in perspective. That is to say, as long as the findings are not overgeneralized to cases and situations with which they have nothing in common and that expectations about what the HMP could produce are realistic.

(b) Socio-Economic Monitoring Information

A detailed description of the socio-economic information assembled for monitoring Huntly has been provided in Paper No. 11 (Fookes, 1981j). In its research operation the HMP had to deal with three major issues concerning data. These are covered by three sequential questions: Has the data been collected? Is the "owner" of the data prepared to release it? And, if so, what is its level of accuracy (that is, what is its validity and reliability)? These are very important questions because of the amount of time required in establishing the answers to them. Since time is money in any research operation this matter should not be shrugged-off as being of little

importance.

Underlying the questions above, is the point that idea of freedom of information is crucial to a successful monitoring operation, although in the present context the term is used in a more specific way than in the rubric of Freedom of Information. By this is meant that, in some cases, when information is not volunteered (or released) it is because of suspicion existing between social scientists and planners (on the one hand) and engineers. This barrier to communication reinforces a tendency to treat all information as being confidential, irrespective of its subject or status as a Government or Corporation report. Compounding the confidence and confidentiality issues is the researcher's ignorance of what information is collected. Overcoming these difficulties takes up valuable research time, and consequently, scarce research money (in wages and travelling costs).

It was also found, that in the normal course of events, most information collected by public and private institutions is for administrative, and not research, reasons. In collecting this administrative information it follows (particularly with government sources) that the level of information collation and circulation is national. For some there will be regional output, of course, but on a limited basis. To try and retrieve local, disaggregated, information becomes a major difficulty, forming an impediment to effective SIA monitoring.

This brief discussion of information difficulties concludes Chapter 3. It is also the end of that part of the thesis which describes the scope of the Huntly Monitoring Project, and summarizes the results of the monitoring research. It is now necessary to return to some of the initial ideas introduced in Chapter 1; where the origin of the idea for monitoring Huntly Power Station was placed in the context of developments in environmental impact assessment (or EIA) and the related field of social impact assessment (or SIA). This is focus of Chapter 4, which follows.

It has been explained in Chapter 1 how the initiative to mount a social and economic impact monitoring project came, in part, from dissatisfaction with the indigenous sources of knowledge available for SIA. In the six years spent on the Huntly research, the inter-related fields of EIA and SIA experienced increased public and professional interest, an interest that was reflected in new ideas and developments in the field. The changing state of EIA and SIA between 1975 and 1982 is, therefore, pertinent to the development of this thesis, and provides the subject for the next chapter.

Chapter Four

DEVELOPMENTS IN SIA: 1975-81

Chapter 1 described the EIA and SIA background to the HMP for 1972-75, the period immediately prior to the University of Waikato and the MWD agreeing to the research contract. Chapter 4 continues that description of SIA developments to cover the years 1975 to 1981, the actual period of the HMP research.(1) Since SIA grew out of, and still remains, part of EIA (PADC, 1983), some references to EIA will be necessary in this review. However, because of the size and complexity of a description including the wider field of EIA, it will only concentrate on SIA developments. The description of the larger history of environmental impact assessment and the growth of the environmental movement in New Zealand is left to others (e.g. Wilson, 1982; and Tester, 1983).

This chapter has two objectives: 1) to show the innovative nature of the HMP with respect to SIA in New

Zealand and overseas; and 2) to show how the HMP fits into the philosophical debate on SIA in particular, and social science in general, between 1975-81.

The 'pioneer' nature of the HMP should be mentioned at this stage in the thesis, because it is an important aspect for developments in Chapter 5, where the practical context of the HMP is described, and the research unit's criticisms of the monitoring project are examined. By being the first formal 'social and economic impact monitoring project' established in New Zealand, and one of the first internationally (Carley, 1980; Flynn and Flynn, 1976; Leistritz and Chase, 1982; and Proctor and Redfern Group, 1979), difficulties were expected to occur. This is one of the reasons why the HMP contract included a research and development objective (see Chapter 1), and it is those aspects which Chapter 5 will develop. In the meantime, developments in SIA which occurred while the HMP was in progress will be described, including the place of the HMP in SIA in New Zealand.

Chapter four consists of two sections: 1) the development of SIA in the EIA context since 1975; and 2) the place of monitoring in EIA/SIA operations. When reviewing the development of SIA as it occurred within EIA, the principal focus will be North America. This is not to suggest that SIA has not been applied elsewhere in the world, because that is incorrect. Rather, it is recognition that the impetus for SIA development has occurred in North America, with its application in other countries being a more recent event (Arnold and Cole,

1981; Eltershank, Morgan, and Thomas, 1980; Newton and Parin, 1981; O'Riordan and Hey, 1976; PADC, 1983; and Wood, 1981). The North American lead, particularly in the United States, reflects the existence of the US National Environmental Policy Act of 1969 (or NEPA), as mentioned in Chapter 1. It is that piece of US legislation which introduces the following discussion on SIA in the EIA context.

SIA IN THE EIA CONTEXT

As explained in Chapter 1, while the importance of NEPA in the introduction of EIA in other countries is recognized (e.g. O'Riordan and Hey, 1976; Roberts and Shaw, 1981), the NEPA model was not strictly followed in New Zealand. That is to say, it was not followed in the sense that NEPA involves legal processes and the Courts to a greater degree than is favoured by NZ government departments.(2) However, the overall intent of NEPA - as a process for comprehensively considering the environmental advantages and disadvantages of proposed development decisions and actions - was followed.

SIA gained its impetus in North America from the initial interest in EIA, as the latter emerged as a field of academic and professional activity through the practice of EIA mandated by NEPA (Wolf, 1974a; Boothroyd, 1978). It is possible to place the emergence of an activity called

'social impact assessment' between 1973 and 1975. However, there are earlier examples of reports on topics which today fall within the ambit of SIA. Wolf (1977), for instance, cites examples on TVA relocatees (1937), war boom communities (1952), industrial development (1954), military base closing (1965), and urban transportation (1967). The New Zealand literature contains its own examples (Duncan, 1955; Campbell, 1958; Anderson, 1959; Owen, 1961; Whitelaw, 1962; Chapman, 1966; Buckland, 1967; and Dick, 1974).

North American Developments

There is a lengthy history of studies where the social effects of individual and corporate decision making have been examined. However, it is the use of such studies within the institutional framework of EIA which has identified them as a recent phenomenon in the social sciences. Just as the Huntly Monitoring Project emerged as a result of concern about the quality of social impact assessments occurring within the early attempts at EIA in New Zealand (Chapter 1), there were also American reactions to their EIA product (Boothroyd, 1975; Flynn, 1976; and Schister, 1976).

The Need Explained

In the early 1970s, social scientists in many disciplines were being urged to take stock of their role in

the EIA process. For example, in 1974 the American Sociological Association passed a resolution 'that the ASA establish a committee to establish guidelines for sociological contributions to environmental impact statements.' The first item on the agenda of that ASA committee was guideline formulation and testing for social impact assessment (Wolf, 1974b). In a similar way we find concern being expressed within anthropology; West (1975:434-435) draws the attention of his colleagues to the state of affairs where:

Although anthropologists have more than a century's accumulated experience to draw upon, practice of SIA is usually the domain of economists, engineers, and systems analysts.... Anthropologists are conspicuously absent in SIA.

Explaining the case to anthropologists, West acknowledges that SIA involves a change in context for their discipline, because the traditional perspective for anthropology has been retrospective rather than prospective (i.e., looking to the future). Since SIA is essentially an anticipatory activity, looking ahead at the possible effects of a decision, some form of prediction is required. Nevertheless, he argues, the insights and methodological tools of the anthropologist can be applied prospectively (West, 1975:434).

In the same way Wolf (1977:9) argues, 'It is the context in which knowledge is applied, rather than the content of the knowledge per se, that marks off SIA.' The same argument has been applied to geography, with early historical geography methods (e.g. Whittlesey, 1929)

translating easily from 'past' to 'future' contexts.(3)

This distinction between 'content' and 'context' appears as a theme in recent SIA literature, and, therefore, it forms a major part of the following review. By 'content' I mean the substance of SIA reports, which is usually contained within an EIR or EIS. 'Context', however, refers to the institutional or intellectual environments within which SIA occurs. For example, consultants employed by Petralgas Chemicals NZ Ltd., with its corporate office in Wellington and a Canadian chemical company as an Associate, can be expected to view the SIA 'problem' in a different way to a University academic preparing a report for the local Maori community. It is important for the following review to emphasise that context influences content. For instance, the consultants in the previous example would be likely to adopt a positive view of the project's impacts, especially stressing the company's intention to minimise any adverse effects. The academic assisting the Maori community, is more likely to approach the issue from their viewpoint, highlighting the implications of the proposed project for the community's quality of life, including their traditional values and life-style - of which the consultants may be ignorant. The academic could be expected to argue that, whether an adverse effect is minimised or not, it will still have the potential to negatively affect the community. This is the reason why it is possible to argue that content and context must be addressed together.

Content and Context Introduced

There are two reasons why it is important to make a distinction between content and context. The first is because it acknowledges precedents in the social science literature (i.e. content) for SIA, while considering separately (as context), both the appropriateness of methods, and the particular institutional framework within which the cognate disciplines can operate (Wolf, 1974a; Boothroyd, 1978). Although there are a number of procedures used in decision making, EIA is the overall institutional framework being referred to here. This affiliation is because, while it is possible for SIA to exist in its own right, such a state is seen as a subsequent step in its development as a professional activity (Wolf, 1977). At present, the wider application of SIA tends to occur within the ambit of NEPA, or its national EIA equivalent. This particular use of the NEPA legislation has been demonstrated by an example of an American proposal to build a prison facility. According to Wolf (1977), the proposal was subsequently abandoned because of social impact arguments introduced in an environmental impact report produced under NEPA, rather than through an examination of the proposal within the prison planning process. It appears that NEPA was the most convenient piece of applicable legislation, in the absence of an alternative legislative vehicle, although this is regarded as a perverse use of the environmental legislation (Wolf, 1977). A recent report confirms this wider

application of SIA now occurring outside the NEPA legislation (Melser, 1982).

As indicated above, another reason for distinguishing between content and context, is the need to raise questions concerning content versus context, as well as those on content and context. The former specifically addresses the current emphasis in the SIA literature on content rather than the context of SIA. Furthermore, the discussion raises the idea of alternative approaches to SIA.

Content and context as described by Wolf (above) are no longer accepted by everyone involved in SIA. Reference is made later in this section to the arguments presented by Torgerson (1980) and Tester (1982), for example. Both question what has become the established view of SIA content and context. However, before continuing with that issue it is necessary to provide further background on the established view which Torgerson and Tester criticise.

Definitions

A number of definitions of 'social impact assessment' emerged through its practice in the 1970s, and there seemed to be some degree of consensus on the purpose and form of SIA. There was, nevertheless, some dissent from the emerging consensus of the mid 1970s (Catton, 1975; Krebs, 1974); as the observation above on content and context suggests, unanimity has not been achieved. Some journals specializing in social impact are now reluctant to publish papers which advance arguments critical of current

practice.(4) That is a change from the recent past, because in the mid 1970s so little was being written on SIA theory and method that all contributions were welcomed.

Beginning with Wolf's (1974) state of the art paper, we find SIA described as:

a procedure for anticipating...the unanticipated consequences of purposive social action, and thereby to forestall or offset adverse effects to which it may give rise (1974:3).

Dunning (1974:59) views SIA as a planning tool, since considering the social implications of a proposed project 'can add another dimension to planning choices, and may contribute to the development of less socially-disruptive projects.' Krebs attacks this essentially utilitarian perspective in part because of what he sees as an implicit emphasis on the political dimension; this is summed up by Krebs' question, 'To what end?' (1974:65). Once again, the question of context reappears.

Early Criticism

Not only does Krebs raise the issue of SIA being used to manipulate publics in order to achieve the objective set by the proponent of a project, but he also questions the techniques being used.(5) In particular, systems analysis is identified by Krebs as a technique which provides technical legitimization of the manipulation of publics. His argument can be summarized as three points:

a Systems analysis tends to be used without adequate sensitivity to the complexity of the systems being described and quantified, and without 'awareness of...the philosophical

problems attendant with the levels issue and reductionism'(Krebs, 1974:66).

b 'Systems' as approximations of reality rarely coincide with the 'world' being described; yet planners and other users of systems analysis in asserting that their model is good enough for planning, conveniently overlook its theoretical basis.

c Social systems (the focus of SIA) can not be understood if the analyst remains detached from the subjects and their milieu which comprise the study.

On the basis of his first point, Krebs claims that:

those of us attempting to develop holistic social systems analysis easily spot the flagrant biases of planners and decision makers who use (i.e. exploit) systems analysis (1974:66).

This last observation by Krebs reminds us that it is possible to view all planning and engineering uses of systems analysis as a perversion, unless its conceptual limitations are publicly acknowledged, and decisions made as a result of the model are suitably qualified.

By arguing, as Krebs does in his third point, that 'the understanding of social systems necessitates getting inside them', he raises a major methodological issue with a long history in social science (Bruyn, 1963; 1966). A dependence on 'secondary' sources means essential knowledge (and therefore, understanding of the matter being studied) is lost. To support his argument, Krebs cites the examples of census data, television and newspaper reports, planning documents, and 'official' declarations.

In the heady atmosphere of the early 1970s when SIA was being introduced as a field of applied social science, this 'intervention' by Krebs was seen as a conservative

view. He was counselling caution to people like Wolf and Dunning, who were adopting essentially practical suggestions for attacking today's tasks.

This reaction reminds me of a similar argument which I personally experienced in the late 1960s. It occurred as part of the development of Ekistics, an inter-disciplinary effort to address the problems of Humankind within urban and rural settlements (Doxiadis, 1967). One of the objectives of this new 'meta-discipline' was to draw together relevant theories and practices from the contributing disciplines, into a more powerful approach to the problems of human settlements. Therefore, it was not uncommon to find similar expressions of concern to those advanced by Krebs, as people found theories and professional practices being applied apparently 'out of context'.

C.A. Doxiadis was the main proponent of Ekistics, with professional qualifications in engineering, architecture and planning. However, he described himself as 'a simple builder', and answered his critics by explaining that since he had clients waiting with problems to be solved today, it was necessary for him to marshall all the available knowledge to address those problems. At the same time, however, he was engaged in research into better ways of doing things; an activity which, however, did not deter him from trying to resolve problems of the day.(6)

In a similar fashion, practitioners like C.P. Wolf, Kurt Finsterbusch, and the US Corps of Engineers, proposed

ways to tackle SIA, much to the chagrin of people like Krebs.

SIA Process

The rapid development of the SIA process is best illustrated with examples from the years 1974, 1977, and 1981, as feedback from theoretical and practical activities saw the ideas on the SIA process change (e.g. Fitzsimmons, Stuart and Wolff, 1975; Flynn, 1976; Vlachos, et al, 1975; Wilke and Harvey, 1977; and Willeke and Willeke, 1976). Following that description, it will be possible to consider the arguments advanced by Torgerson and Tester, referred to above.

To begin with, Wolf (1974:21) advanced a schema for SIA which identified six steps:

- 1 Profiling, as a process of establishing conditions applying before the effects of a project are registered;
- 2 'Without' project projections, where the occurrence of day-to-day change irrespective of any new deliberate intervention (such as a power station) is researched;
- 3 'With' project projections, where the additional effects of a proposed project are researched;
- 4 Identifying significant impacts, in light of the conditions identified in the previous three steps;

5 Displaying and describing impacts, as documentation for the client organization;

6 Evaluating with the public, which involves 'the attaching of values and the assigning of weights as to the desirability or undesirability of the impacts assessed' (Wolf, 1974:27).

By 1977 we find Finsterbusch outlining 'the potential role of social impact assessment in instituting public policies'. To satisfy that role he sets out three major steps with each one containing a series of subsidiary operations (Table 7).

TABLE 7. SIA Applied to Public Policy

I	POLICY SELECTION
A	Selection of alternatives for assessment
B	Descriptions of policy alternatives
C	Research design
D	Research operations
E	Data analysis using standard procedures in the social sciences
F	Conclusions and recommendations

II	POLICY DESIGN
A	Specification of provisions of the policy
B	Modification of provisions of the policy
C	Supplementation of the policy to ameliorate disbenefits

III	POLICY ADMINISTRATION
A	Implementation of the policy by administrators
B	Monitoring of the policy by identifying its consequences
C	Revision of the harmful features of the policy

(Source: Finsterbusch, 1977:3-4)

While it is interesting to see SIA being prepared specifically for use in the context of policy analysis, as

well as for projects, the other interesting feature is the introduction of the idea of monitoring. By the time Finsterbusch was setting out the ideas in 1977 (Table 7), monitoring as a component of SIA was being implemented, with the Huntly Monitoring Project as one example. Leistritz and Chase (1982) describe a further five SIA's which pre-dated the Finsterbusch (1977) paper. Since SIA was going through a rapid development phase, Wolf's initial six part schema could be expected to be modified, reflecting this interest in monitoring, as well as other ideas.(7) Therefore, by 1981, a revised set of steps were proposed, as a consequence of the refinements during the 1970s (Krawetz, 1981c). A more detailed process, with nine steps, is now provided for the SIA practitioner. These steps are:

- 1 Scoping
- 2 Problem identification
- 3 Formulation of alternatives
- 4 Profiling
- 5 Projection
- 6 Assessment
- 7 Evaluation
- 8 Mitigation
- 9 Monitoring

For a full description of each step see Appendix 9.

The addition of monitoring demonstrates the evolving nature of SIA with respect to its staging and content, and SIA has clearly moved from Wolf's (1974) notion (above) of

'anticipating...consequences in order to offset adverse effects.' Reference has already been made, however, to the absence of a consensus on SIA in general. The essentially utilitarian (or structural-functionalist) view illustrated by the above examples can be compared with that of Torgerson (1980) and Tester(1982), among others.(8)

Critiques of SIA Practice

The countervailing view is a complex one, but two central strands can be isolated. The first, which develops Krebs' earlier argument, is that inadequate attention has been paid to SIA as a social activity with social consequences; in other words, in accepting that SIA is a social phenomenon. This means that SIA practitioners and their products are both affecting, and being affected by, the social and political context of the particular enquiry (Torgerson, 1980:4). This social phenomenon idea is contained in the following extract from a critique of NEPA and the EIS:

There is a compounding impact that is not so often taken into consideration. This is the cultural impact of the notion of the environmental impact statement itself. The EIS has rapidly gained its reputation as a public mechanism for issue advocates to use to try to bring their ideas into an action framework (Acorn/Midwest Energy Alternatives Network, 1976).

The idea of SIA as a social phenomenon becomes even more pertinent when SIA is seen to include monitoring, since a longer-term 'social activity' occurs with related social consequences. Further reference will be made to the idea

of SIA as a social phenomenon in Part II, where ideas behind that criticism are further examined.

The second strand in the countervailing view of SIA as it is practised is a consequence of the first. That is, acceptance of the previous social phenomenon argument introduces questions about the general applicability of the theory and method of natural science to social science. What is under scrutiny is the ideal of the social scientist as 'the detached observer who seeks to identify regularities of behaviour in social life' (Torgerson, 1980:5). Torgerson uses Gouldner's (1970) notion of 'reflexive sociology' - in which 'the student of society should, in the course of his enquiry, remain attuned to his identity as a social being'. On that basis he argues for SIA proceeding on a different path to that followed by current practice. The alternative path is one where systematic self-reflection, and attention to the observer's identity as a social being, are considered crucial for the proper social purpose of SIA. This notion of self-reflection, which is developed further in Part II, below, is in direct conflict with the scientific ideal of detached objectivity, and its orientation to the technical control of social life.

In other words, the stages for SIA outlined by Wolf, Finsterbusch, and Krawetz (above) reflect the conventional belief that the, much familiar, technical intervention into the natural world can be replicated in the social world. The technician in either context remains detached from the object of control. That is, a person simply processing

scientifically obtained information (as 'data'), and translating the results of analysis into implementable conclusions/recommendations. As a process applied to the social world its critics have labelled it 'social technology' (Helmer, 1966).

Where the ideal subscribed to in the traditional (scientific) paradigm collapses in practice, is in the absence of a truly detached, objective, observer. That 'collapse' is due to the social location of any practitioner/'technician' engaged, for example, in SIA. The technician, as a social being, is part of the process which is the object of the inquiry. As such he or she is applying his/her knowledge of the social process as an actor in that process (Torgerson, 1980:5-6).

The social phenomenon, self-reflection, and social technology themes, as outlined, provide a foundation for Torgerson's description of current approaches to SIA, considered as two ideal types on a continuum (1980:8):

At one end of the continuum, there is an approach which follows in the main technocratic tradition of the policy sciences. There is typically a scientific and elitist orientation with a lack of sympathy for genuine public participation in the assessment process. Typically there is also a narrow focus on the scientific project under consideration; there is, in other words, little effort systematically to locate the project within a broad social context. At the other end of the continuum, we find an emphasis on the intangible and intuitive elements of assessment, attention by the analyst to his own values, a belief in the necessity for genuine participation, and a broad focus which attempts to comprehend the specific project within a wide context (1980:8-9).

While the ideal types (or polar positions) identified

by Torgerson, are 'straw men', established in order to clarify the situation being described, there is one issue underlying the ideal types which helps clarify their differences. It is what Torgerson calls 'political commitment', which he explains is:

...not simply siding with one group on a particular issue. More generally, the commitment is to different visions of society and man - different notions of a good society and what is good for man. The commitment involves issues concerning political participation, work, leisure, the fabric of everyday life, social structure, and - generally - what pattern of socio-economic development the society ought to pursue (1980:9).

The reason for this particular focus is implicit in the matters canvassed above, but Torgerson clarifies it when he explains:

Regardless of the validity of different approaches on epistemological and methodological grounds, neither of the two general approaches sketched here can be extricated from the social and political world of which they are a part. Both are necessarily entwined in social and political processes which include conflict not only over substantive questions of policy, but also over the way policies are formed and decisions are made. In short, there are no neutral grounds upon which one can choose the correct approach to social impact assessment. Such choice can perhaps be rational, but it cannot be extricated from political commitment since the choice itself involves a political issue (p.9).

The first ideal type can be viewed, basically, as 'a technique of administration' while the second 'is viewed as a social and political process of which the researcher is part' (Torgerson, 1980:148).

Ideal Approaches to SIA

From his 'analysis' of current SIA practice Torgerson, therefore, provides an explanation of not only the diversity apparent in the field of SIA, but also 'the significance of impact assessment in its broader social context.' For Torgerson 'the central tension in impact assessment parallels a similar tension in the society at large', and the maintenance of that tension occurs from the existence of two diametrically opposed (ideal) approaches: the technocratic and the participatory (1980:149). The latter 'is little more than a marginal tendency' since it is an approach which sees participation 'as a right of affected parties'. It is also a means whereby the 'knowledge necessary for understanding and evaluating the effects of a proposal' is developed within the affected community (p.152). Its marginality is further confirmed when the participatory approach is recognized as 'a social process which, by providing an educative experience, itself changes society' (p.152). Not only that, but it emerges as a political force, removing SIA from its accepted position as an administrative technique. SIA becomes, therefore, part of the continuous process of social change.

It is interesting, but not surprising, to find this line of thought being reflected in the SIA literature, because a widespread reconsideration of the philosophy of (social) science occurred through the 1960s and 1970s. This debate will be examined further in Chapter 6. However, at this stage in the discussion, both the

Torgerson and Krebs arguments should be seen as an initial introduction to a wider philosophical debate which also influenced HMP research unit staff during the monitoring project.

However, to return to Torgerson, it is not surprising to find him concluding that:

The future of social impact assessment is less dependent upon internal development than it is upon the external context of social forces in which it is practiced. Entwined in the process of policy formation, SIA develops in the context of processes influencing both specific policies and the process of policy-making itself. The conflicting tendencies within SIA can thus be seen as part of wider social conflicts. The future direction - indeed, the very existence - of SIA is inextricably linked to the way these conflicts are played out (1980:198).

The argument is clearly for the need to place SIA in its context, but Torgerson also recognizes the dialectic which is involved because he re-emphasizes that, 'As active intervention in the social world, social impact assessment acts back on the broader configuration of which it is a part' (1980:198). The notion of a dialectic involving SIA is an important development, as will be explained later, in Chapters 6 and 8.

Goals for SIA

Torgerson's identification of SIA as technique or process, and the emphasis on 'context', is echoed in Tester's work (1980; 1981). While the latter recognizes two levels of SIA - the micro with its concern 'with specific projects and short-range futures', and 'macro SIA'

paying attention to 'general directions for society and with social futures' (Tester, 1980:3) - it is his examination of the goals for SIA which develops the critical ideas introduced in Torgerson's work.

Focusing on the way the goals for SIA are operationalized Tester also identifies two polar positions not dissimilar to Torgerson's. At one extreme, where SIA is seen as social phenomenon, Tester describes the goal as follows:

to bring about fundamental social change by creating an active informed public through the processes involved in conducting assessment and by demonstrating social costs, benefits and consequences of certain types of decisions (1980:3).

At the other extreme, where SIA is seen as conventional social science research (or social technology), the goal is to bring 'about incremental changes through small adjustments to (or 'fine tuning' of) current trends in decision making. The way SIA practice achieves the latter goal is, in Tester's words, 'through improving the techniques and technology by which we assess social impacts' (1980:5).

If we take the first goal as referring to SIA as process, and the second as content, then Table 8 summarizes the Torgerson/Tester critique.

Tester has also increasingly expressed his concern over approaching SIA as Content (1980; 1982a; 1982b). He has also been arguing for a greater degree of interest in people's 'behaviour, aspirations and consciousness' (1982b). The former can be illustrated by his criticism of

TABLE 8. Dichotomous approaches to assessing social impacts and their implications

	SIA AS CONTENT	SIA AS PROCESS
PERCEPTION OF THE DEMOCRATIC TRADITION	* Centralized * Recognition of the majority * Elitist * Management by a strong central bureaucracy	* Decentralized * Recognition of cultural mosaic * Shared power * Management at a local level
RESOLUTION OF ISSUES RELATED TO CONTEXT	* Context is that of the majority as perceived by the researcher/manager as a member or servant of the majority * detached and objective observer	* Context is that of the minority or member of the mosaic in question as perceived by the minority and as conveyed by...; * The participant observer
METHODOLOGICAL APPROACH	* Sociological/economic * Objective * Detached observer * Mathematical * Objectification of experiential reality * SIA as science * Structural/functional	* Anthropological * Subjective * Participant observer * Attention to qualitative factors * Participatory * SIA as art * existential/gestalt
PERCEPTION OF SOCIAL IMPACT ASSESSMENT	* SIA as social science research resulting in a specific product containing data for decision making	* SIA primarily as a process and only secondarily producing a product, and as social phenomenon relevant to decision making

(Source: after Tester, 1980:Fig.1)

'creeping commercialism' in SIA practice:

...there appears to be a growing tendency to 'package' community and social impact assessment and to offer specific techniques, usually structured around the expertise and values of the consultant, to the prospective client' (1982a:22).

Opposed to that position is Tester's view 'that no simple combination of process, methodological orientation or content is a panacea for the conduct of a particular community impact assessment'(1982a:24).

But whereas Torgerson prefers to believe there are long-term benefits in pursuing a participatory approach (1980:198-199), Tester writes negatively on the 'co-operative model', as he calls it (1982a:24). His position is grounded on an analysis of urban/rural community differences (especially in values and world-views). It is Tester's opinion 'that the adversarial approach to assessing impacts is perhaps the most logical and just approach under many circumstances'. This is because the former provides a structured opportunity for divergent positions to be presented to some kind of arbitrator (such as a Judge or Royal Commissioner). Attempts at a co-operative approach where the participants held widely divergent values and objectives have merely resulted in the dispute widening and opposition to the alternative position becoming more entrenched.(8)

To find Tester's line of argument, on the co-operative approach, appearing at the end of a decade of intense interest in public participation is, in itself, thought provoking. It suggests that public participation has been institutionalized, to the point where it does not achieve what the public thought its objective to be. (I would explain that objective to be, to enable the general public to contribute to decision making, in order to ensure all

relevant information and points of view had been included.) This would appear to be a further confirmation of Arnstein's (1969) work on the 'ladder of citizen participation'. It recalls her cynical conclusion that most participation is intended as the manipulation of, or token participation of the publics involved. In light of the conclusions outlined on public participation, in Chapter 3, there is a note of caution implicit in Tester's argument which should be considered further when this thesis examines alternative approaches to SIA in Chapter 10.

SIA: Future Directions

The volatile state of SIA theory and practice, in part reflecting the same condition in the cognate social science disciplines, means that it is not unreasonable to expect the issues contained in the debate outlined above, to continue. Similarly, Melser's (1982) report on a recent Vancouver SIA conference confirms the disparate topics and positions being addressed at SIA forums.

From a conference which included five workshop sessions with each one containing 10 workshops, Melser managed to write a report structured around 11 headings:

- * The development situation and the place of SIA practitioners
- * The nature of social impact assessment
- * The present state of SIA
- * The state of the art from the 'science' perspective

- * The state of the art from the process perspective
- * The need for contextualization
- * Whose side is the SIA practitioner on?
- * SIA and the business corporation
- * SIA and the community
- * The SIA practitioner as mediator/broker
- * Managing toxic waste disposal

However, the current state of SIA is summed up by Melser's conclusion:

That SIA is now an accepted and reasonably well-established field of professional activity was also reflected in the tone of the conference. Participants did not have the proselytizing zeal and air of self-congratulation that one associates with the first efforts to promote a new field. The social need for and value of SIA were taken as given. The issues discussed were those that practitioners face in their work: how to provide better quality information, how to develop a mediating role more effectively, and how to ensure that SIA in practice serves the social objectives that it was designed to advance.

It was also evident in the number and range of workshops that SIA is diversifying considerably. Both the range of the situations to which SIA is being applied and the range of roles open to the practitioner are increasing. The impact situations considered extend far beyond the initial concerns with energy, water resources, highways, boomtowns and the like. Workshops also covered urban impacts, crime and prison impact assessment, robotics and other high technology developments, agricultural technologies, and international development.

New Zealand Situation

The New Zealand context differs in some respects from the USA example because of the town and country planning legislation which pre-dated the decision of Cabinet to introduce the environmental protection and enhancement procedures (or EPEP). Both the planning and environmental procedures have been described in Chapter 1, and in neither case does one find any specific (i.e. direct) reference to SIA. Rather, the language used enables the concerns of SIA to be incorporated into both of those procedures. This means concern for the 'planning' of 'human environment' is included in the responsibilities of two government agencies: Town and Country Planning Division, MWD, and Commission for the Environment. All that is required is for an interest in SIA to be read into the various clauses or sections of the relevant documents. This may be illustrated by reference to section 18 of the Town and Country Planning Act 1953, which reads:

Every district scheme shall have for its general purpose the development of the area to which it relates (including where necessary, the replanning and reconstruction of any area therein that has already been subdivided and built on) in such a way as will most effectively tend to promote and safeguard the health, safety, and convenience, and the economic and general welfare of its inhabitants, and the amenities of every part of the area.

('Amenities' are formally defined in section 2 of the Act as 'those qualities and conditions in a neighbourhood which contribute to the pleasantness, harmony, and coherence of the environment and to its better enjoyment for any permitted use.')

With town and country planning people professing an interest in promoting and safeguarding a community's economic and general welfare, and health, it is not surprising to find, in the early 1970s, official town planning circles arguing against the (then) proposed EIA procedures. It was argued that the proposed EIA procedures duplicated the responsibilities laid down in the Town and Country Planning Act, 1953, and, therefore, that the scope of EIA should at least be limited to ^{the} natural environment and conservation.(9) Implicit in that position is the retention of social impact within the ambit of town and country planning, and advocates of that position were quick to point out:

It is significant that the reporting system proposed has been 'borrowed' from American practice where the lack of any planning system comparable to that existing in New Zealand creates an entirely different need (Town, 1973).

It is interesting, given New Zealand's association with town and country planning in the United Kingdom, to find the same line of argument being advanced in that country as well, as it entered into a similar debate over environmental impact procedures (Ashby, 1976:10). However, another view of that argument is that the existence of such a debate, where town and country planning was an established statutory procedure, is itself indicative of expressed dissatisfaction with the way it was resolving issues broader in scope than its land use/physical planning focus (Douglass, 1972; O'Riordan and Hey, 1976:viii).

How the eventual adoption of environmental protection

and enhancement procedures, described in Chapter 1, was received by the Town and Country Planning Division is indicated in part by a paper titled 'Social effects of large-scale development projects' (Fraser, 1977). Writing 'on behalf of' the Ministry of Works and Development, Fraser explains that action was traditionally taken to understand development projects in terms of their 'best economic return to the nation'. However, he acknowledges 'the need to reconcile economic efficiency and environmental considerations' as being, 'a required part of the designing and decision-making processes for large projects'. Within that context Fraser introduces social and planning concerns, with the explanation:

The town and country planning division (sic)...is becoming more and more involved in yet another dimension of the process - the need to reconcile national and regional interests.

The division's concern has been with trying to answer, for designers and politicians faced with large-scale proposals with long development times and involving long-term changes, the question of what will be the effects on the people of the region (1977:14).

The date of Fraser's paper is important, because it was written in the year in which the 1953 town and country planning legislation was consolidated and amended to become the Town and Country Planning Act 1977. By then the Commission for the Environment's EIA procedures - with the tripartite interest in environmental, economic and social impacts - had been operating for three years. It is instructive, therefore, to compare the content of section 18 of the 1953 Act (as above) with its equivalent in the

new Act (section 4), to see whether the specific interest in environmental impact was registered in the new statement of the purpose of planning. Section 4 reads in part:

(1) Subject to section 3 of this Act, regional, district, and maritime planning, and the administration of the provisions of Part II of this Act, shall have for their general purposes the wise use and management of the resources, and the direction and control of the development, of a region, district, or area in such a way as will most effectively promote and safeguard the health, safety, convenience, and the economic, cultural, social, and general welfare of the people, and the amenities, of every part of the region, district, or area.

While the introduction of maritime planning was a major addition, it doesn't affect the social orientation of the Act. It is when one encounters the words 'wise use and management of the resources, and the direction and control of development' that it becomes clear that the statutory focus of town and country planning has changed with respect to its overt environmental emphasis. As far as SIA is concerned, the end piece of section 4 makes three changes ^{the} to _{old} section 18. First the words 'tend to' between 'most effectively' and 'promote' have been deleted. Second the words 'cultural' and 'social' have been inserted between 'economic and general welfare', while the third change replaced 'inhabitants' with 'people'.

Viewed cynically, the changes count for no more than a tidying up of the phraseology, rather than a major change in scope for planning. However, it is possible to argue that they do also reflect a concern by those advising the government (i.e. Town and Country Planning Division, MWD) that 'social' matters be more clearly prescribed. This

position is confirmed when reference is made to section 3, the qualifying section mentioned in section 4 as quoted above. Detailing matters of national importance which 'shall in particular be recognised and provided for', section 3 includes three matters of particular relevance to this discussion. These are:

(a) The conservation, protection, and enhancement of the physical, cultural, and social environment;

(b) The wise use and management of New Zealand's resources;...and

(g) The relationship of the Maori people and their culture and traditions with their ancestral land.

When reading each of these with SIA in mind, they serve to reinforce my interpretation, that those concerned with defining the scope of town and country planning were intent on bringing the field of social impact into its ambit.

Major Governmental Changes

The operation of the parallel interests - represented by the Town and Country Planning Division (MWD) and the Commission for the Environment - through the ensuing period to 1979 culminated in two events of significance for the development of SIA in New Zealand. The first was the

introduction of the National Development Act 1979, described by the Government as 'fast-track' legislation designed to overcome costly delays in the approval of major projects, which effectively changed the 'rules' for participation in the planning process. At the same time it introduced a statutory basis for environmental impact reports (or EIRs) by requiring the proponent for any project proceeding under the National Development Act to furnish an EIR for audit by the Commissioner for the Environment.(10) The second was the redefining of the Commission's role by the re-issuing of environmental protection and enhancement procedures. This removed the economic implications of a proposal from the audit responsibilities of the Commission, as well as requiring 'Comments received in public submissions...which relate to policy questions (to be) referred to the appropriate government departments or local bodies' (Commission for the Environment, 1981a:11; 1981b:1-2).

The state of affairs applying by the end of 1981 is documented in an OECD review of New Zealand's environmental management procedures (OECD, 1981). The report observes:

Institutionally, a number of important elements have already been put in place. Increased environmental awareness and public pressure have led gradually to greater sensitivity in departments and agencies of government. In its official submissions...the NZ Government notes that, "there is now wider acceptance among those concerned with project planning to seek out and integrate all relevant expertise before final decisions are made." Environmental protection and enhancement procedures, regional forest management planning, water rights hearings, town and country planning procedures and recent public consultations on energy policy are all providing more effective and timely opportunities for

public scrutiny of and contribution to planning decisions on resource use and development projects.

While this represents a significant advance and provides a strong basis for continuing improvements, it seems clear that further changes will be necessary if New Zealand is to deal effectively with the broad range of increasingly complex issues associated with projected developments in the 1980s (emphasis added).

SIA in New Zealand

The parallel development of SIA activities within the New Zealand 'package' of town and country planning, and the Commission's EPEP, has been reviewed in part by Crothers (1980). It is curious, given the acceptance of 'social impact assessment' (and its abbreviated form, SIA) in the North American literature, at least, to find Crothers writing on 'social impact prediction studies'. His choice of title may, at first, appear trivial, but Crothers was writing while employed as a research officer in the Town and Country Planning Division, MWD. One could surmise that his decision to ignore the established terminology of the field he was writing on, was in part a reflection of tensions between MWD and the Commission for the Environment. The latter were responsible for SIA within the context of EIA, so presumably, using the euphemism 'social impact prediction studies' may not appear too obvious.

It is not surprising, therefore, to find in a comparison of the North American and New Zealand situations

- the latter as described by Crothers (1980) - an expression of dissatisfaction with the confused state of SIA definitions in New Zealand (Krawetz, 1981c). As Krawetz explains:

As an outsider to the Huntly Monitoring Project (or HMP) and New Zealand, I was asked to put the HMP in the context of the social impact assessment (or SIA) process. What began as a very straightforward exercise, became quite confusing for what was eventually found to be a very simple reason - the terms, monitoring and social impact assessment, are defined quite differently in New Zealand than they are in the international literature (1981c:1).

Krawetz refers to three examples of SIA methodology in New Zealand: the Crothers (1980) review, a social impact study (Cawthron Technical Group, 1980), and the Huntly Monitoring Project.

From Krawetz's review it appears that Crothers has proceeded independently to define and categorize SIA activities. He uses the term 'social impact prediction study' when referring to the profiling and projection stages (only) in the conventional American process described above (cf Wolf and Krawetz). Public participation is seen as a separate, though interrelated activity, but the other stages of SIA are ignored in the Crothers definition.

Krawetz sums up Crothers' approach by concluding that:

Indeed, Crothers separates applied sociological studies into three categories, which are to be viewed in terms of a temporal cycle:

- i) those concerned with prediction (i.e. before the event); hence the term, social impact prediction studies;
- ii) those concerned with monitoring (i.e.

during the event);

iii) those concerned with evaluation (i.e., after the event). By implication, these studies seem to apply after a project is completed. Moreover, evaluation, as Crothers uses the term, refers to evaluation research, not to the evaluation stage of SIA. Indeed, evaluation as defined by Crothers is part of...the monitoring stage of SIA.

In other words, Crothers has separated several stages of SIA from what he terms social impact prediction. Additionally, he has divided the monitoring stage of SIA into two separate kinds of studies, one of which he terms monitoring, and the other evaluation.

The Cawthron example, with its objective of evaluating the social impact of the Luggate/Queensberry hydro-electric projects (on the Clutha River), was planned to proceed in three distinct stages:

Stage I is to review existing published information relevant to the social impact of the Luggate and Queensberry projects, to monitor the existing social environment and to forecast possible social impacts once a specific proposal for Luggate/Queensberry has been formulated;

Stage II will be the monitoring of social impacts during the construction period;

Stage III will consist of an evaluation of the social monitoring in Stage II and an appraisal of the measured social impacts in contrast to those predicted in Stage I.

(Cawthron Technical Group, 1980, quoted in Krawetz, 1981c:8)

Krawetz, relating these to the nine SIA stages (above) identifies stage I as profiling and projection, even though the term 'monitoring' is used. Stage II, by being limited to data collection during construction, is only a 'truncated' form of SIA monitoring. Stage III is monitoring

as she uses the term although in the Cawthron prescription it excludes reforecasting (Krawetz, 1981c:8).

The rather confused state of affairs is succinctly expressed when she observes:

Because SIA terms are used differently in New Zealand, it is possible in this country to have social impact monitoring prior to social impact assessment - essentially as a profiling exercise (emphasis mine; Krawetz, 1981c:8).

Finally, the Huntly Monitoring Project - which she notes is commissioned by the same government department as the Cawthron study - distinguishes 'between pre- and post-impact studies, the latter being termed monitoring, but both being forms of social impact studies' (Krawetz, 1981c:9). In the HMP use of terminology she notes it is implied 'that it (monitoring) goes beyond data collection to understanding "those events and causes which occurred during the implementation of the project" (Fookes, 1980:3)'. By also seeing the results of monitoring being fed back in a reassessment of the earlier SIA material (and SIA of other projects as well), the HMP prescription includes the comparative, action and reforecasting component of the North American SIA process (as described above). That is, 'as long as the implied components are considered part of the monitoring' (Krawetz, 1981c:9).

Recent SIA Monitoring

Around the time Krawetz was preparing her review of the HMP with reference to monitoring prototypes, discussions were being held in Wellington and New Plymouth

over the need for social impact monitoring of the natural gas processing proposals. Set in the context of the National Development Act 1979 - with formal EIRs (Petralgas Chemicals NZ Ltd, 1980; NZ Synthetic Fuels Corporation, 1981), Commission for the Environment audits (1980b; 1981c), and Planning Tribunal hearings - the confused picture described by Krawetz was not improved. The only official interest in social impact monitoring came from the Commission for the Environment which made nine recommendations under the heading 'social and monitoring', three of them directed at the Taranaki United Council, and the territorial local authorities directly affected by the industrial development. The purpose of 'monitoring' as intended by recommendations numbered 24-32 is expressed in number 28:

Monitoring groups should be set up in a way that will provide a quick response to project problems and enhancement opportunities (Commission for the Environment, 1980b:13).

The Planning Tribunal ruled that the subject was outside its legal terms of reference as set out in the National Development Act 1979.(11) Any action was, therefore, left to the various parties to pursue in private negotiations if they so wished. Eventually, a proposal did emerge through the initiative of a 'Social Needs Committee' established in New Plymouth with representation from the North Taranaki Council of Social Services, Taranaki United Council, MWD, Department of Social Welfare, and the two major energy companies with proposals under the National Development Act 1979 (Landon, 1982:1). Established as a

'pilot project', the principal object was 'to establish an effective monitoring system to identify the changes occurring in the Taranaki region....' The approach was defined:

(1) by identifying the appropriate sources of data to set up an information system from which the monitoring of changes occurring in the region could be analysed.

(2) by identifying, co-ordinating, assessing and communicating all relevant material to help build-up a data base and to suggest appropriate action.

(3) to conduct, where necessary, field investigations on issues that arise from (1) and (2).

(4) to write a report with recommendations for future monitoring (Landon, 1982:1).(7)

Relating the object and intended approach of the Taranaki example to the idea of monitoring as explained by Krawetz in her nine stages (above), it is clear that the former did not implicitly include a major component; namely 'a systematic and periodic updating of projections (called reforecasting), based on the measurement of actual outcomes of the project' (Krawetz, 1981c:5). It could be seen, therefore, as only partially meeting the definition by virtue of its attention to 'suggesting appropriate action' and 'recommendations for future monitoring'. It is important to acknowledge, however, that the Krawetz prescription was written for monitoring within the overall context of SIA. The Taranaki pilot project stemmed from the SIA process but was not a part of it - in the sense that SIA ceased with the Planning Tribunal hearing. In other words, this is an example similar to the HMP where

social impact monitoring occurred independently of the preceding EIA/SIA activities. Little had changed in 10 years, despite advances in EIA/SIA elsewhere. It does however introduce the subject of 'monitoring' as an activity in its own right - whether or not it occurs as part of the EIA/SIA process.

MONITORING IN EIA AND SIA

With the general EIA/SIA context described, it is now appropriate to consider the developments in monitoring. While 'monitoring' is an activity which has been applied in a number of different situations (Harris and Scott, 1974; Haynes, 1974; Proctor and Redfern Group, 1979), in the discussion which follows the term will be limited to EIA/SIA. Definitions will be introduced as part of the discussion below. Since monitoring is an integral part of environmental management control procedures, that area of application will be considered first, following which SIA monitoring will be addressed.

Environmental Monitoring

The confusion in terminology which Krawetz observed in her New Zealand review has its parallel elsewhere. Harvey (1981:283) has similarly reviewed environmental monitoring and concludes that it 'is used in a confusing and

inconsistent way'. In some of the cases he considered the term referred to environmental description; in others the context was environmental regulation. Meanwhile Harvey advocates a broad, all-embracing definition in which the former two uses are sub-sets.

Dating the term's popularity from the 1972 UN Stockholm Conference on the Environment, with its emphasis on global monitoring, Harvey lists 22 applications of the concept. Only three pre-date 1972 (Harvey, 1981: Appendix A). One example which he cites is the UNEP Global Environmental Monitoring System (or GEMS) because it provides a statement of objectives incorporating both descriptive and regulatory monitoring. These objectives are:

- 1 Increasing quantitative knowledge of natural and man-made changes in the environment and of the impact of these on man's health and well-being;
- 2 Increasing understanding of the environment and in particular, of how dynamic balance is maintained in ecosystems, as a basis for managing resources;
- 3 Providing early warning of significant environmental changes (including natural disasters) in order that protective measures may be organized;
- 4 Making it possible to check the effectiveness of establishing regulatory mechanisms and to plan optimal technological development.

(Cited in Harvey, 1981:284 from UNEP, 1975)

According to Harvey objectives 1 to 3 relate to descriptive monitoring while number 4 applies to regulatory monitoring.

Part of the confusion identified by Harvey came about through use of the terms 'survey' and 'surveillance' as

synonyms (1981:285). The inclusion of survey and surveillance activities within the practice of monitoring is his way of overcoming the early tendency to use the three terms interchangeably. 'Monitoring' is presented as the dominant term - the operation within which various tasks and functions are carried out. Identifying two sub-sets of monitoring - descriptive and regulatory - provides a practical division around which to develop a taxonomy (Harvey, 1982:314-316). This taxonomy is described in Figure 24.

Integrating Elements within Monitoring

Since there are divisions of what is seen as an integrated programme of environmental intervention, it is important to note the integrating elements: what Harvey identifies as assessment and environmental management action (or EMA). By assessment is meant the phase when 'data supplied by the monitoring effort are processed and judgements as to significance are made'. EMA involves deciding to initiate some form of intervention in light of the assessment phase results, agreeing on the desired outcome of the intervention, and the design of a programme with achievable objectives (Harvey, 1981:287). EMA provides the 'instructions' to the function of regulatory monitoring, while descriptive monitoring provides the data for assessment purposes. The importance of feed-back is acknowledged; research benefits from knowledge gained during assessment - with a subsequent flow-on to problem

Figure 24. Monitoring assessment research action paradigm (Source: T. E. Harvey, 1982, 316)

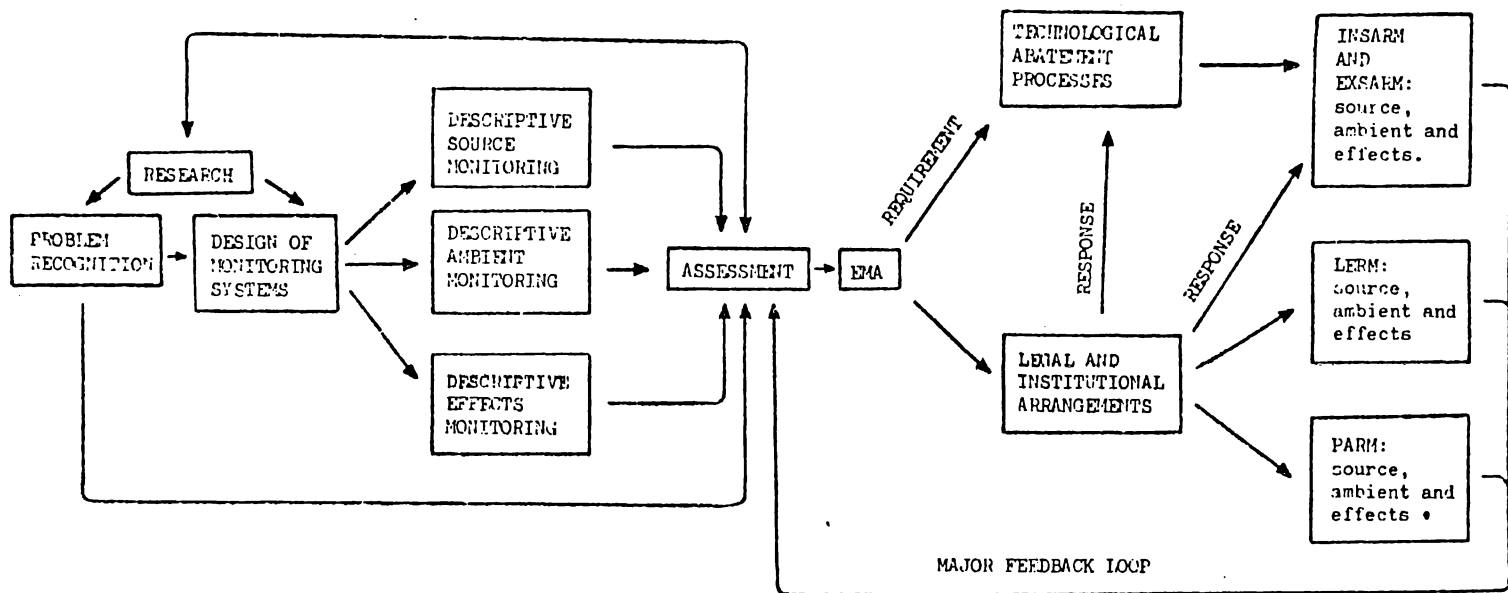


Fig. 7. Completed model of monitoring assessment research action paradigm. (For an explanation, see text). Abbreviations: EMA; environmental management action; INSARM: self-assessment regulatory monitoring by polluter against in-house standards; EXSARM: self-assessment regulatory monitoring by polluter against external requirements; LERM: law-enforcement regulatory monitoring; PARM: policy-assessment regulatory monitoring.

recognition and the design of (descriptive) monitoring systems. Regulatory monitoring generates knowledge which is fed-back to the assessment phase (with a subsequent flow-on to EMA).

The central position of EMA is readily apparent in Harvey's model (see Figure 24), which is interesting when viewed in the Huntly Monitoring project context. This is because in the environmental monitoring model a distinction is made between the data assembly and action components. In this way it is possible to establish one set of objectives for the assessment phase and another for EMA, reducing the chances of an internal conflict between objectives. For the HMP no 'internal' separation of objectives was attempted, with one set determined for the operation overall (see Chapter 1). This state of affairs created a social and economic impact monitoring operation with internally conflicting objectives (Krawetz and MacDonald, 1982), and no clear equivalent of Harvey's EMA. But this comparison of Harvey's model and HMP anticipates an examination of the Huntly operation intended for the next chapter. It does however reintroduce the subject of social and economic impact monitoring, which is considered further in the following discussion.

Social Impact Monitoring

It is clear from the environmental monitoring section - with its attention to action (EMA) - that monitoring is a control activity. In that way it conforms with one general definition of monitoring as introduced into the HMP work; that is monitoring as:

...a control activity involving the measurement of change(s) in the light of specific objective(s) (Krawetz, 1981c:10).

Whereas Harvey (1981; 1982) saw environmental monitoring existing independently of the EIA process, Krawetz ties monitoring firmly into SIA, as explained above. This position influences the way one would identify the important aspects of social and economic impact monitoring. We find Krawetz, therefore, describing them as follows:

1 It involves the periodic and systematic measurement of social change, particularly as it relates to planned development (here, the term social is used in the SIA sense, encompassing sociocultural and socioeconomic changes);

2 In spite of what its critics say, SIA monitoring is not done for its own sake; rather it involves a purpose. Ideally that purpose directly relates to the SIA process, but in actuality its purpose may be derived elsewhere. As a result monitoring is never neutral, that is, independent of its objective(s);

3 It is not an isolated activity; not only is it part of the SIA process, but also it is part of the management process of an organization or group (not necessarily corporate or government); specifically it is part of a control activity;

4 While monitoring is commonly thought of as an information collecting process, it involves several tasks including data collection, storage and retrieval, data review and judgement of

changes in terms of their significance, transfer of data review to action, feedback (Krawetz, 1981c:10-11).

In the second and third aspects above Krawetz is addressing the question, 'What is SIA monitoring for?' We were alerted above for that question by Krebs, Torgerson, and Tester. So it is interesting, in the light of their arguments, to find Krawetz identifying seven purposes for SIA monitoring. That is, monitoring for:

- * Compliance: monitoring to establish whether standards or mitigation plans have been satisfied;

- * Knowledge: monitoring in cases where little can be predicted and the object is to describe and document events;

- * Short-term management: a similar operation to monitoring for knowledge, except that the emphasis is on the community as it is affected by the project so that remedial action can be taken;

- * Project control: similar to short-term management except that the focus is on variables pertinent to the construction and operation of the facility;

- * Future planning: intended to derive general principles concerning the facility's effects on the community and surrounding region;

- * Research and development: emphasizes the mechanics of monitoring - the limits of data bases, and methods - and reports on alternative approaches;

- * Credibility: to assure the public that a facility is acting on good faith - it amounts to reviewing the monitoring being undertaken by the company.

A comparison of Krawetz's review and one by Leistritz and Chase (1982) shows that the latter adopts a more limited view of the role of SIA monitoring. They explain:

The primary purpose of a monitoring system is to provide accurate and timely socioeconomic information for decision-makers involved in both impact assessment and/or mitigation activities. These efforts of monitoring, assessment, and

mitigation are the integral components within an impact management framework. The basic intent of this comprehensive system is to analyze and evaluate the potential and actual socioeconomic impacts as well as the development of specific strategies and measures, and to ensure that benefits associated with large-scale resource projects are realized (and even accentuated), while adverse effects are alleviated (1982:334).

Their role definition fits within Krawetz's short-term management category.

In addition to identifying a range of possible purposes for SIA monitoring, Krawetz takes the debate a further step forward by arguing for it to be part of the management process (1981c:18). She is critical of reviews such as Leistritz and Chase (1982) because of the absence of:

...explicit statements about what kind of monitoring was being pursued, the organizational climate within which it was taking place and what this meant for the overall approach (1981c:18).

And yet, as she points out, these matters specifically affect the outcome of any SIA monitoring. They can be more crucial to its success than the technical issues which so often capture our attention. But how often do we find any acknowledgement that the way SIA monitoring (or environmental monitoring for that matter) 'fits into the organization(s) which sponsors it is an important consideration?' (Krawetz, 1981c:18).

Three key factors influencing 'the degree of fit' are:

- * The commitment of the organization to the objective for which SIA monitoring is being undertaken;

- * The commitment of the organization to SIA monitoring per se;

* The relationship between the organization(s) which sponsors the monitoring and the organization which undertakes it (1981c:18).

The model developed by Harvey for environmental monitoring implicitly recognizes these factors. This is done by identifying descriptive and regulatory as the two purposes, and tying them firmly into the management structure, with the assessment and EMA phases requiring overt commitment on the part of decision-makers. With regulatory monitoring including legal and institutional arrangements (Figure 24), and self-assessment by the potential 'polluter', a working relationship between the interested- parties is formalized.

Both Harvey's and Krawetz's accounts, on environmental and SIA monitoring respectively, addressed the need for those operations to be placed in an overall management process. This means that they are not just regarded as an activity at the end of a rather lengthy approvals process, which one retains because it is politically expedient to do so.

Harvey's two articles attempt to describe an environmental monitoring process. Similarly, Krawetz has set out seven SIA monitoring prototypes based on the purposes described above (see Appendices 10-16). At the time of writing (May 1983) these stand as the only comprehensive set of published 'guidelines' for SIA monitoring, as a defined activity within SIA. Therefore, they provide a point of reference for further discussion of alternative approaches to SIA monitoring. These prototypes

are considered again in Part II (Chapters 5, 7, 9, and 10).

Before proceeding to examine SIA prototypes, it is necessary to establish some more background to the HMP itself. One of the important aspects of any 'case study', or 'pioneer' piece of work, is the lessons which can be learnt from the experience. In the case of the HMP, there were a number of practical issues which impinged on the research operation, influencing the way in which the monitoring was pursued. It is believed, that by explaining what these practical issues were, the reader will be able to see the relationship between the HMP experience and the theoretical ideas which form the basis of Part II. It is the substance of the HMP experience, viewed in the context of an SIA monitoring operation, which Chapter 5 now addresses.

Chapter Five

THE HMP RESEARCH EXPERIENCE

The purpose of the previous chapters, when taken together, has been to introduce the Huntly Monitoring Project, describe its setting, summarize the research findings, and review developments in the fields of EIA, SIA, and impact monitoring. To conclude Part I, it remains for the HMP research experience itself to be reviewed. First, a number of practical issues which affected the research operation, including its daily routine, will be discussed. Next, critical reviews of the methodology and management of the HMP made by staff of the research unit during the latter stages of the project will be summarized. (At the time of writing, May 1983, no academic reviews of the Final Report series had been published.) Finally, from these reviews of the HMP research experience three broad themes are identified and briefly summarized: 1) approaches to monitoring; 2) world-views; and 3)

management processes. These themes provide the foundations of a framework for the retrospective critique which is developed in the initial chapters of Part II.

1. PRACTICAL ISSUES

Two particular factors which influenced the way the research developed were, firstly, the attitudes of people involved with the research, and secondly, the day to day issues which impinged upon the research proper. These two factors form part of the 'real world' setting for the Huntly research, and involve three broad aspects. These aspects provide the organizing structure for this section. First is 'the nature of the research client' which concerns the government departments that became 'the client' and the individuals who were involved - including people outside the client departments. The second aspect concerns the assumptions which surrounded the 'research contract', while the third (entitled 'political realities') is the effect of a change in the Government which occurred just as the research began.

The Nature of the Research Client

It is not easy to identify the HMP's client because of the involvement of several 'client' bodies. While two government departments formally funded the research unit,

there was also a formal line of responsibility between the University of Waikato and the research unit.

Government Departments

The two government departments which funded the research can be taken as one 'client', but it is the professional biases held by their staff, and the way those bias influenced the research contract, which are discussed here.

The engineering character of the two departments (MWD and NZ Electricity) is central to this discussion because that determined their dominant institutional ethos. This ethos is reflected in the departments' primary activities (civil, mechanical and electrical engineering projects), and the attitudes and values held by their staff. The latter strongly reflects the influence of an engineering education and the engineering profession itself, a subject which demands further elaboration.

The nature of the influences referred to can be found in engineering texts, as illustrated by Krick (1976:27):

An engineering problem usually begins with the recognition of a need or want that apparently can be satisfied by some physical device, structure, or process. At this stage things are likely to be vague.... The challenge to the engineer is to translate the loose statement of what is wanted into the specifications for a satisfactory means of fulfilling that objective.

Later in the text Krick includes a chapter titled 'What Does it Take?', where he sets out the problem solving requirements for an engineer, under three headings:

'Skills', 'Knowledge', 'Attitudes'. It is under the last heading that one finds further educational influences which help explain the nature of an engineering organization. That is:

Your professional obligations involve more than living up to this (the public's) trust. They include:

- * Insistence on seeing a project through to successful implementation of a solution.

- * A desire to follow up on that solution in order to benefit from experience with it.

- * A feeling of responsibility to your colleagues expressed in your actions, your attempts to improve the status of the profession, and a willingness to exchange information.

- * Maintaining in strictest confidence the unpatented ideas, secret processes, and unique know-how that your employer or client considers proprietary.

- * A concern for the direct and indirect consequences of your solutions. (Krick, 1976:35)

Even a casual reading of these professional obligations will suggest potential difficulties reconciling one obligation with another. The first, for example, may clash with the last. But the list also conveys a clear image of a group held together by definitions of practice and codes of professional behaviour, to produce a person who marries a science-grounded education with a professional dedication to 'being practical'.

This interest in the engineering setting is pertinent to this discussion of practical issues because of two inter-related factors. The first is the social science nature of the HMP research. The importance of this factor

lies in the fact that the research was carried out by people with a different educational background and 'code of practice' to the engineers who provided the dominant ethos in the client departments. The second factor is the particular character of the Town and Country Planning Division, the major sponsoring body within the MWD. Although within a department dominated by engineers, its staff were drawn primarily from disciplines other than engineering, and with an emphasis on the social sciences.(1) The Town and Country Planning Division could even be described as having minority status within the Ministries of Works and Development and Energy. Taking these two factors together it is possible to describe the Huntly Monitoring Project as a piece of social science research supported by people loosely classified as 'town planners', but strongly influenced by the engineers who formed the dominant group in the client departments.

University: Institution and Peer Group

Any formal definition of 'client' should limit the term to the government departments who were signatories to the research contract with the University. Viewed from the perspective of the researchers engaged in the monitoring project, however, the University also had to be considered a client. That is because the University, although the contractually responsible body, effectively delegated the responsibility to the HMP research unit. For normal administrative matters involving the contract, such as

disbursements, the Project Co-ordinator dealt with the University's Finance Section (Registry). In these cases standard University procedures applied, with the Accounts subject to annual Government audit. The Dean of Social Science was the principal academic officer of the University ultimately responsible for overseeing the research unit's academic and research performance. But beyond that formal chain of command there existed an academic peer group with a professional interest in the adequacy of the research operation. While not established as a formal review body, the nature of University research meant that all research aspects were subject to scrutiny - if and when the peer group considered it necessary. This 'shadow supervision' meant that the academic body (and the University as an institution) had to be viewed as a client as well.

This meant that, just as it was important to assess the dominant engineering ethos of the government departments, one should also examine the background of the academic peer group, principally drawn from the School of Social Science. These people had received their university education during the decades when disciplines subscribed heavily to the methodological principles covered by the term 'scientific method'. That is, the 'actors' who came from the university environs, in the main, subscribed to methodological views similar to those held by the research staff within the Town and Country Planning Division (MWD). In both cases there was a strong interest in the collection of verifiable data drawn from primary sources, including

social surveys and analyses using quantitative methods. Some academics, mainly in sociology, brought to the discussion other ideas which were, in various degrees, at variance with the scientific paradigm. These ideas were drawn from several sources, including social anthropology (with an interest in participant-observation), as well as the philosophical debate then current in social science (with its examination of alternative methods to those based on natural science, such as phenomenology and ethnomethodology). The substance of this philosophical debate will be reviewed in Chapter 6 since the arguments are pertinent to this retrospective view of the Huntly research. However, when the research design was discussed at Technical Committee meetings ideas on alternative methods were not presented in an assertive way, because the scientific paradigm was so obviously subscribed to by the government departments, as well as most members of the committee and the HMP research unit.(2)

Research Contract

Chapter 1 explained how the MWD, through its agent in the research section of the Town and Country Planning Division, placed considerable importance on the formal contract as a comprehensive document. The contract had the potential to be used as a formal means of control over the implementation of the research, and, therefore, the explicit and implicit intentions which people had for the contract need to be discussed.

Contract Intentions

Viewed in retrospect, the contract reflected a general suspicion of University social science research; a belief that contracts needed to tie the researchers down so that the work was completed and in the way intended. By including a three month period for cancellation, the pressure to comply with the client's wishes was maintained. The detailed terms of reference, described in Chapter 1, were intended to be a key element in maintaining the research on its agreed path.

As has been explained elsewhere (Krawetz, 1981c), implementation of the full terms of reference proved impossible, but they remained part of the formal statement of University - and research unit - responsibility. At any time, work in progress could be assessed in the light of the terms of reference, even though there may have been informal agreement that one or more of the terms of reference could be given a lesser priority. The issues of terms of reference and priority setting were to be a central element in the practical context of the project, and are an important part of the retrospective analysis in Part II. This importance is further emphasized by their appearance as crucial elements in Krawetz's criticisms of the managerial aspects of SIA monitoring later in this chapter.

Another element in the contract is the assumptions which surrounded its preparation. Both the client (through its agents) and the university staff brought to the

discussions on contract drafts their own assumptions about the institutions which were involved, the research problem, the approach to be adopted, and the way it would be implemented. Some of the assumptions were 'tabled' but others remained as 'hidden agenda' to emerge as the project was implemented. There were times when assumptions were changed without 'notice' to the other party, creating unnecessary but inevitable tension. The following constitutes my perception of these assumptions.

Assumptions Surrounding the Contract

It would be presumptuous to believe that all the assumptions involved in the monitoring project contract emerged during its life. Nevertheless, it is possible to outline the ones which did emerge during the six years, and to view them as important elements in this description of the pragmatic context for HMP. Several categories can be identified: the MWD as client, support within the University, the research problem, the research approach, and implementation. Each of the categories is treated in turn.

MWD as Client

Taking the Ministry of Works and Development as client reveals two assumptions held by them. As a collaborative exercise between the Ministry and the University, it was expected that aspects of interest to the divisions responsible for town and country planning, development and programming, and power planning and construction, would be

identified and incorporated into their in-house research. This approach would overcome the limited analytical capability of the University's HMP research unit, whose two full-time staff could be expected to be fully involved in day to day 'monitoring'. This assumption was never properly articulated, existing as a vague notion in people's minds as the contract details - especially funding - were being finalized.

University Support

It was expected that, being a Ministry funded exercise, sources of information and support generally would be readily forthcoming. This second assumption ignored the relative status position of the sponsoring division (Town and Country Planning) in a predominantly engineering world (as explained above). The status question was only a vague notion at the back of people's minds when the necessary resources were being assessed. Obviously no one from Town and Country Planning was going to volunteer that their division was 'low' in the MWD pecking order.

The question of support for the research unit within the University contained two further matters with their own assumptions. The first assumption was that it was possible to encourage participation from academic staff in various social science disciplines in order to submit the research proposal from the School of Social Sciences. By doing this it was expected that the project would be seen by each cognate discipline as an innovative, inter-disciplinary

piece of research, with opportunities for individuals to pursue their particular interests. The title 'Project Co-ordinator' was deliberately selected in order to reduce any possible negative feelings towards a project where I assumed the title of 'Director' - a possibility which I sensed given the competitiveness of some of my academic peers. This assumption was reflected in the contract through the estimate of research staff numbers. It was expected that the research unit could function with only two full-time staff, since other academic staff and graduate students would augment its research capability by following through particular topics in more depth. When this assumption is coupled with the first one on support from the MWD (above), it can be appreciated how their realization would have significantly extended the research unit's analytical output.

The University was seen by the MWD, and other government departments, as an extension of the government's public service role. This is carried through as a 'hidden' assumption when drafting research contracts, with staff and student resources taken to be freely available to augment any government research grant. In fact, since the Universities are publicly funded, that 'subsidy' is expected by government officers. To be fair, over the years the Universities have acted consistent with that perception. But this was usually in the context of part-time research supervision by academics, and graduate students with access to other finance so that their personal requirements could be satisfied with a grant for

direct expenses.(3) Given the secondment of academic staff, whose regular duties were to be taken over by a replacement, the HMP research had to be self-supporting in terms of that salary.(4) Meanwhile difficulties students had in finding work during the vacations meant they were less interested in 'expense only' grants, when the work had to be done through the summer holiday period. A contraction in University funds generally also meant less financial resources which would enable academic staff to spend time on research contracts like the Huntly Monitoring Project. For example, cuts in teaching (or sessional) assistance funds, meant staff did not have the same amount of time spare, due to laboratory/tutorial sessions, and marking, which otherwise would have been delegated to graduate assistants.

Research Problem

The nature of any research problem is affected by assumptions of the various participants. The terms of reference, outlined in Chapter 1, did not include any explicit statement in the contract as to what priorities would be set, or indeed, whether it was expected that there would be a need for priorities. The HMP Steering Committee had the responsibility to oversee the work programme, so there was an implicit indication that some decision making would be required. The difficulty which emerged was that there were assumptions on the priorities to be assigned to each of these objectives, and that these varied depending on the interested party. Within the client body

(especially Power Division, MWD), the remedial objective received first priority - especially with reference to aspects which would help power project staff 'do the job better'. On the other hand, the research unit saw the second objective (on information collection for future planning) as its first priority. This was in the belief that the information would provide the basis for remedial action, and for analysing the methodological issues (objective three). Then again the expectations of the Maori community at Waahi marae seemed to be reflecting a different objective altogether. In their eyes the research unit was to play an advocacy role, similar to that followed by the University's Centre for Maori Studies and Research. And finally, the Huntly Borough Council wanted information for its staff when dealing with government departments. Further discussion of the difficulties caused by multiple objectives, and contradictions within intended purposes of SIA monitoring occurs later in this chapter.

Research Approach

Surrounding the research approach itself were two further assumptions. Within the Power Division (MWD), the body responsible for the construction project proper, there was an assumption about the way the monitoring project would deal with data. It was expected that we would 'stick to the facts' and only work with variables directly related to the construction effort. This meant any interest in the history of the district, and coal mining in particular, was seen to be 'irrelevant'. So too were enquires into

decision-making, or the way that the Planning Forum and Liaison Committees worked. And the MWD actively discouraged the HMP research unit's interest in its employees' previous place of work, and their reasons for changing jobs.(5)

There was also an expectation in the research section of the Town and Country Planning Division that the approach would be highly quantitative, especially in the use of multi-variate techniques to establish 'causal factors' which could be used in a predictive way for future projects. And later on there was the hope that by following that route we would discover unexpected (or surprising) results which could be used to justify the research project in the eyes of ^{the} Power Division. In other words, confirmation of the expected was not a satisfactory (or justifiable) outcome if critics and cynics in the MWD were to silenced.(6) The last two assumptions emerged as the research proceeded and the research reports conveyed a more descriptive and interpretative interest on the part of the HMP research unit. This issue recurs later in this chapter with an examination of Krawetz's comments on the way the identification of cause and effect was included in the HMP approach.

Implementation

On the subject of implementation four further assumptions can be noted. It was assumed by the research unit that once data sources had been identified, and arrangements made to supply that information, then it would

be supplied as and when agreed. Research staff time could then be spent on analysis. This was an 'open' assumption when drafting the contract, freely understood by the people involved, but the reality proved it to be naive. In practice, considerable time and effort had to be spent reminding people that their information had not been sent as arranged. In many cases, data files were not updated, solely because the information had not been supplied, and the research unit did not have the time to identify the recalcitrant supplier, or follow that up with reminders. Eventually, in the final phase (1980-81), permission was granted for the research unit to employ a 'data clerk', whose principal function was to ensure that information was supplied as arranged. Around the same time, the University Computer Centre obtained software which would help search for files which needed updating. Both of those improvements in the research unit's capability to maintain data files really came too late to dramatically improve its ability to achieve the remedial objective in the terms of reference (Chapter 1).

The expectation that academic staff and graduate students would 'extend' the capabilities of the research unit was explained above. Unbeknown to us, however, was another assumption by MWD research officers: that the research product from a Masters or B.Soc.Sci.(Hons) student would be of the same standard as that of a researcher with 10 years experience. It was not accepted by the client that thesis work (or the equivalent Honours exercise) was a learning experience for the student. Nor was it accepted

that the amount of money paid as a research grant (say \$500 to \$1,000) reflected the experience to be put into the research topic.

There was some criticism, within the MWD, of the content of HMP working documents which revealed another implicit assumption: that the research unit (and particularly the Project Co-ordinator) was directly answerable to the MWD. The accountability of the Project Co-ordinator seemed to be clear when the contract was drafted, but as time passed its ambiguity became apparent, and it became necessary to ask, 'Who is the Project Co-ordinator's boss?' (7) The independence of the research unit established under a contract with the University of Waikato, had to be repeatedly asserted. And the Steering Committee, at times, had to be used as the 'go-between' when the matter was raised.(8)

The role of the Steering Committee, as it emerged during the life of the project, was not exactly as it was perceived initially by the MWD. By being a committee which involved senior administrative staff, it was expected within the Ministry to 'keep an eye on things' - to protect the respective interests of the parties involved. 'Normal' liaison would, however, be maintained directly between Town and Country Planning's research section and the HMP research unit. At the University, however, the committee was seen as the formal management unit where financial and other matters were decided. That is, where the three parties - MWD, University and Huntly Borough - could together act in a way which would facilitate the research

and protect their respective interests. The Project Co-ordinator proceeded on the latter assumption while in Wellington they were still expecting to 'pull the strings'.(9)

As mentioned at the beginning of this explanation of 'open' and 'hidden' assumptions surrounding the HMP research, these are only the ones which were either tacitly acknowledged when the contract was drafted, or emerged subsequently to the point where I became conscious of them. There were probably others which coloured the way the monitoring project was viewed, and its results received, but they remain for someone else to establish.(10)

Political Realities

The political scene is included in this discussion because it introduces two aspects which were important through the life of the research project. The first aspect is a general one; that is the political nature of social impact monitoring. This is a point touched on by Torgerson and Tester (see Chapter 4.) It is naive to believe that, because something is a scientifically managed piece of research, it can avoid clashing with the political establishment when the focus of that research is on the consequences of technical and political decisions.

The HMP experience included two political aspects which were to prove relevant to the monitoring operation. The first was (discrete) pressure from MWD and NZ Electricity staff, to act in a way which would not embarrass

their respective ministers. The second was the effect of a change in the Government, when a Labour administration was replaced by a National Party government in the same month as the HMP research unit was formally established. These two aspects form the basis of the following discussion.

Ministerial Responsibility

When the object being monitored is planned and built by government departments, rather than private enterprise, then the responsibilities of the former group include those of client, project manager, and - in places - contractor. In this case the Ministerial chain of command which operates in government departments means politics cannot be ignored. It remains central to the construction operation even if public attention can be directed to other matters, such as bringing large boilers on to site or topping-off the 151 metre chimneys. The appearance of periodic reports from a monitoring operation like the HMP can have the effect of bringing politically sensitive matters to the attention of the public. The importance of this aspect was brought home to the Project Co-ordinator when the Vice Chancellor was told by a senior NZ Electricity officer that problems didn't exist in the minds of local people until the HMP's views were published in the local newspapers.(11) Since they were conscious of this strong feeling within the client bodies, it had obvious implications for the day to day activities of the monitoring staff. Later in this chapter the political theme is considered again when the

place of SIA monitoring in the managerial process is introduced.

Change in Government

The second aspect in this political theme is the defeat of the Labour Government in 1975. The timing of this electoral defeat was important for the monitoring project because negotiations had been completed just prior to the election date, although Ministerial approval had not been formally secured by way of a binding letter to the Vice Chancellor. The final approval was dispatched in the last days of the Labour Administration. As a consequence, the research began in the same month as the new National Party Cabinet. While it had been assumed that the agreement of the Minister of Works brought with it continuing political support, a new National Party government, with a new Minister in charge, affected that assumption. It was now necessary to re-establish that support, a situation which was never realized due to an apparent reluctance within the Town and Country Planning Division to bring the project to the Minister's attention. As it happened, the project never overcame the fact that it operated through an agreement signed by the previous Government. It was only in the last three years, when the Energy/Electricity/Mines portfolio became the responsibility of the local Member of Parliament - the Hon. W.F. Birch - that some degree of Ministerial interest was regained, even if that support was conditional on the

project not becoming too expensive.

The association of political support with finance is not inconsequential as far as the pragmatics of the research are concerned. This is because the change in government brought with it a major restriction in public sector spending. The amount allocated to the Town and Country Planning Division for 'Contracts' was effectively frozen at the 1975 level; in spite of annual inflation rates which increased steadily from around seven, to over 15 percent. With the cost of inflation built into HMP funding, it was quite clear that the research budget had to be tightly controlled - and real value increases were out of the question.

The government also established staff employment limits, which operated as a 'sinking lid' as staff numbers were to decrease each year. This had the effect of discouraging government departments from making staff available for Huntly-related research tasks, such as extracting data or following up a research topic identified as 'of interest' by the HMP research unit. The significance of this issue will become even more apparent following discussion, later in this chapter, of Krawetz's criticisms of the HMP's place in project management. Her comments on the need for commitment to both SIA monitoring in general, and the particular monitoring operation, will place these 'political' events in a wider context.

So far this chapter has identified issues of practical importance in the conduct of the HMP. These issues concern not only the human dimension to designing and implementing SIA monitoring projects (particularly professional and community attitudes and values), but also the place of assumptions of involved parties and the influence of the political setting. All of these helped shape the context within which the HMP was to proceed, and consequently affected the way it was designed, implemented and results produced.

2. INTERNAL CRITICISMS

One of the research unit's contractual responsibilities was to report on methodological matters (see terms of reference in Chapter 1). As part of that responsibility the HMP research unit included methodological material in its research papers. This material contained criticisms of the research operation, and it is the purpose of this section to review that critical material in order to contribute to the foundation being laid in Part I for the SIA monitoring critique which follows in Part II.

This section is presented in two parts. The first reviews the criticisms on 'methodology' prepared by the HMP research unit staff as part of their role. The second critically reviews the 'management' of the HMP. It is

based on a report to the Vice-Chancellor for consideration by the University (Krawetz and MacDonald, 1982).

HMP Research Unit's Criticisms

Opportunities to comment critically on aspects of the monitoring project were used by the research unit. One of the first examples can be found in the Annual Report (HMP Steering Committee, 1977:5) where the project's over-ambitious set of objectives was recognized. At that time the need to approach each objective unevenly was confirmed and the setting of priorities was implied. Similarly, discussions over the renewal of the research contract provided an opportunity to draw attention to an over-concentration of effort going into data collection, and the subsequent short-fall in specific studies of change (HMP Steering Committee, 1978). In 1979 there was another opportunity to reflect on the monitoring operation, when I was invited to participate in a UNESCO workshop on social indicators (Fookes, 1979a). The subject of that particular workshop meant an emphasis on various data difficulties and the way these influenced the number of variables able to be included in a social and economic monitoring operation. A year later a paper prepared for an MWD seminar (Fookes, 1980c) carried the subject of data collection difficulties a stage further. It identified some of the obstacles experienced by the HMP due to the individuals involved, rather than the data itself. In other words, constraints on access to data were due to people's decisions whether to

be co-operative, or not.

In each of the opportunities mentioned the interest was in addressing essentially 'practical' questions. The philosophical and methodological bases for the monitoring operation were taken as given. Not until the research unit managed a formal review of the variables upon which the project was based was the scope broadened to include some questions on philosophy and methodology (Fookes, Drury and Meade Rose, 1980). The extension of the work to include such questions should not, however, be over-exaggerated. Efforts by the research unit to address philosophical questions had to be fairly covert in order for the client bodies to acquiesce. Not surprisingly, the overwhelming emphasis remained on the variables used in the project.(12)

It is not surprising to find the reports mentioned above adopting a positive stance, knowing that the HMP did not have the unqualified support of its clients (Chapter 1), and the defensive reaction which that generated within the research unit. Any criticisms of the HMP were more likely to emerge by implication, rather than being openly identified as deficiencies in the research. This was one reason why it was arranged that Dr N.M. Krawetz carry out an independent review of the HMP for the Vice Chancellor (Krawetz and MacDonald, 1982). This report was completed after the formal completion of the monitoring project and submitted to the University. Copies were subsequently made available through the HMP Steering Committee to the client bodies. Further comment on that report will be made later

in this chapter.

In discussing reviews of monitoring operations by the research unit, it is relevant to acknowledge the role of the National Research Advisory Council (NRAC) in obtaining Ministerial consent for the final phase of the HMP. At the time of the 1978/79 contract renewal, the Hon W.F. Birch M.P., as the Minister of Science and Technology, requested a report from the the NRAC Social Sciences Committee. In their report the committee confirmed the importance of the monitoring effort, and supported the HMP's continuation for a further two years. While detailed comments made to the committee by other parties (such as the MWD and NZ Electricity) remain confidential, a copy of the report was sent to the Vice Chancellor as Chairman of the HMP Steering Committee (Appendix 17).

Variables Reviewed

The review of variables by the HMP research unit, came about through a request from the Town and Country Planning Division, since there was an interest in which variables were most useful for a monitoring operation.(13) The emphasis in that review was on the availability of information for each variable, and the adequacy of that variable when considered in the context of social and economic impact monitoring. The main conclusions reached by the HMP research unit imply certain criticisms of the HMP approach.

In the first instance, the review acknowledges difficulties with the identification of the cause for any change in a variable; in particular, being quite certain that the power project was the cause of that change in a variable(s), since a number of 'events' could offer plausible explanations of change. There was no difficulty accepting the causal chain effect, with a variable reflecting second or third step effects. However, to show unequivocally that the power project was 'associated' in some way often proved difficult. The application of statistical inference to change in one or more variables, while 'suggesting' an association, did not necessarily 'prove' that the power project was the cause. Where the result confirmed an existing belief, the conclusion was usually left unchallenged by the client; the converse, however, usually brought a vigorous response.

A good example of the whole issue of causation can be found in Drury's (1980) analysis of variables concerning regional employment and unemployment. While his conclusions were suitably qualified because of the nature of the data available, there was the suggestion that the power project had not reduced local unemployment. Since this conclusion was contrary to official (client) expectations, interested parties were quick to suggest other reasons which would reverse the result. The absence of data which could support or refute the suggestion was conveniently ignored in the struggle to sustain popular belief.(14) In its 1980 review the research unit supported Drury's argument that the search for causation would be

better pursued from a core of variables where the data were obtained directly from power project records or the construction and operations staff.(15)

Described as the 'inside looking out' approach, that conclusion indicated a change in the monitoring project's position on broadly-based data collection (Chapter 1), described elsewhere as 'the information sponge approach' (Proctor and Redfern, 1979: 3.8). This expression of doubt on one's ability to infer the cause of change or the 'impact' of a power project, can be contrasted with the confident position presented by Leistritz and Chase (1982). This issue is given further consideration in the context of Krawetz's criticisms of the HMP approach in the next section of this chapter.

Another criticism by the HMP research unit arose in connection with attitudinal information.(16) While acknowledging that some information about attitudes, and behaviour, can be coded so as to express it in a quantifiable form, the review identified the need to pursue sources which will produce information of a qualitative character. While it was acknowledged by the HMP research unit, that the HMP did include both types of 'information' in the study, there was no plan for the latter to be incorporated in the project overall. The pursuit of survey data through formal questionnaires to produce quantifiable information (such as the number of Huntly Power Project households shopping in Huntly) was consistent with the HMP's emphasis on statistical sources. It was also consistent with the prevailing philosophical position

within the social sciences, itself questioned, in a tentative way, in this 1980 review.

One way the HMP research unit was able to comment critically on the philosophical traditions underlying the scientific paradigm, upon which the HMP had been based, was within suggestions for an alternative monitoring approach (Fookes, Drury and Meade Rose, 1980). Within the presentation of an alternative approach one can determine certain criticisms of the philosophy underlying the HMP approach. These criticism are summarized in the following paragraphs.

The first criticism is of the tendency to rely on knowledge derived solely from statistical sources. Attention is focused on:

..the requirement of the researchers to interpret the actions of people who themselves are interpreting their own world in relation to their beliefs, desires, attitudes, purposes, and so on (Fookes, Drury, Meade Rose, 1980: 35).

While not entirely rejecting the use of statistical sources, the authors warn against 'this being the sole, or necessarily, the most appropriate approach to monitoring social and economic impact.'

The second implied criticism is related to the first and refers to the way scientific method, strictly applied, separates the observer from the observed. That is, the tendency for problem identification, data collection, interpretation and conclusions, to proceed without the participation of the people directly involved - the subjects. This separation of observer and observed is

linked with a general, paternalistic tendency in our society; to favour approaches which proceed from the top down, rather than from the bottom up.

The significance of these two criticisms for the research unit's ideas on an alternative approach to social and economic impact monitoring, can be seen by reference to the principles around which the alternative approach was suggested (Table 9). They can also be read as implied criticisms of some aspects of the approach actually followed by the HMP.

TABLE 9. Principles for an Alternative
Approach to Monitoring

-
- 1 The operation must be community-centred, so that:
 - (a) it derives its legitimacy (and therefore its support) from the people being affected by the proposed project;
 - (b) its direction is primarily determined by the community and not by institutions external to the people affected;
 - (c) it involves individual citizens as well as representatives of local institutions.
 - 2 All information assembled for monitoring must be freely available to all interested parties.
 - 3 An educational component involving the community and other interested parties (including the proponent) should be an integral part of the operation. Included in this component should be the use of experts as catalysts to develop greater self awareness and understanding of the impact situation.
 - 4 Monitoring as a vehicle for dialogue between all interested parties must be seen as an integral part of the operation.
 - 5 The assembly of information must include the collation of local views on impact and the collection of quantifiable information.
-

On the 'principle' of the monitoring being community-centred, it is important to note that the HMP was developed independently of the Huntly community, with negotiations involving the affected departments only. Not until agreement was reached with the MWD and the research unit formed, was an invitation, issued through the Huntly Planning Forum, for local body representation on the HMP Steering Committee.(18) Participation of local body officers in the HMP Technical Committee then followed. Otherwise local 'involvement' was limited either to contact with community representatives through the HPP Liaison Committee and the Planning Forum, or household surveys, or through meetings with the HMP Interviewer Panel. Occasional invitations to address the Huntly Borough Council, and the Lions and Rotary Clubs could be classed as other forms of contact. Essentially, however, apart from the Mayor of Huntly's interventions as a member of the HMP Steering Committee, direct community involvement in the design and implementation of the research was absent.

The 'principle' of freely available information was achieved through the general availability of research unit staff, and publication of progress reports (or Working Papers) and the Research Memorandum series (Appendix 7).

Through the HMP's publication efforts, as well as staff attendance at public meetings, it was hoped that there would be some community 'education' or consciousness-raising, but that objective was not a formal part of the research project. Similarly, the monitoring was not officially recognized as providing an opportunity

for a dialogue between interested-parties. In fact, the research orientation of the monitoring was in conflict with that position since it meant 'interfering' in the process which was being studied.

Finally, the last 'principle' on including local views as well as quantifiable information was followed to a degree by the HMP (see Fookes, Drury and Meade Rose, 1980).

HMP Methodology Critique - Krawetz

Before summarizing the methodology critique of the HMP produced by Krawetz (1981c) for the research unit, her examination of objectives introduced in Chapter 4 will be elaborated upon. This is done by comparing the seven purposes for SIA monitoring with the three objectives set for the HMP (Table 10). In that comparison there is an implicit criticism of the mismatch between objectives stated in the terms of reference and the conditions met by the research operation.

TABLE 10. HMP Objectives and Monitoring Purposes

HMP OBJECTIVES	SIA PURPOSES
1 Identify potential problems early enough for timely remedial action	Short-term management
2 Provide information relevant to the planning of future development projects	Future planning
3 Develop effective and efficient procedures and methods suitable for the future monitoring of development projects	Research and Development

While it is not uncommon for research projects to define multiple objectives, in the case of SIA monitoring there are inherent difficulties which Krawetz identifies. She argues that 'in order for any objective to be achieved, specific conditions which facilitate this objective are essential' (1981c: 16; emphasis mine). In support of her argument she prepared detailed 'prototypic conditions' for each of the seven objectives.(19) These seven prototypes were introduced in Chapter 4. The three which relate to the purposes identified with the HMP objectives are included as Appendices 10-16. To illustrate the differences which she has identified, one part of each set of conditions is compared in Table 11.

TABLE 11. Prototypic Conditions Compared

OBJECTIVE	CHARACTERISTICS OF THE SITUATION
Short-term management	Dynamic, uncertain, urgent, pragmatic
Future planning	Long-term, reflective
Research and Development	Long-term, 'top secret'; product-oriented; uncertain, fluid

Source: Krawetz (1981c: Appendices C, E, F)

Krawetz sums up the situation faced when attempting to pursue multiple objectives by explaining:

Monitoring for one objective is a monumental task; where more than one objective is involved, the load is likely to increase exponentially - increased resources, a more comprehensive programme, and much effort directed at establishing links in the overall approach so that each objective is accommodated, but not at the expense of any other (1981c:17).

While setting priorities is acknowledged as a way to manage the amount of work created by multiple objectives, the tendency for one to be singled out - to become the prime objective - requires other adjustments. These amount to a dilution of effort and resources for the lower priority objectives. Krawetz observes that the HMPs initial attempt to maintain all three objectives resulted in a lessening of the level of effort spent on any one objective, and all three suffered.(20) She notes how the setting of priorities after 1979, when the contract was renegotiated, was to be expected, but her analysis of multiple objective SIA monitoring can be taken as an implied criticism of the over-ambitious way the HMP approached its terms of reference.(21)

Another aspect of Krawetz's assessment of SIA monitoring - considered in the light of HMP experience - is the place of the activity in the management process, one of the three themes identified in Chapter 5, above (1981c:18-21). By this she is drawing attention to SIA monitoring as part of the project, or policy development, which it is observing, not separate from it. Being 'part of a project' means 'fitting into the organization which sponsors it', and Krawetz identifies three factors which affect the 'degree of fit':

- * the commitment of the organization to the objective for which SIA monitoring is being undertaken;

- * the commitment of the organization to SIA monitoring per se;

* the relationship between the organization(s) which sponsors the monitoring and the organization which undertakes it (1981c:18).

The emphasis on commitment is pertinent to the HMP case given the references in previous chapters to a general lack of enthusiasm for the monitoring project. There have also been the different opinions described in this chapter as to how one should analyze, interpret and report data. Similarly, the difficulties over initial assumptions described above are pertinent to any consideration of relationships. It is not surprising, therefore, to find Krawetz concluding from her examination of the three factors as they applied to the HMP, that under optimal conditions monitoring for short-term management was 'unachievable', while future planning, and research and development, were both 'achievable'. A summary of the analysis is contained in Appendix 18.

The conclusions on 'achievability' viewed the HMP in terms of optimal conditions, but Krawetz also looks critically at the actual conditions and operations as they affect the three monitoring objectives. On monitoring for short-term management she concludes that there were several ways in which the HMP falls short of the prototype. In the first instance data timeliness - as a crucial feature of the prototype - was not adequately built into the operation. Nor was it able to be ensured, because, as Krawetz explained:

...the relationship between the HMP and the data collection agencies was passive rather than participatory, with the agency being the controlling body. Because the agencies were not

committed to the HMP objectives or the HMP itself, there was no reason to provide it with more timely data. Moreover, there was no reason to allow it direct access so that it could ensure timeliness (1981c:23).

And Krawetz sees the research unit's limited abilities to mount in-depth studies as further compounding the fact that the HMP approach 'offered no strategy to improve access.' In short, the HMP was left monitoring with what was available and accessible, rather than meeting the prototype's requirement of '...the minimum number of indicators to yield the maximum amount of information' (1981c:24). She also comments, parenthetically, that the suggestions made in Final Report Paper No.9 to improve the situation 'hardly constitute a free flow of information or guarantee it' (1981c:24).

The way the HMP approached the notion of causality is criticised by Krawetz. Causality is seen to be an important aspect when monitoring for short-term management because it is necessary 'in order to justify that impact has been caused, and to determine the causal agent' (1981c:24). By adopting the systems view without specifically identifying cause-effect relationships, the HMP built-in a methodological vagueness which it tried to reduce by calling for specific in-depth studies. But such studies, Krawetz explains, would be forced to acquire additional data retrospectively which did not help when the task was to clarify causation. The 'inside-out' approach suggested by Drury (1980) and mentioned above, does not, in Krawetz's view, improve the situation when short-term

planning is the objective. As she explains (page 25):

The difficulty is that the 'information sponge' approach uses the community as its focus; the suggested alternative 'inside-out' approach would focus on the project; whereas what is more appropriate for this objective is to focus on the project-community interface (emphasis mine).

Furthermore, Krawetz points out how it is crucial to be able to identify conclusively the causal agent. One has 'to know who is responsible for taking action and who has necessitated (i.e. caused) the action to be taken' (Krawetz, 1981c:25). The limited interest noted above, and the lack of authority for the HMP to pursue such matters, placed that knowledge out of the research unit's reach. Meanwhile, she shows how the lack of such knowledge has implications for another of the HMP objectives: future planning.

With monitoring for future planning, problems with the information base reduced the degree to which the HMP findings could be generalized to apply to other development projects. As Krawetz notes (page 26):

...there is, in theory, nothing incompatible with the HMP information sponge' approach - provided, of course, that the sponge soaked up the necessary data for this objective along with the rest. However, there are essential characteristics for this objective which the approach did not have. Primarily these were limitations on the access and availability of data in established bases, coupled with the HMP's inability to generate a sufficient data base of its own.

The need to build monitoring for future planning on a base of 'retrospective studies and multiple case comparisons' identified another criticism of the HMP. When the lack of

comparative cases is added to the HMP's limited access to relevant decision-making systems, then the deduction of general planning principles becomes problematic. As Krawetz summed it up:

...the HMP approach and conditions under which it was used allowed aspects of the system to be described though not necessarily understood, thereby limiting the achievement of this objective (page 27).

With regard to the third objective on research and development objective, Krawetz acknowledges some limited achievements which came about simply by implementing the HMP, but her criticisms are summed up by the statement (page 27):

No attempts were made to develop specific methods and attempts at developing data were limited by organizational and funding constraints, as well as the absence of a methodologist on the study team.

Viewed overall, Krawetz's assessment of the HMP approach is presented in the following quotation:

The HMP study approach limited the achievement of the objective, monitoring for future planning, by placing heavy emphasis on description and data collection (as opposed to interpretation and analysis in the context of relevant decision-making systems). The objective, monitoring for research and development, was met in terms of the operational aspects of such programmes, that is day-to-day strategies for data management, rather than in terms of system design. The objective, monitoring for short-term management, could not be met (1981c:30).

HMP Management Critique - Krawetz and MacDonald

The independent review of the HMP prepared for the Vice-Chancellor is presented here because it provides further criticisms of importance to this thesis. Although not a part of the Final Report series, it was initiated by the HMP research unit as part of its interest in critiques of the monitoring project. The main conclusions are summarized in Table 12 and the complete document is included as Appendix 19 (Krawetz and MacDonald, 1982). As a 'management review', the conclusions of this document go beyond the methodological issues raised by Krawetz in Paper No.10 and summarized above.

TABLE 12. Krawetz and MacDonald's Conclusions

-
- 1 the budget was inappropriate for the Project's scope
 - 2 the Steering committee played a key role in ensuring the Project's continued survival
 - 3 the clients continue to develop their commitment to the social sciences
 - 4 expectations for faculty collaboration and participation in the Monitoring Project were unrealistic at the time; and the University is not better prepared at present to support inter-disciplinary research in the social sciences
 - 5 the University's reward system is not appropriate for people engaged in contract or inter-disciplinary research
 - 6 the issue of where academic freedom ends and responsibility to the client begins, is critical to contract research in a university setting
-

In carrying out the review Krawetz and MacDonald interviewed the full range of interested-parties involved in the Huntly research, which took their enquiries to Wellington as well as Hamilton, Huntly and the University itself. It is evident from Table 12 that their report focused on management issues pertinent to the HMP contract and the way it was carried out by the University of Waikato. Although not all of the conclusions will continue to be of issue in Part II, there is a research management theme which can be identified from the outcome of the Krawetz and MacDonald review. This theme reinforces the ideas introduced above on the place of SIA monitoring in the project management process.

The relationship between SIA monitoring in the project management process suggests an over-arching theme of relevance to both contract management and the monitoring approach. This is summed up by Krawetz's comment on system design reviews (e.g. Leistritz and Chase, 1982):

What such reports often exclude are explicit statements about what kind of monitoring was being pursued, the organizational climate within which it was taking place and what this meant about the overall approach. Yet, as is often acknowledged in private discussions, these 'unsaid elements' have as much influence on the relative success or failure of a monitoring endeavour as the more technical issues of systems design (1981c:18).

3. THREE THEMES

Identifying one over-arching theme in the last of the critiques reviewed in this chapter does not, however, preclude the existence of others in the earlier discussion of practical issues and the research unit's criticisms. Two closely inter-related themes are: 1) the monitoring approach and its implementation; and 2) the world-views of interested-parties. The 'management' theme already discussed intersects with these two themes since management has a bearing on aspects of monitoring design and implementation, and the way people involved in the research 'see the world'.

The number and complexity of issues raised in this chapter so far has meant that issues re-occurred at various stages through the various critiques. Repeatedly one was presented with an issue which referred either to:

- (a) approaches to monitoring and their implementation, or
- (b) the perceptions held by people involved with the research, or
- (c) management processes.

Examples of the first case can be found in the discussions on data-related problems, the over-ambitious terms of reference, the problems surrounding multiple objectives and the setting of priorities, and the difficulties with causation. For the second case one would include the treatment of the dominant, scientific paradigm,

the importance of the engineering ethos, the minority status of Town and Country Planning Division, and the University peer group, and the complex implications of assumptions which surrounded the research project at all stages. The third case draws together the arguments for SIA monitoring to be seen as part of project management, in its broadest sense, and issues of research management such as summarized in Table 12.

Theme Inter-relationships

Identifying these themes could, however, serve to maintain a false separation of what is a complex 'matrix'. In the matrix, essentially 'practical' issues, like data supply, are inter-related with 'psychological' issues, such as the 'view' engineers have of their profession and its 'scientific' foundations. At the same time, the experience gained from the HMP confirms the belief in some social science circles that the social milieu within which various parties interact, and the experiences so gained, serve to bring about change in the participants' attitudes. In other words, there is a dialectical relationship between the practical world and changes in the way people view that world. Taking the last example as an illustration, in the 'practical' sphere this may result in a modified data supply arrangement. In the 'psychological' sphere it may be reflected in types of data which would be accepted in SIA monitoring.

It is this notion of a dialectical relationship which provides the conceptual link between the HMP experience described in Part I and the retrospective perspective set out in Part II. The three dialectic elements to be treated in Part II have been defined by way of the inter-related themes which have emerged through the critiques in this chapter. That is, 1) approaches to monitoring, 2) world-views, and 3) management processes.

PART II

SOCIAL IMPACT ASSESSMENT MONITORING
A CRITIQUE

Chapter Six

INTRODUCTION TO A SIA MONITORING CRITIQUE

While Chapter 5 provided an example of the practical context within which an SIA monitoring operation occurs, there are other types of settings within which SIA monitoring in general, and the HMP in particular can be placed. One of these settings can be generally described as 'the philosophical context'. Such a context, by covering the logic and methods of social science, brings together ideas which address the research process. In order to 'enter' the philosophical context, this chapter addresses selected ideas as contained in current social science literature, when read in relation to the HMP experience.(1)

The chapter begins with contemporary philosophical ideas concerning the traditional (and dominant) paradigm for the social sciences: positivism. It traces salient features of the debate over the strengths and weaknesses of scientific method, or positivism, in understanding social

phenomena. These arguments set the scene for Part II by identifying a general philosophical shift in the thinking of some social scientists during the late 1960s and into the 1970s, from positivism to alternatives, such as phenomenology, marxism, and logico-linguistics. The alternative philosophical positions being advocated through that period influenced the HMP research unit as it proceeded with monitoring Huntly Power Station, particularly in the latter stages, 1978-80. However, the way the positivistic orientation of the HMP research design had set the direction of the monitoring, and the content of the Final Report (Fookes, 1981a), has already been explained in Part I (Chapters 1 and 5).

It will be evident from the description of the HMP in Part I that there was a clear structural-functionalist approach evident in the HMP work overall (Milton E. Harvey, 1981). At the same time the alternative philosophical ideas being introduced through the literature and local academic contacts tended to create a tension between practice and theory, a conflict mentioned in Chapter 5. This conflict can be explained, in part, when it is understood that the HMP experience included the traditional paradigm (i.e. scientific method) and some ideas from those alternative philosophical approaches. Furthermore, it is not surprising to find the same type of tension emerging in this thesis as it essentially moves from practice to theory.

PHILOSOPHICAL CONTEXT

Three broad themes were identified in Chapter 5: 1) approaches to monitoring; 2) world-views of interested-parties; and 3) management processes. It was concluded in that chapter that it was necessary to view those themes in terms of a dialectical relationship. The philosophical implications of that conclusion effectively move this thesis from considering essentially practical, HMP-related matters, to more abstract ones. It also provides an opportunity to examine the changing philosophical position of geographers vis-a-vis the traditions of scientific enquiry. The HMP itself occurred within a philosophical context. This means the philosophical literature, when considered in the light of the HMP experience, is pertinent to the three themes derived from the reviews in Chapter 5.

Scientific Paradigm Debate

The changing philosophical positions of human geographers - and social scientists in general - is summed up by Neil Smith's observation:

As Lancelot sought the Holy Grail, geographers in the last 20 years have sought the scientific paradigm. Lancelot failed but he learned the pleasure of more earthly things. So too geographers (1979:356).

Smith was adding to a debate about the efficacy of the scientific paradigm for social science. This debate had already produced Guelke's 'no laws for human geographers'

assertion (1971:45).(2)

Geography's adoption of the scientific paradigm had its origins, in part, in that discipline's attempt to retain intellectual respectability (Gregory, 1978). Geography, at least in the Anglo-American world, emerged as a discipline during the Victorian era (1837-1901) to find a firmly established natural science tradition around which it developed. Furthermore, the so-called 'New Geography' of the 1950s and 60s was pioneered by practitioners who had maintained that Victorian perspective (Gregory, 1978). They had also set in train, to quote Leslie King (1976:293), 'a revolution in techniques and not one in the main thrust of intellectual enquiry.'

The Dominant Paradigm of the 1950s and 60s

The same decades saw the social and natural sciences operating within a paradigm which required knowledge to be based on direct experience of an immediate reality while using the knowledge to derive laws which regulated man and nature. Society at large had come to adopt this view of science and, therefore, the community overall recognized the practical relevance of disciplines which held the same philosophical position. By referring to 'scientific method' the new generation of human geographers, as well as other social scientists, were hoping to reassure the public that their work was soundly based. At the same time people's expectations of what 'social science' could 'deliver' were grounded in the achievements of the natural

sciences, and implemented through medicine, agriculture, and industry. As Smith explains:

By seeking scientific laws and theories, by applying models and systems scientifically, or at least by testing hypotheses according to scientific criteria, geographers made geography a science (1979:358).

Philosophically speaking, they had adopted a positivistic perspective on society: one that demanded 'a rigorous dichotomy between fact and value, theory and practice, and the pure and the applied' (Smith, 1979:358).(3) Some people would even label positivism more strongly by referring to its 'hidden agenda' of controlling or manipulating the phenomena being analysed (Zelinsky, 1975:127).

The positivistic position of geography hardened through the 1950s and 60s, with new statistical 'tools' being brought to bear on old problems and approaches (Burton, 1963). This change was expressed in an exemplary manner by David Harvey with his text Explanation in Geography (1969). Reaction to Harvey was generally favourable - some have said 'enthusiastic' - demonstrating the degree to which it clarified, philosophically and methodologically, a prevailing consensus (Smith, 1979:357-358). But it was a consensus which could not be sustained in the face of intense philosophical argument within the wider setting of social science.

Harvey wrote his book for geographers at the time when some social scientists in other disciplines were placing the accepted paradigm under intense intellectual

scrutiny.(4) For example, by 1974 we find Albrow writing in The Sociological Review:

In contrasting 'dialectical' and 'categorical' paradigms of a science of society, I hope to show that sociologists have strategic choices to make about basic methodology, where so often choice is thought not to exist, and to make it apparent that the choice is moral and not merely technical (1974:183).(5)

Even among geographers, Guelke (1971) was asking why his colleagues had neglected to query 'whether a narrowly conceived scientific approach is appropriate to the study of phenomena of concern to geographers'.(6) Meanwhile, by 1973, we find Harvey shifting his ground with the publication of Social Justice and the City, and practitioners who had excelled in geography's 'quantitative revolution' felt sufficiently under attack to offer a strenuous defence of positivism (e.g., Amadeo and Golledge, 1975).

Accounts reviewing the events of the past decade in geography, such as King (1976), Gregory (1978), and Johnston (1979), provide an impression of frustration within the discipline. This was mirrored in the social sciences generally, as the contributing disciplines tried to achieve the nomological (or law-making) objective explicit in the scientific paradigm. This frustration is expressed by Smith when he explains:

Although the social sciences have zealously adopted the methods and outlook of the categorical paradigm, they have received few of the promised rewards. They are overpopulated by models, hypotheses and systems, underpopulated by theories and explanations, and have barely seen a decent law (1979:360).

Increasingly geographers were coming to appreciate, however, that the issue was not solely one of technique. Questions were being asked about the perspective, or world-view, which positivism required (e.g., Buttner, 1974; 1976). The idea that the scientific paradigm itself influenced the way the problem was defined, as well as the way information was collected and analysed was being raised. As Marcuse (1972) argued, science involves both technology and ideology, and it was an appreciation of the latter which began to affect geographers during the mid 1970s (Gregory, 1978). The myth of (social) science as value-free knowledge was exploded.

Lack of Consensus

The impression which emerges from a review of the philosophical and theoretical bases of the social sciences is a lack of consensus. Some, such as Giddens (1979) would say it is an impression of disarray. The challenges to positivism as the orthodox consensus have not seen it replaced by a new philosophical and theoretical base, at least not with the degree of universal acceptance registered for its predecessor. It is even argued in some quarters that to expect one (dominant) paradigm is unrealistic. Bird (1978:134), for example, explains:

Monistic methodological solutions for [Western] social science seem to be falling out of fashion, perhaps reflecting the fact that society is itself organized around more than one major principle.

Within sociology a number of disparate methodologies have been identified, as illustrated by the following quotation:

...the revival of traditionally established forms of theory (such as hermeneutics), the emergence of seemingly novel perspectives (including especially ethnomethodology), and the attempted incorporation within social theory of various approaches claimed to be drawn from formerly separate philosophical endeavours (the philosophy of the later Wittgenstein, ordinary language philosophy and phenomenology). To these we can add the important resurgence of Marxist theory (Giddens, 1979:234).

That is the range of thinking which faces scholars today as they try to understand the intricacies of methodology and its translation into practice. And it is into that complex world that this thesis must intrude since it has the task of considering the HMP in the light of that scholarly activity.

Review Approach

It follows from the preceding ideas that alternative paradigms would emerge in the social science literature, and be a potential influence on the Huntly research. However, since this thesis is centred on the HMP, as a case study in social and economic impact monitoring, our interest is in the literature of the years 1974-81, when the HMP was in operation. Therefore, by adopting this focus, it was decided to approach the initial reading by way of 'second generation' works, rather than 'original' texts on alternative philosophical approaches, such as Sartre (1963; 1976), Schutz (1970), or Heidegger (1962). In this way it was expected that, since the 'second

generation' would have built on those initial ideas, and subsequent reviews of them, it would be possible to work with a more current, and 'composite', view of the debate.

It should be remembered that this thesis is not intended to be a critique of the philosophical arguments. It is, instead, a consideration of the ideas contained within those later works when viewed from the perspective of someone who has been part of an SIA monitoring operation. While a considerable number of sources could be referred to, a decision has been made to select one work which draws together the strands of the anti-positivism argument in order to facilitate the discussion.

Albrow's (1974) presentation of a dialectical paradigm is used as a starting point for this examination of the philosophical ideas which were being discussed through the HMP period. It has been chosen because in that paper he not only argues for an alternative paradigm to the traditional (positivist or categorical) one described above, but he incorporates many of the criticisms advanced against positivism. Therefore, by examining Albrow's work it is possible to identify other directions within the paradigm debate. When these directions are followed, they serve to introduce the ideas of other social scientists. Two of these, Guelke, and Giddens, have already been mentioned in this chapter.

The Dialectical Paradigm

Considering the preceding observations on the philosophical debate surrounding the scientific paradigm (or categorical, to use Albrow's term) a definition of a dialectical paradigm is best presented by way of contrasting it with its alternative. Whereas the categorical paradigm involves 'a quest for the stable elements underlying change', a dialectical paradigm focuses on 'the generation of new phenomena, on all that is associated with emergence, creation and novelty' (Albrow, 1974:184-185).(7)

Three distinct approaches have been identified in Albrow's elaboration of a dialectical paradigm: phenomenological, marxist, and logico-linguistic (Smith, 1979:361).(8) Each of these:

...derive their modes of analysis from intellectual traditions outside geography; they transcend artificial disciplinary boundaries and work to dissolve them (Smith, 1979:361).

Albrow's move to bring the three approaches together with the 'dialectical paradigm' used as an overarching label, will not receive universal acceptance among social scientists working on non-positivistic approaches. While recognising the contentious nature of Albrow's ideas the three approaches justify further elaboration because within them are embedded ideas which, when read with SIA monitoring in mind, serve to further clarify the nature and scope of the HMP experience.

Phenomenology

Relph, Buttner, and Yi Fu Tuan are three geographers recognized as working within the framework of phenomenology, with their inspiration attributed to Husserl (Smith, 1979). This is not to suggest that these practitioners have a single view of phenomenology. As one would expect of a still emerging philosophical approach, it is itself fraught with issues over definitions and interpretations, as highlighted by the Relph-Buttner-Yi Fu Tuan debate in the Annals of the Association of American Geographers, 67(1), 1977.

An early paper by Relph (1970) provides some clarification on phenomenology as a philosophy and a method. For the former he explains:

Although there is considerable disagreement about the exact nature of this philosophy, most phenomenologists seem to agree on at least three basic issues: first, the importance of man's 'lived-world' of experience; second, an opposition to the 'dictatorship and absolutism of scientific thought over other forms of thinking'; and third, an attempt to formulate some alternative methods of investigation to that of hypothesis testing and the development of theory (1970:193). (9)

Under the heading 'method' Relph explains that:

The phenomenological method is a procedure for describing the everyday world of man's immediate experience, including his actions, memories, fantasies, and perceptions; it is not a method of analysing or explaining some objective and rational world through the development of prior hypotheses and theories. In the description of the world of experience, or to use Husserl's phrase, in the return to the things themselves as objects of man's experience, it is held that these objects cannot exist independently of man's consciousness (1970:193).

In his use of the word 'describing' with reference to phenomenology, and 'analysing or explaining' in an implied reference to conventional scientific method, Relph seems to be establishing a difference in purpose between the two philosophical positions. In the search for explanation through scientific method, using the deductive-predictive approach (10), we proceed on the basis of assumptions about man's predictability and rationality, and our ability to measure behaviour in what is taken to be an objective world. Phenomenological description, on the other hand, assumes 'that man is describable in terms of consciousness rather than his behavior and lives in a set of subjectively meaningful worlds that change as his intentions change' (Relph, 1970:198; emphasis mine). The difference between positivism and phenomenology appears to be found, therefore, in the mental constructs each philosophical position employs. Working from the ideas of Schutz (1970) Smith explains that difference as follows (1979:366):

Whereas natural science abstracts directly from the Lebensvelt (everyday lived world), thereby excluding from consideration people, culture and human activity, social science abstracts from the commonsense constructs through which people experience the Lebensvelt.(11)

It is these 'sentiments' which provide the basis for ideas identified in recent works which are discussed in Chapter 7 (e.g Giddens, 1976; 1979).

The problem of using scientific method on people-environment problems, is 'reification'. That is, natural science deals with phenomena or natural things. Social science, however, deals with relationships and

processes which are mental constructs. For example, 'economy' and 'society' are not things or phenomena, but mental constructs.

Marxism

Within Albrow's dialectical paradigm we find the place of marxism identified in part by its language of analysis. To illustrate this claim Albrow quotes Marx's sketch of the emergence of capitalism (in Volume 1 of Capital):

At a certain stage of development it brings forth the material agencies for its own dissolution. From that moment new forces and new passions spring up in the bosom of society; but the old social organization fetters and keeps them down. It must be annihilated; it is annihilated. In annihilation, the transformation of the individualized and scattered means of production into socially concentrated ones, of the pigmy property of the many into the huge property of the few, the expropriation of the great mass of the people from the soil, from the means of subsistence, and from the means of labour, this fearful and painful expropriation of the mass of the people forms the prelude to the history of capital (as quoted by Albrow, 1974:192).

The language, according to Albrow, 'attempts to grasp the nature of change, violent language for violent times....' He points to particular words in the passage to illustrate his argument, such as 'development', 'brings forth', 'dissolution', 'new', 'spring up', 'annihilation', and 'transformation'.

The temporal/historical dimension to marxism, as reflected in the language, consequently forms an important characteristic of the dialectical paradigm. Marx also saw science as a vehicle for the domination of man and nature

by capital, and Smith argues that 'most marxists agree that science and technology remain the products of a class society...determined, (...) by the imperatives of capital accumulation and the class relations between labour and capital' (1979:369). The practice of geography in the 1960s and early 1970s can be explained, using a marxist framework and referring to the dynamics of the political economy from the late nineteenth century to the present day, and the shift from geography's historical focus, built around Kant, to positivism (Smith, 1979:370-372).

By embracing positivism, and consequently, contemporary technology, the 'New Geography' of the 1960s became based on specialisms. Spatial analysis, urban modelling, resource evaluation, environmental management, ecological analysis and transportation studies, are some examples. These specialisms had built into them the notion of improving man-environment relations (Smith, 1979). (Now there is environmental and social impact assessment to be added to the list.) Since this development occurred with the support of the capitalist state, it provided further confirmation for marxist adherents of the undesirability of positivism in geography. It also relates to what has been described as a 'dual function of science', involving technology and ideology, within capitalist society (Zelinsky, 1975; Gregory, 1978). As geography increasingly embraced the technology of positivism it could not fail to endorse its ideology. It was an appreciation of that situation which led David Harvey from being one of the spokesmen of the rational scientific mode as

exemplified in his Explanation in Geography (1969) to a key figure in the emerging radical geography of the mid 1970s (Smith, 1979).

With New Zealand a capitalist state, the importance of the frameworks derived from Marx cannot be ignored. Furthermore, as shown in Chapters 1 and 5 both the HMP, and SIA monitoring in general, proceeded only with the endorsement of the government of the day. By recognizing the political nature of SIA monitoring it is possible to relate that aspect of the philosophical debate to the HMP experience, something which is developed further in Chapter 8 when the stratification model of action is described.

Logico-Linguistics

Like marxism, the third approach in the Albrow/Smith set (logico-linguistics) takes as its starting point the language of analysis. Smith introduces the idea through Gale's criticism of Explanation in Geography. According to that critique, Harvey's use of language is grounded in positivism's need for 'objective, universal statements which can ultimately be validated in a truth-functional manner' (Gale, 1972:291). Expressed another way, to paraphrase Smith (1979), as we try to explain 'reality' the language we use should not be the master of that 'reality'; rather it should be its servant. The language of explanation should echo the situation being addressed and

not the reverse. Illustrating that position is the following statement, attributed to Habermas:

Social science ought...to establish a body of knowledge written not in the technological language of control (the relation of human societies with external nature) but in the practical language of communicative interaction (the internal relation between human beings) which is inaccessible to technology's instrumentality (Smith, 1979:362-363).

Habermas writes in terms of a social science which is potentially self-reflective, while also rejecting the central role of scientific language. The optimistic expectation is, therefore, that 'social scientists would subconsciously produce technology' if the logico-linguistic approach were successful. In doing so, however, neither science nor scientists would be semi-autonomous from direct societal control (Smith, 1979:364). The extreme position which logico-linguistics clearly takes in the philosophical and methodological debates is summed up by Smith's observation that:

Logico-linguistics has had little success and few converts. Its aims are obscure, its methods tortuous, and its assumptions, though generally perceptive, are sometimes extraordinarily naive (1979:364).

However, it is not logico-linguistics as a single philosophical and methodological position which is of interest to this thesis, but rather the combined effect of it and the other two approaches in that they focus attention on the individual, on language, and the political outcome of positivist science.

Further Developments

If the three approaches within Albrow's dialectical paradigm are considered together one can find several elements which can help clarify the distinction between the categorical and dialectical paradigms. In particular the latter introduces individuals' experiences, unstructured enquiry, the importance of language to 'scientific' interpretation, and the relation between 'science' and State control. It is one thing, however, to identify the weaknesses of one paradigm and describe a replacement by means of promised improvements. What is required is the integration of these criticisms into theory, with the consequential development of new concepts and notions.

In searching for that development in the recent literature, Anthony Giddens was identified as one scholar who had further considered the ideas summarized in this chapter.(12) In other words, Albrow was able to provide an alternative philosophical setting within which to place the HMP. It was Giddens, however, who introduced a further set of concepts and ideas which related directly to the HMP experience. This explains why we leave Albrow at this point and turn to examine Giddens' recent works.

During the second half of the 1970s, Giddens had been publishing the results of a project which he described as 'examining the residue of nineteenth century European social theory for contemporary problems of the social sciences' (1979:1).(13) That approach seemed close to the one planned for this thesis, because Giddens examined one set of 'ideas' in the light of another, just as this

retrospective critique intended to take ideas published during the life of the HMP and relate them to the broader considerations of contemporary social science thinking in SIA. Furthermore, by relating what he saw as problems in social science to its early (and positivistic) theoretical work, Giddens had prepared a potentially rich source of ideas on which to base the thesis.

To begin with, given his research intentions, and the philosophical debate already described, it could be expected that part of his project would be an examination of the scientific paradigm (which he calls 'the orthodox consensus'). During that exercise, Giddens identified a number of 'shortcomings' in the paradigm.(14) Reading these with the HMP in mind seemed to highlight certain aspects of that experience which provided a suitable vehicle around which to design a framework for the HMP retrospective critique. This framework is developed in the balance of this chapter, and then the ideas which are contained within it are explored with reference to the HMP experience in Chapter 7.

TOWARD A FRAMEWORK: FOUR ISSUES DEFINED

Giddens (1976) identified five 'shortcomings' within positivistic social science. These were: 1) relating the origins of social science to the natural sciences; 2) operating with an outmoded and defective philosophy of

language; 3) reliance on an oversimple revelatory model of social science; 4) the lack of a theory of action; and 5) being tied to a positivistic model of natural science. These can be condensed into four issues:

- 1) a mistaken view of the similarities between the sciences of nature and society
- 2) reliance on a now out-moded and defective philosophy of language
- 3) reliance on an over-simple revelatory model of social science based upon naturalistic assumptions
- 4) lack of a theory of action.

The remainder of this section discusses each of these issues, while the relationship between them and the three themes discussed in Chapter 5 is shown in Figure 25. With each issue pertinent to every theme, the matrix demonstrates the pervasive influence of the dominant (positivist) paradigm.

Four Issues Elaborated

In order to clarify each of the 'shortcomings', as Giddens saw them, the following section provides a brief elaboration. It explains the four issues in preparation for the detailed examination of the ideas which can be found within them, to be presented in Chapter 7.

	:	THREE THEMES	

FOUR ISSUES*	:	Approaches	: World-views : Management
	:	to	:
	:	Monitoring	:

A mistaken view of	:		
the similarities	:		
between the	:	X	X
sciences of nature	:		X
and society	:		

Reliance on a 'now	:		
out-moded and	:	X	X
defective philosophy	:		X
of language'	:		

Reliance on 'an	:		
over-simple	:		
revelatory model of:	:	X	X
social science	:		X
based upon natural-	:		
istic assumptions'	:		

Lack of a 'theory	:		
of action'	:	X	X
	:		X

* After Giddens (1976)		** From Chapter 5	

Figure 25. Four Issues and Three Themes Related

Similarities Between Natural and Social Science

Any elaboration on the issue of finding similarities between the sciences of nature and society, needs to address three aspects.

- (a) the claim that social science is a relative newcomer to 'science';
- (b) contrasts between the social and natural sciences; and
- (c) the adoption of the positivistic model of the natural sciences in social science (Giddens, 1976).

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The relevance of the issue generally to the three themes, as shown in Figure 25, is clear. This is because each of them can also be identified within Chapter 5, particularly in the section concerned with the practical context; where the attitudes of engineers is discussed, for example.

The first aspect above, the youthfulness of social science, is disputed by Giddens with an argument based on an impressive list of notable social thinkers dating back to the post-Renaissance. However, whether one agrees with Giddens, or not, is not the issue. The fact remains that in the setting which impinged on the HMP, the perceived youthfulness of social science did have considerable currency. Taken in conjunction with a tendency to expect

social and natural sciences to be 'as one', it did not make any difference whether the person was a professional (such as a project engineer) or simply 'Jane Citizen', the two ideas were part of the influences which shaped their attitudes towards the HMP. In particular the ideas were expressed in terms which emphasised the rudimentary level of development of the social sciences when compared with physics, chemistry and the biological sciences.

These attitudes had an effect on the HMP research unit experience as described in Chapter 5, in that some people were quick to compare social science with natural science disciplines, as a way to denigrate social science, or encourage a feeling of inadequacy or inferiority. There was also the expectation that social science would adopt the positivistic model of the natural sciences. (15)

The effect was that the comments tended to undermine the confidence of the social scientists in the research unit, while the unit's use of the positivistic model was adopted as a 'test' for competency. Since these effects reflect the aspects (a), (b) and (c) above, the latter stand as an element in the critique which forms the balance of this thesis, being pertinent to each of the themes developed from Chapter 5.

Philosophy of Language

Giddens identifies the reliance of the scientific paradigm on a 'now outmoded and defective philosophy of language' as the second issue. To Giddens this reliance causes a 'contamination' of the social sciences. This 'contamination' occurs because, in his opinion, the established view (i.e., science) saw language as 'above all a medium of describing the world (physical or social)', with 'an isomorphy...between the structural form of language, or certain basic features of language, and the object-worlds to which language gives access' (1979:242). Giddens points out that the counter-view emerged through a convergence of philosophies (such as ordinary language philosophy, Schutzian phenomenology, and contemporary hermeneutics), and that language achieves more than just description. By this is meant that it 'is a medium of social practice, and as such is implicated in all the variegated activities in which social actors engage.' This is important since SIA monitoring as a research activity includes the receipt and interpretation/analysis of people's statements - verbal and variously reported - as they are involved in the 'variegated activities' which make up their lives. Therefore the alternative conception of language introduces a further element into the HMP critique, Chapter 5. In other words, whether one is

concerned with either the approach, world-views, or management, language plays a central role. This aspect of Giddens' critique is discussed in more depth in Chapter 7.

Revelatory Model

Giddens' identification of 'a reliance on an over-simple revelatory model of social science based on naturalistic assumptions', the third issue, arises from a view of natural science which he sets out as follows:

The findings of natural science, it is assumed, are revelatory or demystifying in respect of commonsense belief about the physical world. What science does is 'check up' on commonsense views of and attitudes towards the world, showing some of them to be mistaken, and using others as a point of departure from which to develop more detailed and profound explanations of objects and events than were available in lay knowledge. The progress of science punctures the delusions of customary habitual beliefs. Now under some circumstances, it is pointed out, the findings claimed by scientists are resisted by those who choose to cling on to their established beliefs or conceptions. Those findings are rejected or ignored, either because of vested interests that are threatened by them, or because of the inertia of habit of prejudice. There are those who continue to hold that the earth is flat no matter how conclusive the evidence to the contrary might appear to others to be (1979:248).

The relevance of this particular issue to the discussion of the HMP occurs in two ways. The first is in the oversimple model, through the observation above about people resisting the findings of scientists which clash with their established beliefs. The second is through

Giddens' extension of the model to include resistance because the findings are already well known and familiar. The latter, labelled 'the lay critique of sociology', opens up several matters which are relevant to the way the HMP was supported and the findings received. Consequently this issue, like the previous two, is pertinent to the three themes: HMP approach, world-views, and management. Because of this importance, the 'lay critique' is examined in more detail in Chapter 7.

Theory of Action

Finally there is the fourth issue, the lack of a theory of action. While Giddens acknowledges the work of Talcott Parsons (1949) in this field, particularly his 'action frame of reference', he rejects it. The grounds for that rejection include a lack of recognition of the importance of reasons in human conduct. In other words, 'an acceptance that human beings reflexively monitor their conduct via the knowledge they have of the circumstances of their activity' (Giddens, 1979:254; emphasis mine). This is contrary to Parsons' belief that 'social actors are not capable, knowledgeable agents' (Giddens, 1979:254).

In taking up the deficiencies in Parsons' work Giddens is arguing, in part, for a theory of action which involves the notion of 'power', thereby introducing a number of questions concerning the way actors and their actions (or agency) are handled in social theory. These questions, such as unintended consequences of an intended action, open

up several interesting aspects of the Huntly experience for critical analysis. One such example is the subject of community liaison initiatives, as reported in Paper No.5. These ideas are also considered more closely in the following chapter which examines specific ideas found in Giddens' work (1976; 1979).

Selected Ideas Introduced

Within the four issues outlined there are a number of specific ideas which emerge from criticisms of the dominant paradigm. While Chapter 7 presents these ideas with reference to HMP experiences, Table 13 indicates the scope of these ideas, as well as serving as an introduction to them.

The remaining chapters in Part II present developments arising from the ideas listed in Table 13. Chapter 7 is a discussion of these as abstract ideas, with clarification provided by way of examples from HMP experiences. Some of the examples are detailed accounts, which means they are drawn from a specific situation and can be identified as such. There are other examples which are more abstract - or general - because the situation being described emerged as the result of several experiences through the life of the research. When taken together as a chapter, however, the examples provide useful insights into the HMP, and details pertinent for alternative approaches to SIA

monitoring, as given in Chapter 9.

TABLE 13. Summary of Ideas from Giddens' Critique of Positivism

METHODS AND LOGIC OF NATURAL SCIENCE

Inductive v deductive approaches and commonsense notions
 Law-seeking and law-applying
 Definition of terms
 Science's quest for order
 Attitudes to data
 Subject-object relation

THE REVELATORY MODEL

Lay critique
 Frames of meaning
 Paralysis of critical will
 Authenticity and justification of belief

PHILOSOPHY OF LANGUAGE

Language as practical activity
 Mutual knowledge

THEORY OF ACTION

Taken-for-granted-knowledge
 Intentional acts
 Language and action
 Hierarchy of purposes
 Rules and resources
 Layers of enquiry and principle of action
 Reflexive monitoring
 Emotions
 Discursive consciousness
 Understanding context

Chapter 6 is an important link in the development of the philosophical arguments in this thesis because it specifically ties together Chapters 5 and 7. Following on from that examination of ideas, Chapter 8 returns to the dialectical paradigm as described in Chapter 6, with specific aspects of the theory of action examined further.

In particular, Giddens idea of a stratification model of action, together with the concept of 'structuration', is taken further because of its apparent potential for SIA monitoring. Furthermore, the ideas drawn from Giddens' work have been incorporated and extended by Allan Pred, with his developments within Hagerstrand's time-geography. The possibility of applying a time-geography approach to SIA monitoring is introduced in Chapter 8 and pursued further in Chapter 9, where the concepts are applied to HMP examples.

Chapter Seven

SELECTED IDEAS FROM THE POSITIVIST CRITIQUE WITH EXAMPLES FROM HMP EXPERIENCES

Before proceeding, it is necessary to look more deeply into the four issues summarized above for particular aspects of Giddens' critique which appear pertinent to a retrospective critique of the HMP, and SIA monitoring in general. As explained above, this is because when considering Giddens' material in the light of the HMP experience, certain ideas in the argument brought to mind specific experiences from the Huntly case study.

METHODS AND LOGIC OF NATURAL SCIENCE

This presentation of ideas raised by Giddens' critique is organized under three headings: 1) criticisms relevant

to the the HMP; 2) science's quest for order; and 3) the subject-object relation.

Criticisms Relevant to the HMP

Since the 'foundation scholars' of social science, Comte to Durkheim, the traditions of a 'science of society' have been established on the premise that the methods and logic of natural science were appropriate (Giddens, 1976). Although there are criticisms of all the early scholars in social science for their pursuit of the scientific paradigm, in Giddens' case many of the specific criticisms are intended for Durkheim. This attention is because of the important role played by Durkheim's The Rules of Sociological Method (1938).

The criticism by Giddens which is relevant at this stage involves the route whereby a science of society could be developed. Social science's 'dependence' on the deductive approach has been raised in Chapter 6, with reference to assumptions about man's predictability and rationality, and the social world viewed as an objective reality (Relph, 1962; 1970). However, another aspect needs to be considered as well, namely the inductive versus deductive approaches as methodology per se.

While for Durkheim the way towards a 'social science' was initially by an inductive route, it is important to emphasise that it is not his support of that route which Giddens is criticising. Rather, he is challenging the

relationship which should exist between the social scientist's observations and the ideas which his or her subject has on the matter being researched. The position criticized is summed up in the statement on the role of social science. Social Science was:

...to construct theories about human conduct inductively on the basis of prior observations about that conduct: these observations, which are made about externally 'visible' characteristics of conduct, are necessarily 'pre-theoretical', since it is out of them that theories are born. Such observations, it is held, have no particular connection with the ideas actors have of their own actions and those of others; it is incumbent upon the observer to make every effort to separate himself from the commonsense notions held by actors themselves, because these frequently have no basis in fact (Giddens, 1976:132).

The issue for Giddens is, therefore, the argument contained in the last sentence on commonsense notions.

However, it is still interesting to note a continuing preference in both natural and social science for the alternative, deductive route. Moss demonstrates how interest in contrasting the two 'routes' has not diminished with time, commenting that the inductive route '...despite its methodological deficiencies, has an honourable history in scientific thought' (1979:132). The 'methodological deficiencies' referred to centre on the problem of working from facts to ideas, since it is argued that there is a logical hiatus between the two. Such a hiatus is avoided with the deductive route since the scientist moves from the general to the particular; from generalization to observation. Durkheim's reference to the 'pre-theoretical'

state of the observations resulting from the inductive route would suggest that he recognized the difficulty mentioned by Moss, but took the only available way at the time in order to begin the process of establishing theory on which deductive work could build.

The significance of the inductive/deductive argument to the HMP arises because one or other of the approaches would have been adopted for the research. In the light of the ideas from Durkheim, Giddens, and Moss it is interesting to consider the inductive/deductive balance of research carried out by HMP to see in which camp the research could be placed.

From the background to the HMP in Chapter 1 it will be recalled that the monitoring approach changed between the proposal and the actual operation. Within the terms of the research proposal there was implicit recognition of the deductive approach. That is, consequences expected of the construction project could be hypothesized, ideally in the light of some 'theoretical' position, and the 'problem' studied accordingly. By proceeding that way the researchers were assuming an existing body of knowledge about, or ideas on, impacts (see Chapter 5). However, when the research unit moved to the implementation stage it was argued that assumption could not be sustained. After all, as explained in Part I, it was because of a paucity of knowledge on the subject that the monitoring project had been suggested in the first place.

It will be recalled from Chapter 1 how the research unit, when establishing the final research design, argued

that impacts could occur in unforeseen ways. That is to say, if the research was designed around a specific set of ideas, expressed as hypothesised 'impacts', and data collected to test these alone, how could it be known if effects were being felt outside the defined 'problem'? In short, the case was presented for the research to proceed inductively. This would mean collecting data on as broad a front as possible, and working back from there to establish any relationship between a recorded change and the power project.

The difficulties with that argument have already been canvassed in Chapter 5, especially with reference to the underlying assumptions and the methodological shortcomings. It was, however, an approach which did address the first two parts of the terms of reference (Chapter 1) because both the remedial objective and future planning needed the widest range of information. It could be argued that the HMP experience with the inductive approach confirms Durkheim's claim, mentioned above, that observations derived from such an approach are pre-theoretical. That would certainly fit with the sentiments expressed in Chapter 1 about the monitoring idea stemming from awareness that there was a lack of theory concerning social and economic impacts to which people working on EIAs could turn.

More central to Giddens' questioning of the place of the methods and logic of natural science in social science is the validity of law-seeking (and its companion, law-applying). These were long-standing issues, pre-dating

the emphasis on quantitative methods, which have returned as part of the critique of positivism, as explained above. With a law-seeking (or nomothetic) approach contrasted with a fact-finding (or idiographic) one, two questions have been raised (Giddens, 1976; Guelke, 1971). These concern the status of uniqueness in social phenomena, and the nature of laws that might be discovered. When these questions are considered in the light of the HMP experience, they seem to be especially pertinent to this retrospective view of the HMP, as the following elaboration will explain.

The uniqueness question appeared early on in meetings between the research unit and HPP senior staff. There was a pronounced point of view that monitoring the Huntly Power Project was of limited value because there would never be a project which would replicate all the characteristics and conditions being experienced. As one long-serving Administration Officer explained: 'Every project needs its own crystal ball!' Despite strenuous efforts to explain the importance of studying phenomena from the point of view of their similarities it was clear from the demeanour of that officer that the belief remained part of his cynical attitude towards the HMP.

It should be noted, however, that while trying to counter the 'crystal ball' argument, the research unit was still conscious of the methodological difficulties which the endeavour faced. The observation by Guelke (1971:39), read after the event, provides a succinct summary of the Huntly experience:

The fact that geographers are unable to isolate and measure separately each of the factors that is thought to affect a particular event places them in a much more difficult position vis-a-vis the experimental scientists in their search for laws. In particular, human geographers have to contend with a wide variety of human phenomena, in which the isolation of the relationships from inessential facts is rendered extremely difficult by the vast number of conceivably relevant variables that might be involved in a given type of phenomenon (emphasis mine).

The last sentence is emphasised because the sentiment matches the exact situation which faced the HMP research unit. It tried to resolve the difficulty by relying on the storage capacity and processing capabilities of contemporary computer technology and multi-variate statistical methods. Later on, sophisticated statistical manipulation of most data was rejected because various prerequisites were not adequately met by the particular data sets available.(1) In one case a visiting geographer had developed an elegant labour force model which seemed ideal for the Huntly case, but the model required a time-series which was simply not available; the analysis finally used simple descriptive statistics (see Drury, 1980).

While the issue of uniqueness features in the debate, one must agree with Guelke that the wider question about the nature of the laws that might be discovered is more critical than the uniqueness issue. There is a specific aspect which needs stating at this stage, in the light of criticisms recorded in Chapter 5. That is, the distinction between 'laws' and 'generalizations' (Guelke, 1971:40). For the latter, limits have been established because the

research findings are unable 'to be extended to apply to phenomena outside the set which they were initially formulated to cover, without further empirical investigation.' For a 'law' the relationship between the specific cases and the general is absolute: there must be 'an essential or necessary connection between two or more phenomena.' This limitation was recognized by the HMP research unit, because it insisted on a number of occasions that it was only a case study, and that it was incorrect for people to expect law-like statements from what was, in effect, simply one point on a graph (Fookes, 1980b). The HMP research unit's hesitancy to extrapolate its findings beyond expressing some results as generalizations, as explained in Chapter 5, would appear quite justified in the light of Guelke's arguments.

While the subject of law-applying, continues to be debated by social scientists, there are also issues pertinent to this discussion of the HMP which need to be identified. However, to proceed with the HMP application requires the temporary suspension of the argument whether one can indeed arrive at social laws.(2) It requires, instead, another question; that is, 'Wouldn't laws relating to human behaviour be of such general form that their methodological usefulness would be in question?' (Guelke, 1971:43).

In the discussion on the law-seeking question it has also been argued that the geographer/social scientist would very likely show most interest 'in the particular non-repeatable form that a particular law might take in a

given context than in the law itself' (Guelke, 1971:34). This introduces the other part of this debate, the issue of law-applying in social science. While the whole issue is of interest, there is a particular question which keeps the matter focused on the HMP case. That is, whether laws relating to human behaviour wouldn't be of such general form that their methodological usefulness would be in question (Guelke, 1971:43).

Furthermore, there is also the problem of distinguishing between explanation and prediction. As Guelke argues:

The 'laws' on which the prediction rests tend to be rather weak generalizations. In this type of prediction debateable assumptions are substituted for laws and partial for complete data (1971:45).

These arguments are valid, viewed from the HMP perspective, as illustrated by opportunities for the HMP research unit to apply various 'laws' to place of residence data. The laws in question are the various expressions of distance decay and gravity theories (e.g. Reif, 1973; Wilson, 1974).

Perusal of the Huntly Power Project data suggested inconsistencies in the patterns, which suggested the intervention of other highly variable factors in people's decisions, such as the payment of a travel allowance summarized in Chapter 3.(3)

Consequently, the HMP research unit was prepared to proffer explanations of, for example, the place of residence patterns of the power project workforce. However, it argued against attempts by NZ Electricity to use

Huntly Project data to calibrate a gravity-type model as part of their planning for a further thermal power station in the Waikato. The stand taken was assisted by a recent North American study (Cunningham, 1979) which cast considerable doubt on the validity of these models for worker in-migration.

The HMP research unit's experience therefore supports Guelke's argument (above) on the substitution of debateable assumptions for laws and partial for incomplete data (1971:45).

There is another issue in debates over whether the sciences of nature and society are methodologically similar. Although less contentious than the ones before, it rests on the place of commonsense notions in the scientist's definition of terms. As explained above, this issue can be attributed to Durkheim (1938; 1951) who argued that the commonsense notions held by the objects of any study (the 'actors') had no basis in fact. As a consequence of that belief, scientists were urged to separate themselves from those notions. The alternative proposition, advanced by phenomenologists, is for 'reality' to be composed of ideas, and not the external, observable characteristics of the phenomenon as interpreted by the observer (as Durkheim was in the above example).(4)

There are a number of terms in SIA monitoring where the issue of commonsense notions could apply, but the most relevant one is the meaning of 'impact'. Considered in the context of the HMP there are three components; how the term was defined in the original research proposal, the way

it was interpreted by the HMP research unit during the project, and the meanings attributed to the term by people outside the research body.

When the research proposal is reviewed for a definition of 'impact' it is a little disconcerting to find no formal definition of that term, nor its companion term, 'monitoring'. What can be found are implied meanings, through the use of such statements as:

- ...strains that will have ripple effects through all the...systems....
- To identify problem areas before they reach 'crisis' proportions, there is a need to monitor carefully the kinds of changes that are occurring, and understand the nature of such changes.
- The aim of a monitoring project is to provide a means of consistently identifying and measuring social and economic changes as they occur in a region over a period of time
(School of Social Sciences, 1975:2).

A re-reading of the proposal gives a definite impression that the idea behind 'an impact' is of things negative in their effect; 'monitoring' too has a negative feel about it since it conjures up the image of 'watching over' or 'maintaining a surveillance'.

Comparing the meanings implied in the above text with other technical usage at that time, it appears that - in North America at least - there was a wider sense to the term 'impact'. As explained in Chapter 4, by 1975 the technical context for the term had become the use in the phrase 'environmental impact assessment' and other variations describing aspects of that process. The term was adopted by social scientists like C P Wolf (1974) when

developing the related process of 'social impact assessment', and the extension into 'impact monitoring' was just a continuation of that development. Used within the North American context, the notion of 'impact' had come to mean the positive and negative consequences of taking a particular action, or weighing the advantages and disadvantages of proceeding with a proposal (e.g. US National Environmental Policy Act, 1969).

The words 'consequences' and 'effects' are two synonyms which sometimes replace 'impact', often as an attempt to vary the expression. At the same time, their use can be recognition that the commonsense meaning of 'impact' is, in effect, strongly negative in its implication and so the synonyms serve to soften the statement. In the New Zealand context where the EIA process does not include considering the 'no project' option, the negative sense dominates: impact assessment in practice means identifying problems which, once publicly identified, may serve to halt the project. From my experience, members of the public who participate in the EIA process generally do so because they are opposed to the proposal.

It appears, therefore, that the meaning attributed to 'impact' in the research proposal reflected both the common-sense and the particular technical sense that was emerging in New Zealand as the EIA process was modified for local use. However, if the formal HMP statement on the actual research approach to be adopted is referred to, it seems that the research unit adopted a working definition

which reflected the North American usage (Fookes, 1976f). This meant that, while the researchers were proceeding with one understanding of the term, following the explanation above, we could expect to find a more restricted view of the word being held 'outside' the research unit. From personal experience, that seemed to be the case. Whether one spoke to project engineers, local leaders, or Huntly residents in general, the meaning which they seemed to attach to the word did not include the idea of 'positive effect'. It was being taken to mean 'things which are negative in their consequences or effects'. The researchers were seen as 'nosyparkers', snooping around to find out 'what was going wrong', and/or, 'where the MWD had made mistakes'. Krawetz and MacDonald (1982:18) report two quotes which illustrate the way things were perceived by MWD/NZ Electricity engineers (see Appendix 19):

- It (the Monitoring Project) was viewed as inspection...
- Maybe we were too sensitive or defensive about the way the Monitoring Project worked--threatened.

It can be concluded, therefore, that the position advocated by Durkheim just happened to be followed because the research unit subscribed to the North American notion while the common sense use took the more limited meaning. Not surprisingly, there were implications arising from this state of affairs which the research unit had to manage. In the first instance it had to maintain a regular 'campaign' to convey the idea that it was as interested in the positive effects ('the good things about the project' was

the expression used) as it was in the disadvantages. That approach was essential if negative feelings about the HMP were to be diminished, but it meant often beginning meetings on a defensive note, which was not always an advantage.

In addition, an awareness of this common sense use of the term 'impact' also influenced the work programme. When scheduling activities, those which would be identified with positive effects tended to be put ahead of the others. For example, a major effort and investment of research funds was put into studies of the economic effects so that there could be a discussion of the expected benefits from power project expenditure (see HMP Internal Technical Paper, Nos.1 and 2). At the same time, of course, this work was a check on whether predictions to this effect were realistic. From the discussion in Chapter 5, it should also be apparent that there was a political element in the scheduling as well, because economic studies were known to be viewed more favourably by government officials and politicians alike, than those of a social nature.

Science's Quest for Order

There is a link between Giddens' critique and the work of Albrow (1974) discussed above. This occurs through the latter's argument that one of the difficulties with the categorical paradigm is that:

The quest is always for the stable elements underlying change, so that change may be viewed as a kaleidoscope re-patterning of a limited number of basic units (Albrow, 1974:184).

By 'units' is meant the classificatory systems developed as part of the paradigm's search for 'order' in the universe. The problem with that 'quest', as Albrow sees it, is 'a professional predilection...to subsume the new under the known and familiar', rather than a wish to 'grasp the facts of change in broad generalizations and through new concepts and terminology' (1974:191-192).

The search is, therefore, for 'order' in the universe; there is a belief in stability which is usually taken for granted in our everyday life. It is an attitude which has a circular rationality, something Donald Schon, for example, has set out in the statement, 'Belief in stability is a means of maintaining stability' (1971:11).(5)

With the HMP interested in change in social and economic conditions that argument seems pertinent. The project's identification with the dominant, scientific paradigm has been confirmed in earlier chapters, so Albrow's argument may even provide some ideas on the underlying tensions between research unit and client bodies described in Chapter 5.

Where this characteristic of the scientific paradigm provides a perspective on the HMP experience is, however, problematical. Certainly, given the influence of scientific method on the research project's operations, it is possible to see how the HMP was searching for regularities, as well as deviations from the expected.

There was also interest in how and why things which had existed before the power project, and were therefore 'stable', had changed. It will be remembered from Chapter 1:

- (a) that a pre-determined systems model, with its theoretical foundations of 'feedback' and 'homeostasis', provided the original HMP framework; and
- (b) the data structure consisted of 10 parameters amongst which were distributed over 100 variables (see Final Report Paper No.15).(6)

These examples certainly seem to meet the 'criterion' of subsuming the new under the known and familiar.

On the other hand, there was a change between the approach outlined in the research proposal and the actual operation, as mentioned in Chapter 1. By abandoning the first model with its specification of 'elements' showing expected relationships, and therefore possible 'impacts' (see Appendix 1), it would seem that there was something of a move away from using categories which were 'known and familiar'. By not stating formal hypotheses, or identifying specific impacts, in order to structure the research around them, this would seem to indicate that the research unit was turning away from the dominant paradigm - even though it was not a conscious move.(7)

However, if we accept Albrow's argument that stability is part of the commonsense view of the world, as well as

the scientific, it is possible to deduce a part explanation for some of the feelings of frustration about the research, as experienced by the HMP unit and MWD staff (and described in Chapter 5). The approach itself lacked a methodological 'stability' by remaining 'flexible': viewing change in such a way to enable new relationships to emerge, rather than, mentally and statistically, manoeuvring 'things' into pre-determined 'theories' and models. (The earlier example of the research unit's reaction to NZ Electricity's interest in using the gravity model is a good illustration of that point.) It was, therefore, more difficult to see where the research was headed, because, to use an analogy, it was like a radar scanner sweeping the horizon, rather than a searchlight probing the darkness.

The central place of data, and scientists' attitudes towards what data are in the paradigm debate, justifies further discussion even though the subject was introduced earlier in Chapter 6. The orientation of the HMP towards statistical sources (see Chapters 1 and 5) is also justification for discussion. There was an earlier reference to Moss (1979) in the context of inductive/deductive approaches, and his paper contains some good examples of the way data are perceived in the dominant paradigm, with phrases like 'testing in experimental situations', 'objective measurement', and 'replicability'. A formal expression of the attitude is contained in the statement:

...the notion of experiment is not confined to laboratory situations, but refers to any test relating to observable data, in the field or contained in public statistical material, as well as in the laboratory (Moss, 1979:224-225; emphasis mine).

There is an aura surrounding 'things scientific' which brings with it the implication that by studying something 'scientifically' one is approaching the task in a rigorous way. The language used in the previous quotation, such words as 'experiment', 'laboratory situations', and 'observable data', carries the same implication of rigour. It also illustrates the way the attitudes built into the categorical paradigm are expressed. But it is important to note that it is rigour defined strictly in relation to 'observable data' as qualified above; that is collected 'in the field or contained in public statistical material.' The association of 'rigour' with 'observable data', even if acknowledged as being collected 'in the field or contained in public statistical material' appeared as an underlying tension in the HMP experience (Moss, 1979:224-225; emphasis mine).

The tension occurred because initially the conventional position as described formed part of the initial HMP methodology. The research proposal, as described in Chapter 1, emphasized 'hard' data collection. The research unit's early documents continued to refer to 'variables', with their statistical connotation, as well as access to official statistical sources, and the use of its own social surveys to augment data collection. This latter method of data collection brought with it the implication

that surveys would be carried out according to acceptable social science practice.(8) In addition, the research unit established a policy that information would be obtained in the most disaggregated form possible. This was in order for the researchers to be confident that 'data' had not been 'lost' in the aggregation process.

The importance placed by the research unit on its ability to obtain data consistent with the demands of the 'scientific method' is indicated by the emphasis placed on the factors of its accessibility, availability, and accuracy, when asked to contribute a paper to a workshop on social indicator development (Fookes, 1979a). The concerns expressed at that time were expanded on in the final report (Paper No.11) where the data were evaluated on the basis of stated criteria. These criteria reflect the influence of the dominant paradigm (Table 14).

Since part of the HMP's 'information base' included 'data' which could not be said to meet the strict requirements implied by Moss (1979) above, it proved necessary to modify the above criteria when these sources were appraised. For the attitudinal data, only criteria 4,5 and 6 were amenable to that part of the appraisal, and the report had to distinguish between quantifiable and non-quantifiable (and qualitative) sources. As explained in Chapter 5, although the project's achievements were considered by the HMP research unit staff to be laudable, they were not rated as highly as its achievements in collecting and analysing social statistics.

The point was made in Paper No 11, however, that where

the non-quantitative types of information were brought into the monitoring they served a valuable role; particularly as a means of cross-checking interpretations of statistics and contributing to the development of ideas. In other

TABLE 14. Data Appraisal Criteria

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1. The degree to which the research unit found data collection to be easy, considering the factors of time, monetary cost, and regularity of supply (which includes the amount of follow-up necessary to maintain regularity of supply)
 2. The degree to which a variable measures the systemic element which it purports to measure
 3. The research unit's expectation that data for one period can be compared with another
 4. The degree to which the research unit accepts the variable as a means of measuring systemic change
 5. The way the variable responds over time
 6. The sensitivity of data to the size of the geographical collection area (which recognizes the effects of spatial units used in data capture and analysis)
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(Source: Fookes, 1981j:14-15)

words, while the project placed considerable emphasis on statistical sources, the realities of studying a community undergoing change as a result of major development, meant other information sources emerged which were incompatible with the demands of the dominant paradigm.

While attitudinal or perceptual data could be obtained in a controlled, statistical way through social surveys, that was only one possible avenue for generation of that type of information. Face to face contact with local

people and power project staff; for instance, generated a range of information which, in many cases, could not be 'tested', or expressed in terms of 'statistical error'. Since that information could only be classified as 'opinion', according to the attitudes embodied in the dominant paradigm the research unit staff often referred, in a dismissive way, to 'our sample of one'. And yet those sources, and the information produced, proved invaluable. For example, one such source stimulated a line of enquiry by the research unit about new entrants at Huntly Primary School, and whether they were being 'promoted' prematurely to make room for newcomers. Such 'informal' types of information were also used to clarify interpretations of statistical data, as in the case referred to in Chapter 1, of the percentage of HPP workmen commuting from other towns in the region.

However, the ever present problem was that the 'informal' or 'soft' pieces of information were always open to direct challenge if an interested party, like the HPP administration, disagreed with the interpretation and disputed the quality of the 'data' used. This issue arose in the context of the research unit's reporting of Maori and farming community fears (see Fookes, 1978a:4.51). It was even suggested in an MWD memorandum from a project engineer at the Upper Clutha power development Scheme - who was opposed to suggestions for a monitoring operation for that project - that Working Paper 2 (the first progress report) was completely out of order. This was because it went beyond cataloguing data and leaving interpretation to

MWD staff.(9) And closer to the centre of monitoring operations - at the HMP Steering Committee - a request to pay a student to compile a computer record of newspaper cuttings led to a debate over the value of doing that work because newspaper reports were a notoriously unreliable record; not on the subject of budget priorities, as was expected. The attitude expressed can be summed up by the statement, 'Hadn't we all been misquoted, and experienced 'untrue' stories being reported?'(10)

As a result of this suspicion of 'soft' data, the research unit tended to present a public picture of emphasising statistical sources while privately recording information on individual's opinions and events in their lives. This is one example of a slightly schizophrenic environment which developed within the research unit: a public/private dualism in data collection.(11) It also alerts the reader to another issue in this identification of ideas contained in Giddens' criticisms of the methods and logic of natural science: the objective study of the subject.

Subject-Object Relation

Scientists' attitudes to data, while an issue by itself also introduces a wider problem to be faced when trying to apply the methods and logic of natural science to the social world. This problem involves the subject-object relation found in natural science (Giddens, 1976:146). As the argument is presented, the social science disciplines

stand in a subject-subject relation with their fields of study, which means that 'the meanings developed by the active subjects actually enter into the actual constitution or production of that (pre-interpreted) world' (Giddens, 1976:146). The subject-object relation within empirical science means that the scientist takes reality as a given, and as defined by the subject, and then collects data arising within that reality, without further enquiring about its foundations (see Berger and Luckmann, 1966). The idea of a subject-subject relation is taken up again in Chapter 8.

It should be clear from the discussion so far, both in this chapter and preceding ones, that the HMP exercise was approached primarily from the perspective of the scientific observer. That makes the approach 'objective' (in the Parsonian sense).(12) Not only did the research depend on a foundation of statistical information, but other sources like the newspaper records mentioned above, or interviews, still interposed the observer between any inter-subjective thinking behind the statement. The reporting of Maori fears about the power station is a good example of that problem, even more so because it involved a cross-cultural interpretation: a European observer (or pakeha) describing Maori fears which they had themselves expressed in a language suitable for consumption by a European bureaucracy.(13)

It is not correct to conclude, however, that the research unit was unaware of the 'bias' which the subject-object approach was capable of producing. Attempts

were made to balance the interpretation, by introducing a Maori researcher into the affected community to function as a participant observer. The attempt failed because it was not possible to find someone who would meet the Maori community's requirements that the researcher be one of their people with ancestral ties, and those of the University. The latter centred mainly on the nominated researcher's academic qualifications and grades. Even if the move had succeeded, it would not have really avoided the subject-object issue because the relationship was still as participant-observer. The example should not suggest, however, that the issue is limited to Maori aspects of the research. It applies to all aspects including power project staff as subject. On some occasions, it could be argued, the research did bring a 'subject-subject' perspective into the work through the direct involvement of interested-parties. The presence of senior MWD/NZ Electricity officers and the Mayor of Huntly on the HMP Steering Committee is a good example, where their contact with the incipient research results provided an opportunity for them to react as 'actors' (or subjects). Circulation of draft reports to the MWD and HPP similarly enabled people directly involved in the events being described to express a counter view.(14)

At the same time it would be misleading to ignore the fact that the research unit did subscribe to the dominant paradigm, and this, when augmented by a fierce determination to be independent of the MWD and NZ Electricity, meant the researcher as 'object' functioned as

a filter for the information.

It was the realization just how this subject-object relation influenced the task of monitoring social impact which contributed to the research unit beginning to shift its ground in the 1980 review (see Chapter 5) and arguing for a community-centred approach. This position was confirmed in the final report (Paper No.13), with the intention that the 'subjects' play the dominant role in the research process as the 'observers'. However, how the eventual recipients of such research (government bodies and industry) would view it when approached in that way remains as a question, since it will be seen as 'subjective', vested-interest research. The irony, and inconsistency in those bodies reacting that way is self evident.

THE REVELATORY MODEL

The second of Giddens' four issues, the 'oversimple' revelatory model can be considered in the same way as the first issue, by beginning with the ideas within the criticisms relevant to the HMP. The first of these is the 'lay critique of sociology' (Giddens, 1979:249). Expressed simply it means dissatisfaction with the results of sociological (and other social science) research because it simply reveals things which are already well known and familiar.(15)

It is easy to dismiss the criticism as showing ignorance of the importance of re-examining the known. Some social scientists may even see it as 'the cross one has to bear' in the task of working through the familiar or 'better' explanation. In the case of Huntly, where the criticism did emerge it was answered by the claim that the HMP was documenting events for the first time; that this was an independent, scientific record rather than the intuitive beliefs held by laypersons - and therefore, justifiable. At the same time there were occasions when even the researchers felt some of the findings were, tending to be, as Giddens expressed it, 'banal and unilluminating' (1979:249).(16)

Viewed phenomenologically the lay critique is something to be taken seriously. This is because it is grounded on people's experiences of life as a result of their involvement in society. Those experiences are accumulated as 'knowledge' in their consciousness, and continually drawn upon in the production and reproduction of society. Because of the way in which that 'knowledge' is used its status is heightened. But not only that, within the process of using the knowledge in the production and reproduction of society, people are reflexively monitoring their actions and the outcomes, and consequently, rationalising their actions. It is this latter aspect, in particular, which Giddens argues has been missing from the revelatory model as used in the orthodox positivist methodology.

The subjects of rationality (and logic) and the rationalisation of action have both been introduced in the preceding paragraphs. Both of them are involved in the debate over subject-subject relations, and the role of the observer (the object). Rational, and logical, behaviour is a central premise of the categorical paradigm, while the ability of people to 'explain away' their actions in the face of subsequent enquiries goes against the paradigm's view of data as expressed in the Moss (1979) quotation above.

One example from the HMP experience can be found in the subject of housing oversupply. As explained in Chapter 1, salaried staff and wage-workers commuted daily from throughout the region, with only 40 percent deciding to reside in project accommodation provided in Huntly borough. The research unit argued in several reports that since 1972-73 housing plans pre-dated a travel allowance agreement, they were effectively distorted as the allowance took effect.(17) However, because the HMP reports raised the issue some years after the event (see, for example, Fookes, 1980), the official MWD/NZE response was a 're-view' of the situation as it appeared then, rather than how it was in the early days of the construction project. That is, they said the travel allowance had the effect of reducing adverse social impacts on Huntly, by limiting population growth to a manageable level. This was an answer which avoided acknowledging that the outcome, limited population growth, was an unplanned consequence of the travel allowance decision. The population projections,

as described in Chapter 2 (Figure 13), are sufficient confirmation that greater increases were expected in the power project's early years.

Another example of how inconsistencies can appear when post-rationalizations are attempted, is provided by two telexes received by the HMP research unit when Working Paper 10 (Fookes, 1980a) was before the Steering Committee for publication approval (Appendix 20). Both the MWD and NZ Electricity took exception to the discussion on the relationship between policies on project housing and a travel allowance, with the latter encouraging people to commute from places other than Huntly. As a result of the polarised viewpoints which emerged, between the HMP research unit and the two client departments, a lengthy debate occurred within the Steering Committee itself. It proved necessary for the Project Co-ordinator to produce taperecordings of interviews, and copies of letters, in order to defend the report's contents. The issue was finally resolved by the Project Co-ordinator proposing a compromise, whereby the report would carry an extended section explaining the two points of view (see Fookes, 1980a:1.7-1.8).

The debate which produced the telexes illustrates the value of tape recordings and letters to SIA monitoring, because it also illustrates the importance of a longitudinal study with access to information 'of the time', rather than depending upon post-hoc investigations, when extremely plausible 'to date' rationalizations assume the status of 'facts'. The lesson from the HMP experience

is that reasons of today, while eminently plausible, may not have been the reasons understood to be the basis of the decision when it was made a number of years before. And the people advancing the 'explanation' may not have been a party to the events being discussed.(18)

It is ironical, therefore, that while rational, and logical, behaviour is a central premise of the scientific paradigm, the ability of people to 'explain away' their action in the face of subsequent enquiries goes against the paradigm's position - and the 'objective' nature of data, as expressed in the Moss (1979) quotation above. This apparent inconsistency considered in the present context of the revelatory model, introduces another subject: the mediation of frames of meaning (Giddens, 1976).

Turning first to rationality and formal logic, it seems that a considerable amount of the discussion on that subject in the social science literature has involved anthropological explanation. Giddens, for example, refers to Levy-Bruhl's examination of a culture where 'man is a man and simultaneously a raven' (1976:147). It has, however, been argued that rationality and logic are manipulated to our satisfaction; the personification of the bread and wine in the Christian Communion Service is an example (Giddens, 1976:147). Central to this argument, whether pursued in a cross-cultural context or not, is the notion of the mediation of frames of meaning. Giddens for one has argued:

...the mediation of frames of meaning cannot be treated in terms of the premises of formal logic imposed as a set of 'necessary' relations which all thought, to be rational, must observe. Formal logic does not deal in metaphor, irony, sarcasm, deliberate contradiction and other subtleties of language as practical activity (1976:147; emphasis mine).

His reference to language as practical activity, is something we will return to below. It is sufficient at this point to explain that the basis of that idea lies in the relation between language and interaction. If we examine what contributes to the constitution of interaction, then language plays a dual role. On the one hand, it is a way to describe acts, or characterization, and on the other, for establishing communication between 'actors'. Giddens explains this by arguing that, since the roles are 'closely interwoven with one another in the practical activities of everyday life...the use of language itself is a practical activity' (1976:151).

The argument that 'formal logic does not deal in metaphor, irony, sarcasm, deliberate contradiction and other subtleties of language as practical activity', appears particularly relevant in the context of a construction project. As discussed in Chapter 5, the professional ethos of the engineer has as its foundation the implicit assumption that actions are grounded on rationality and logic. By association, the research project proceeded with the same world-view, thereby affecting the 'filter' being used by the researcher as 'objective' observer. In that situation, anyone implying that the principle of rationality does not necessarily hold

must face immediate negative responses - mostly lightly disguised scorn, if my own experience is any guide.

And yet, by being dependent as much on information drawn from people's use of language as well as statistical data, the reference to metaphor, irony, sarcasm, deliberate contradiction, and other subtleties of language, raises an important question: How does one 'process' data which is embedded in the very language being used to communicate with the researcher? Intuitively, this would seem to involve skills not normally included in the education of people in the disciplines around which the HMP was designed (Goffman, 1974; Livingstone and Harrison, 1981; Robinson, 1982). Certainly the geographer influence in the research unit, with both full-time staff being geographers, meant the experience being applied did not include skills in language analysis.

Giddens' criticisms of the philosophy of language will be considered with reference to the HMP experience later in this chapter. It is quite clear, however, that the monitoring task included working with overlapping frames of meaning and their mediation. But how effective could this component of the work be when the researchers were adopting a scientific, 'stand back and watch' (subject-object relation) approach? Anthropology provides an obvious source of ideas as to what is required here (e.g., Bruyn, 1963; 1966), while Giddens touches on it when he examines the 'immersion' of an observer in a form of life (1976:149). 'Immersion' means 'to get to know a form of life' by being 'able to find one's way about it.' To

achieve that requires familiarity with 'mutual knowledge' rather than full membership, because the researcher does not forego his or her own identity and cultural points of reference; those elements which make up an individual's frame of meaning.

The relevance of these ideas to SIA monitoring in general and the HMP experience in particular can be demonstrated by reference to the multiplicity of 'forms of life' involved. Not only did the Huntly district have a Maori/European social division, but there were also coal miners with their traditions versus local farmers, retailers, and so on. To the existing mix one must add the 'newcomers', who must also be seen as heterogeneous in a range of socio-economic characteristics (see Chapter 2 and HMP Final Report Paper No.2). Recognition of this complexity does, however, introduce other questions as to the feasibility of 'immersion'. Can one 'immerse' oneself in all the groups which may be identified? How does one gain entry into these groups? Does acceptance by one group preclude the same by others? Can one sustain the degree and level of 'immersion' and maintain a policy of progress reporting (as for the HMP) when the content of those reports may be unacceptable to one group or another? These are some of the questions this theme raises as a result of the Huntly experience.

There are two inter-related matters which are also part of Giddens' examination of the revelatory model. One is the 'paralysis of critical will' and the other is a distinction between 'mutual knowledge' and common sense

(Giddens, 1979:250-253). The paralysis of critical will is a consequence of some social scientists (working within a non-positivistic paradigm) identifying a role for ordinary language and common sense knowledge in the explanation of social outcomes. Giddens appears to support the philosophical viewpoint that this is possible. However, he disagrees with the conclusion many reach, that these sources provide the description of the phenomenon being studied, and therefore 'no critical evaluation of beliefs or practices is possible where such beliefs form part of an alien cultural system' (Giddens, 1979:251). The complex discussion around this topic, which it is not possible to go into here, recognises that the observer and the subject(s) have separate 'frames of meaning', an aspect which will be discussed below.

However, within the 'paralysis of critical will' issue, Giddens develops an argument based on a distinction between justifying any reference to a belief, and respecting its authenticity as a belief. In other words, Giddens believes it is possible to differentiate between 'respect for authenticity of belief' and 'the critical evaluation of the justification of belief.' In making the distinction, 'mutual knowledge' is separated conceptually from 'common sense'. The reason for this, as Giddens argues, is that respect for authenticity of belief implies a sharing of mutual knowledge between the observer and the subject, within the process of mediating frames of meaning described above. However, while it is possible to respect the authenticity of belief this does not preclude the

researcher critically evaluating the justification for it. In making this distinction, 'mutual knowledge' is separated conceptually from 'common sense', with Giddens explaining the former as follows:

Mutual knowledge is a necessary medium of access in the mediation of frames of meaning, and brackets the factual status of the tacit and discursive understandings shared by an observer with those whose conduct he or she seeks to characterise (1979:251).

'Common sense' does not involve the conduct of subjects, since it is the taken-for-granted understanding of belief-claims which attains the status of common sense. This does not mean, however, that one cannot critically examine the validity of belief-claims, or their ideological implications (Giddens, 1979:252).

The application of the authenticity/justification argument to the Huntly case can be found in the example of Maori beliefs described in Chapter 3. These beliefs were centred on the Waikato River and Waahi Marae, both to be affected by construction activities and the long-term operations of Huntly Power Station. (19) It is possible to see, with hindsight, that where discussion occurred about those beliefs in the HMP reports, there was confusion between 'authenticity' and 'justification'. Since both the researchers and the client departments did not appreciate that a distinction could be drawn between the two, any presentation of Maori beliefs were interpreted as support (i.e., justification) for them. The researchers' intention, in most cases, was simply to explain what the Maori community was saying, understanding these to be

statements which were authentic expressions of traditional beliefs.

The resulting misunderstanding led to the HMP research unit being labelled in some quarters as 'Maori lovers', while the research unit's critics seemed to the Maori people to be challenging the authenticity of the beliefs - as something subscribed to within the particular 'frame of meaning' for that community. The intention was, however, to comment on its justification in the context of the power project.(20) At the same time, in light of Giddens' argument, one can appreciate that the HMP researchers, in their treatment of the Maori fears, tended to ignore critically evaluating the justification of the beliefs upon which the fears were based. Again this was because the HMP research unit's attention was limited to the authenticity of those beliefs - which was not doubted - thereby leaving itself open to criticism from officials, and a subsequent loss of credibility in the eyes of those people who did not accept the claims advanced by the Maori community.

PHILOSOPHY OF LANGUAGE

The third of Giddens' issues concerns philosophy of language, and the particular idea of language as practical activity. The idea was introduced above, and there are two aspects of it in Giddens' critique of positivism which appear particularly pertinent to the HMP case. The first

is his reference to 'the generation of descriptions of acts by everyday actors' as being integral to and inseparable from the production of social life. The second is his interest in 'the characterization of what others do' and 'their intentions and reasons for what they do' (Giddens, 1976:151). These can be 'collapsed' into the single conclusion that language analysis appears as a key analytical skill in SIA monitoring. As Giddens explains:

The centrality of natural language to both the constituting of action as 'meaningful' and to the process of communication in interaction is...such that recourse to it is necessary in the generation of any sort of research materials in sociology...(1976:151).

While Giddens sets the quotation within a context which argued against a technical meta-language which bears no relationship with the way people express themselves in their everyday speech (that is 'natural language'), Giddens does relate the natural-technical language issue to the fact that social scientists are:

...dealing with a world which is already 'interpreted' by its constituent subjects, who constitute it as a world for study through sustaining it as 'meaningful' (1976:151).

And it is that language/reality relationship which, he argues, has consequences for sociological method as well as the construction of meta-languages.

Obviously some degree of interaction is required between the researcher (as observer) and the individuals or collectivities that are the 'subject matter' for SIA monitoring. Some of the techniques, such as those involved in social surveys, have already been mentioned in previous

chapters. But whether the contact is successful, in its clarification of the 'problem' being studied would, from Giddens' critique, seem to depend on the researcher's mastery of mutual knowledge. He claims that this:

....poses hermeneutic problems to the observer to the degree to which his object of study is embroiled in forms of life that are unfamiliar to him (1976:151).

Giddens suggests that the way one deals with the problems mentioned in the last quotation, is through the frame of meaning as it is applied by the subject. This idea brings us back to the notion of mediating frames of meaning. But it also introduces the subject of 'action' or 'agency', which has been defined as 'the stream of actual or contemplated causal interventions of corporeal beings in the ongoing process of events-in-the-world' (1976:75). It follows that an 'act', whether intentional or not, is an 'element' or 'segment' of actions. Therefore, the function of act identification requires either the 'actor', or another person who has observed the act, considering that past activity reflexively. In either case it is necessary for the action to be 'meaningful' to those involved in the process of identification, and for the act identifications arrived at to be consistent between the actor and observer. To achieve that the actor and observer will have to share a frame of meaning or be effectively mediating two frames of meaning. This way of handling frames of meaning is central to the research task of accessing and interpreting 'mutual knowledge', as defined in the discussion of the revelatory model, above.

Some degree of interaction is obviously required between the researcher (observer) and the individuals or collectivities that are the 'subject matter' for SIA monitoring. The survey technique has already been mentioned above, as has participant observation (Bruyn, 1963). But whether the contact is successful in clarifying the 'problem' being studied, would seem to depend on the researcher's mastery of mutual knowledge. That mastery depends on the degree to which the object of study presents, to the researcher, forms of life that are unfamiliar. The way into that unfamiliar life, Giddens argues, is through the frame of meaning being applied by the subject (1976:151), and as explained above, that requires either sharing or effectively mediating two frames of meaning.

From the description of the HMP in Part I, particularly the research approach with its highly quantitative orientation, it is readily apparent that the ideas in this discussion of language as practical activity were not part of the HMP experience. The lack of any systematic participant observation provisions in the research design militated against the integration of an understanding of frames of meaning and act identification. This helps to explain the tensions, referred to above, over the HMP research unit's handling of the Maori community's expressions of concern.

The relationship between the idea of subjects applying a frame (or frames) of meaning, and that of 'action' or 'agency', emerges from the above discussion as an important

part of the research task of act identification. This conclusion also effectively returns the discussion to another of the four issues: the lack of a theory of action.

THEORY OF ACTION

The fourth, and final issue, in the Giddens' critique of positivism is the lack of a theory of action. Before proceeding to a description of those aspects of Giddens' critique of that issue which appear of interest to this SIA monitoring discussion, it is pertinent to identify a correspondence between the theory of action concepts in this section, and those of social perception which have been applied in geography over the last two decades.(21)

Social perception has been described as a process:

...whereby information from the objective (or phenomenal) environment is cognitively construed (mentally imaged) and acted upon...(meaning)...the effects of social and cultural factors on the way people cognitively structure their physical and social environments (Ericksen, 1980b:4).

Social perception, therefore, goes beyond physiological considerations, and the way the body responds to stimuli. Also involved are elements relating to the individual, especially past history and present views 'that act through such things as values, needs, memories, moods, social circumstances, and expectations,

including vocational expectations' (Ericksen, 1980b:5). The 'setting' or environment within which people act has been described as 'a nested hierarchy of environments, with the inner core of behaviour... influenced by a succession of environmental layers -- perceptual, contextual, and phenomenal' (Ericksen, 1980c:6; see also Sonnenfeld, in Porteous, 1977:139). These three environments interact in a complex way, as people make decisions which in themselves change one or more of the environments (see Craik, 1972). This notion of the inter-relatedness of change in people's environments was, of course, part of the HMP methodology described in Chapter 1, and the essay contained within the HMP research proposal refers to perception difficulties in relation to the conflict between the HPP and the Maori community (see Appendix 1).

Reference to the conflict between the HPP and Maori community introduces an extension to the social perception concept, namely reciprocal perceptions. This concept recognises that while individuals, groups, and organisations have their own views of their world, this includes the views they hold on how others view the world around them. When these interpersonal or intergroup views mis-match, which is frequently the case, misunderstandings and conflicts often ensue. The Huntly experience was no exception, as indicated by Chapters 3 and 5, above. Identifying and analysing reciprocal perceptions is a difficult and complex task. Ericksen (1980c:150-152) provides an example of the complexity by showing the profile for only one pair of actors (i.e., public managers

[A] and the general public [B]) towards an issue [X], and the explanatory terms which are required. The relationships and their accompanying terms are:

A --> X <-- B direct perceptions

A --> B --> X <-- A <-- B meta perceptions

A--> B --> A --> X <-- B <-- A <-- B meta-meta percepts

Consider just some of many possible relationships leading to the meta-meta perceptions in the above profile: A's view of B's view of A's view of an issue; and its reciprocal - B's view of A's view of B's view the issue. At the first level (direct perceptions) they may disagree or agree on the issue. At the second level (meta perceptions) they may understand or misunderstand that there is agreement or disagreement. The third level pertains to their realization or failure to realize elements at the previous levels. The application of these concepts to resource management problems in New Zealand was discussed in Ericksen (1980a).

Following that brief introduction to social perception, it will be interesting to see how aspects of Giddens' critique of the theory of action, examined below, relate to the social perception process, dealing as they do with: 1) taken-for-granted knowledge; 2) intentional acts; 3) language and action; 4) hierarchy of purpose; 5) rules and resources; 6) layers of enquiry; 7) reflexive monitoring; 8) emotions; 9) discursive consciousness; and 10) understanding context. These 10

aspects of Giddens's theory of social action are interrelated and overlapping so that discussion of one often involves reference to others.

Taken-For-Granted-Knowledge

Just as in ordinary language there is a tendency to treat 'what' and 'why' questions as equivalent sorts of enquiry, so too, in the area of act identification. Giddens uses the example of someone unfamiliar with British military procedure being puzzled by a soldier raising the right hand to his forehead. The resulting enquiry could take the form of either 'What is he doing?' or 'Why is he doing that?' The answer, 'Saluting' may be proffered for both questions. Essential to any understanding of that answer, however, is some previous familiarity with the wider context - in this example, saluting, soldiering, and armies. That is, the answer brought with it a set of taken-for-granted knowledge, a concept within the theory of action, which is particularly relevant to the HMP case as will be shown in Chapter 8.

The taken-for-granted-knowledge aspect of the theory of action is particularly pertinent to the HMP case, for the reason that the introduction of a new piece of technology, such as a coal-gas fired thermal power station, raises numerous questions in the minds of other interested parties. Power project staff, operating in their engineering world (see Chapter 5) interact with local people, who are themselves living in their everyday worlds.

The latter ask questions, of a 'what?' and 'why?' nature which may well be answered by reference to the engineering frame of meaning with its stock of taken-for-granted knowledge. Unless the enquirer has developed the capability to mediate between his or her (non-engineering) frame of meaning and that of the respondent, the answer will leave the enquirer none the wiser. Not only that, but the respondent may be deluded into thinking that the answer satisfied the enquirer.

There were times in the Huntly case, most commonly at HPP Liaison Committee meetings, when a 'Why was something done that way?' type query was answered by the statement, 'This is the best engineering solution in the circumstances.' The answer presupposed familiarity with other engineering options, an unlikely event where a layperson is involved. Often a lengthy silence followed the engineer's reply, and it is possible - given some insight from the phenomenological notions above - to suggest what could be passing through the minds of each 'actor' in the dialogue. The engineer, believing the answer to be correct and adequate, probably interprets the silence as tacit acceptance, and satisfaction. The enquirer, however, could well be dissatisfied with the generality of the answer. But conscious that it implied familiarity with the engineering world, and not wanting to reveal personal ignorance in front of the local peer group, the apparent impasse would be resolved by a weak smile, and some gesture which signifies satisfaction. If that person was later approached by someone (perhaps a social monitor)

and asked why a follow-up question was not put, the behaviour would, in all likelihood, be rationalized away by the explanation: 'The answer must be correct because the engineers do, after all, know their jobs!'

The state of affairs just described assumes considerable importance for SIA monitoring in two respects. The first concerns the task of monitoring construction project liaison arrangements (such as the HPP Liaison Committee described in HMP Final Report Paper No.5) where it is easy to record what was raised through questions, while missing the subtleties underlying the dialogue as such. Silence may well be, erroneously, interpreted as understanding (or intelligibility). The lesson here for monitoring is the need for follow-up interviewing of people who asked questions, to establish just how effective the interaction opportunity has been as a means to improve local knowledge. This was a level of research sophistication not achieved by the HMP research unit as part of its attendance at HPP Liaison Committee meetings.

The second application concerns the social scientist without the skills to mediate between his or her frame of meaning, who at the same time is caught in a between-professions struggle where the 'new' discipline is trying to establish credibility with an 'established' one. In this situation it takes considerable personal confidence to acknowledge one's ignorance, even though it is quite unreasonable for anyone to expect you to know, and persist with the line of enquiry. It is easier to do the same as the hypothetical enquirer above: a weak smile, some

acquiescent gesture, and move on to the next question.

Intentional Acts

There is another question often posed in a monitoring context which is part of act identification. This is the 'what was the intention?' type of question, which is a variation on the 'what is he (or she) intending to do?' question (Giddens, 1979:83). Closely involved with this aspect is the notion of rationalization of action as discussed above. When defining 'intention', Giddens views that term as equivalent to 'purpose'. He explains:

I shall define as 'intentional' or 'purposive' any act which an agent knows (believes) can be expected to manifest a particular quality or outcome, and in which this knowledge is made use of by the actor in order to produce this quality or outcome (1976:75-76).

In that definition the place of the acting-self is confirmed as the unit of reference, while it is asserted in the accompanying elaboration that:

For action to be purposive, the agent does not have to be capable of formulating the knowledge he applies as an abstract proposition, nor does it have to be the case that such 'knowledge' is valid (1976:76).

The value of the intention/purpose definition to SIA monitoring lies in its application as a criterion for an 'intentional act'; something which is required as part of the process of identifying the 'interventions' referred to in the 'action' definition above. The distinction between unintentional and intentional acts, and their consequences, is also clarified, although there is an association between

'purpose' and 'agency' which needs explaining. It is Giddens' view that it is possible to achieve one's purpose through someone else's action (or agency), and that it is also possible to proceed intentionally but find the action leads to unintentional consequences. The latter occurs through what he calls 'the dislocation of purpose from agency'. While Giddens places little importance on the second case because it involved some unforeseen happening, that is not through the intervention of the agent as such, it still does appear relevant to SIA monitoring. The fact that this 'disharmony' between purpose and self-action occurs means that monitoring requires ways to separate out any unforeseen happening which resulted in a 'satisfactory' (i.e., intended) outcome.

An example of this unforeseen-intended-unintended schema in the HMP experience can be found in the issue of the power project competing for local labour. It was the official intention not to disadvantage local and regional employers by 'pirating' labour to work on the construction site. While at the beginning it appeared that labour was being attracted away from existing employers, as claimed in complaints reported in the press, the onset of an economic recession late in 1975 - an foreseen happening, as noted in Chapter 2 - reduced regional labour demand such that the power project could begin to appear as a benefactor, by absorbing surplus labour (Marshall, 1978). The HMP research unit, by virtue of its longitudinal - and reflexive - monitoring role, was able to ascertain the policy, take note of complaints through the press,

interview the employers (as 'actors'), and collect data from the power project's previous employer records (Smith, 1979; Goddard, 1977; Marshall, 1978).(22) Attempts to interview project wage-workers were blocked by NZ Workers Union officials, on the grounds that the subject of travel allowance payments was too sensitive to be discussed with their members (see Barclay and Cumpstone, 1978). The integration of knowledge gained from the reflexive process, as described, into future action (something which the individual does), also appears to be happening as part of the planning for the next Waikato thermal power station (Murray North Partners, 1981).

There is another facet to the debate over intentional and unintentional actions which involves establishing the parameters of knowledge which 'actors' apply. This is because, it is argued, purposive content 'involves the application of knowledge so as to produce a particular outcome or series of outcomes' (Giddens, 1976:81-82). To illustrate the point Giddens refers to Anscombe's work where it is argued that sawing Smith's plank is an unintentional act if it is not known that it is a plank belonging to Smith, although the plank as such was sawn 'on purpose'. The place of the need 'to know', as explained, appears relevant to SIA monitoring where an action, which has resulted in a dispute, was intentional or not. This is an important distinction, since an unintentional action may be viewed less harshly by society, as part of our ability to rationalise actions. An example of this line of reasoning applied to the HMP case is set out in Chapter 8.

The line of reasoning summarized in the preceding paragraph can, however, be applied to the Waahi Marae and the expression of concern by its residents. As explained in Chapter 2, by being the home of Dame Te Atairangikaahu, the Maori Queen, and not simply one of many maraes around the Waikato, it assumed a greater spiritual and traditional significance. The action of selecting a site for the power station within a few hundred metres of the Maori Queen's home was interpreted as an insult to her, and a diminution of her mana (Fookes, 1976; Stokes, 1977; 1978a). If it could be demonstrated that the MWD staff responsible for siting the power station did not know it was the home marae for the Maori Queen, and therefore of special significance, the action could be taken as unintentional. The same argument could be used for the claimed consequences that the siting decision was an insult to Kingitanga. It is important, however, to qualify the particular examples used to illustrate the line of reasoning.

The qualification is that the explanation above does not negate the point, that what was an intended act had an unintended consequence, which occurred because the 'knowledge' assembled did not consider adjoining land adequately enough. To be specific, the act was to identify a piece of land with specified qualities (or characteristics) necessary for its use as a thermal power station, while the unintended consequence was the alienation of the Waikato Maoris.

Language and Action

The subject of 'intentions' and 'purposes' provides an example of the overlap between the philosophy of language and the theory of action. This because everyday language does not necessarily make a clear distinction between 'purposes', 'reasons' and 'motives'. As a consequence there can be interpretive difficulties in SIA monitoring. At the same time, by establishing separate definitions for them it is possible to tighten up the resulting interpretation. The previous Waahi Marae example can be used to illustrate that point. To begin with, the Maori community's 'purpose' for expressing their concerns about the consequences was, initially at least, to change the power station's site. The 'reasons' advanced, such as the implications for the Maori Queen's mana, were selected to achieve the intended purpose. But the 'motive' for that action is something else again. It has been suggested by the HMP research unit that there was an implicit motive which was to draw attention to other issues: Maori Land Rights, and the lack of sympathy in european-based bureaucratic and legal processes - like town and country planning - for Maori traditions and way of life.(23)

Hierarchy of Purpose

In any examination of the intention or purpose behind people's acts, let alone the identification of cause and effect (intentional or unintentional), there is a series of actions and events; Giddens refers to that phenomenon as 'the accordian effect'. The notion of a hierarchy of

purpose seems a particularly relevant issue for SIA monitoring, where one has to establish 'who caused what' (1976:78). By this he means 'the interlocking or interweaving of different purposes or projects.' An act may be relevant to a number of intentions which the actor has in undertaking it; a project embodies a whole range of intentional modes of activity. Recognition of this concept within an SIA monitoring methodology would require strategies to 'map' the acts with reference to an identified 'hierarchy of purposes'. This would be a level of systematisation, and sophistication, so far not included in SIA monitoring. It also implies a greater degree of continuing face-to-face contact between monitor and subjects than is normally achieved in monitoring. And it requires an understanding of the 'elements' which are involved in the identification of acts, such as have been described in Chapter 7.

The subject of 'purposes' must, however, recognize that everyday language does not necessarily make a clear distinction between 'purpose', 'reasons', and 'motives'. This 'fuzziness' in meaning can introduce interpretive difficulties in SIA monitoring. At the same time, by establishing separate definitions for them it is possible to tighten up the resulting interpretation. An example of this also occurs in Chapter 8. However, the blurred distinction between 'purposes', 'reasons' and 'motives', already noted, provides ample opportunity for 'actors' to advance a rationalization when asked to explain why something was done the way it was. Once again the ability

of people to rationalize their behaviour returns as a central feature of SIA monitoring.

Rules and Resources

Another pertinent aspect of the Giddens discussion is the reference to 'rules and resources'. These concepts are elaborated further in the STRUCTURE-SYSTEMS-STRUCTURATION schema (Chapter 8), but in brief, Giddens sees rules and resources being drawn upon by 'actors' in the production of interaction. At the same time they are also being reconstituted by virtue of that interaction (1979:85). Therefore, rules and practices only exist in conjunction with one another, and as a consequence, we cannot lay down exhaustive descriptions - as prohibitions, prescriptions or whatever. The tendency for rules to be modified by 'ad hoc considerations', such as 'the etcetera clause', 'let it pass', and so on, means these modifications become involved in the establishment (or creation) of rules, and are not separate from what those rules 'are' (Giddens, 1979:68).

When relating these general ideas on rules to SIA monitoring, it seems that the 'conjunction' between rules and practices provides a further way to look at the intervention of a major construction project into an established 'community'. That is, in terms of how that 'intervention' itself affects rules and practices. Project-related 'rules' may affect existing practices, and practices may bring about a modification of 'rules'. The same line of argument can be applied to 'resources',

defined as 'the structural properties of social systems'.

When dealing with social interaction with a major institutional component, as with the HPP, Giddens identifies 'authorisation' and 'allocation' as two major resources (1979:93). By authorisation Giddens refers 'to capabilities which generate command over persons (1979:100). Allocation is likewise defined as 'capabilities which generate command over objects or other material phenomena' (Giddens, 1979:100). It should be apparent from these definitions, that 'power' as used in the present discussion is not defined in terms of conflict per se, but rather in terms of an inter-personal struggle for domination over resources (people and objects).

Time, in this context, can be seen as a factor in both authorisation and allocation, being subject to power relations. This means these resources are similar in concept to time-geography constraints identified by Hagerstrand (1970; 1973; and 1975). For example, Hagerstrand explains:

For when we try to view the developing space-time network as a whole we explicitly see how much all human projects are under the strong control of a number of severe limitations. Human beings are indivisible (they can only be in one place at a time), they have restricted spatial mobility (every movement takes time from alternative actions), and they have limited life-time (1973:79).

It is also argued, that the same type of constraints apply to whole populations, and a host of other items, such as shelters and tools. In Giddens' terms, therefore, the space-time network being sought by Hagerstrand in the

example above, is the result of decisions being made about authorisation and allocative resources, with the nature of the decisions being a function of relative power. In other words, we find 'resources' being introduced in a context of 'power' due to their use by individuals in social interaction. And, Giddens argues: 'Like rule, power is not a description of a state of affairs, but a capability' (1979:68). As such it is amenable to monitoring, since individuals and institutions can be studied in terms of how that capability has changed - and why.

Here we see the beginnings of a linkage between the respective theoretical developments of Giddens and Hagerstrand, a connection which is developed further by Pred (1978; 1981a,b,c), and discussed further in Chapter 8.

Layers of Enquiry

What also emerges, through Giddens' treatment of the theory of action critique, is his identification of 'various layers of enquiry which lay actors make of each others' activities', and the notion that 'actors' reflexively monitor their own activities. The latter Giddens describes as 'a casual mastery of the course of day-to-day events that men normally take for granted' (1976:82-83). The 'layers of enquiry' can be summarized as:

- 1 Meaningful characterization of acts (or 'What is he/she doing?')
- 2 Intention/purpose established (or 'Why did he/she do it?'; 'Was it intentional?')
- 3 Reasons/motives established (or 'What lies behind the action?')

There has already been some discussion in the sections above of some of the ideas which relate to these three 'layers'. However, implicit within the third is the idea of reflexive monitoring also mentioned above but not discussed in any detail. The link between establishing reasons and motives and reflexive monitoring occur if the third 'layer' is seen as the actor 'asking about the logical integration and the empirical content of his monitoring of his own activities' (Giddens, 1976:83-84). An individual's reflexive monitoring of his or her behaviour, it is argued, has 'grounded principles of action', and 'reasons' are used as a means of keeping in touch during monitoring. By way of an example Giddens uses an illustration from Schutz's Phenomenology of the Social World: the 'putting up of an umbrella'. The example is summarized as Table 15.

The Table suggests a framework suitable for SIA monitoring where the enquiry needs to delve beyond simple explanations of 'intention', and not be satisfied with the most obvious and plausible account of a particular action. The travel allowance issue as described in Chapter 3,

wherein expected Huntly population increases and greater economic benefits did not occur, is an example of that situation. The ideas in Table 15 will be applied to that example in Chapter 8.

TABLE 15. Layers of Enquiry and Principle of Action

1	CHARACTERIZATION OF AN ACT	'putting up an umbrella'
2	INTENTION	'to keep dry'
3	REASON	'the awareness that a suitably shaped object held above the head will keep the rain off'
4	PRINCIPLE OF ACTION	'why the particular means (umbrella) is the correct , 'proper', or 'appropriate' one to achieve the act-identification ('sheltering under some hand-held object')

Reflexive Monitoring

There is another question, however, which is raised by the idea of layers of enquiry. That is, what is the process whereby 'knowledge' is obtained to enable people to work through three layers of enquiry? Giddens' answer lies in the previously mentioned idea of reflexive monitoring. What happens is described by the following quotation:

...human agents are able to monitor their activities as various concurrent flows, most of which (as Schutz says) are 'held in stasis' at any point of time, but of which the actor is 'aware' in the sense that he can recall them to mind as relevant to a particular event or situation that crops up' (Giddens,1976:83).

Any social scientist, monitoring an engineering activity like the Huntly Power Project, who approaches the professional staff for 'explanations' of acts is 'tapping' into that reflexive process; which is itself part of their frame of meaning, and has rationalization of conduct as a basic response feature. That line of thinking returns us to the earlier definition of intentional or purposive acts with its reference to the agent's expectation that it (the act) will 'manifest a particular quality or outcome'. Reflexive monitoring itself, and/or the particular research enquiry, may engender a rationalization response if the original intention (or end) was not achieved, or the means were inappropriate. And an individual's emotions may become part of the response outcome if defensive feelings are involved.

Emotions

It has been suggested that three separate 'emotions' can be distinguished when an 'actor' is being questioned (Giddens, 1976:85). First there is 'awareness' of the purpose and reasons for conduct, which can be expressed by the 'actor's' testimony. Second is 'motivation' which refers 'to the wants which prompt action' and of which he or she may (or may not) be aware. Third is 'interest',

simply defined as 'any outcomes or events which facilitate the fulfilment of agents wants.' The HMP experience, to be discussed in Chapter 8, suggests that by being aware of, and taking steps to tap these three 'emotions' which underly a person's response to questions, the SIA monitoring will be improved by dint of methodological sophistication, and a depth of understanding of the actions being examined.

Discursive Consciousness

Related to the idea of 'emotions' is another component; that of consciousness. This is an important part of Giddens' examination of the theory of action. However, there is one aspect which seems particularly relevant to a discussion of data in a monitoring context. This is the notion of discursive consciousness (Giddens, 1979:73), which introduces a distinction between 'knowing how to do something' (or practical consciousness) and 'being able to talk about something'. These two ways of viewing consciousness, and through that people's knowledge, would seem to be pertinent to SIA monitoring methodology because that activity focuses on 'what people know' about likely impacts and 'what people expect to happen'. The ability any one person has to verbally express that knowledge will dramatically affect the quality of information (i.e., data) with which the SIA monitoring operation has to work. The content of their consciousness becomes part of the base-line information to which

monitoring refers (Chapter 4) as well as the continuing response to events as the construction project (or whatever) is implemented.

The way the researcher can establish answers to the 'What did people know?' and 'What did people expect?' type questions is through analyses of written material, such as newspaper reports or formal submissions to official bodies, or recalled views obtained by interviewing. The latter is, of course, subject to re-interpretation in the light of subsequent events, while newspaper reports may include factual errors and misreporting. But implicit in what has just been described is the assumption that people's statements convey the full extent of their knowledge. However, what if they are unable, for reasons unknown even to themselves, to express 'what they know'? By distinguishing between practical and discursive consciousness we are introducing a necessary sensitivity into the researchers' approach and subsequent interpretation. It is no longer correct to presume that 'silence implies consent'; by allowing for this 'ability-to-discourse' factor, it is clearly possible for people to disagree, and/or want to express a view, but feel incapable of doing so. In short, we assume a mastery of language, and expression skills, which may not exist in the way that is necessary for expected participation.

The notion of discursive consciousness raises serious questions about the way the HMP research unit obtained information about people's expectations. This is not to suggest that the information was in itself in error, but

rather, that it was incomplete - in the sense that there was more information 'locked up' in people's consciousness through their inability to express it. The 'solution' to that problem is a major field of study in itself which this thesis cannot hope to enter; all that can be done here is identify the problem as one to be addressed in SIA methodology.

Understanding Context

The association which exists between language and action can also be seen in the way meaning is produced through communication within interaction. That association brings into the discussion the importance of understanding context. It is argued that:

....context cannot be treated as merely the 'environment' or 'background' of the use of language. The context of interaction is in some degree shaped and organized as an integral part of that interaction as a communicative encounter (Giddens, 1979:83).

By 'context' Giddens is referring to physical, social and temporal characteristics within which interaction is set. By drawing on such characteristics the interaction becomes understandable; it takes on meaning. The importance of this notion is demonstrated with reference to the Huntly case study in Chapter 8.

It should be remembered that the idea of 'context' is only a small part of a wider discussion of interaction. However, its importance for SIA monitoring does need noting. The reason for this, expressed simply, is the need

to record data on context just as methodically as one records the verbal and non-verbal exchanges occurring during interaction. How one is able to accomplish this in practice is another question, because the Huntly experience suggests that being present during all pertinent interaction is not feasible - in some cases one is even asked to absent oneself for a period.(24) In addition, the 'How?' question introduces the subject of skills and techniques for accomplishing the recording of interaction - including the details of context. To the extent that the necessary skills are part of a social scientist's education, this may not pose a difficulty. In the Huntly case, the weighting towards geography-trained personnel (see Chapter 5) meant this component of the HMP research left a lot to be desired.

CONCLUSION

By combining the ideas identified by some critics of positivism with Huntly examples, Chapter 7 has achieved two purposes. Not only have observations on the HMP been presented in the light of criticisms of positivism, but at the same time, a number of pertinent ideas for SIA monitoring theory and method have been canvassed. Not all of those ideas, when taken individually, are sufficiently major to radically change the outcome of a study such as the HMP. One should also recognize the weight of practical considerations, as described in Chapter 5, which constrain

innovation in research methods. However, the conservatism of the research environment notwithstanding, some of the ideas in Chapter 7 do have the potential to change the nature of SIA monitoring. That is, to change it from being a positivistic, structural-functional, and management-oriented operation which focuses on collectivities of people and material objects, towards an approach which recognizes the place of the individual as an agent, active in the process of change which is occurring in the society and environment of which each person is part; affecting, and being affected by, the elements of change. Viewed together, however, the ideas discussed in Chapter 7, do reveal the rudiments of an underlying, non-positivistic, philosophical foundation upon which an alternative approach to SIA monitoring can be developed. In this way the initial Giddens' critique is re-oriented from criticism to a constructive position on the application of his ideas to an applied research situation.

The essentially optimistic position reflected in the previous paragraph sets the tone for Chapter 8 which follows. The position explained above also implies there are some ideas, within the set discussed in Chapter 7, which do have the potential to radically change the outcome of SIA monitoring. The notions and concepts included in the theory of action critique seem particularly relevant to that claim, because they translate the philosophical concerns in the anti-positivism debate into a theoretical position amenable to further translation into practice. It is that process of 'translation' which Chapters 8 and 9

will pursue, with the intention of identifying alternative ways to approach SIA monitoring.

The discussion to this point in the chapter has examined, with reference to the HMP experience, specific aspects of the issues raised in the critiques of the logic and methods of natural science to social science. As a consequence a rich, if diverse, resource has been prepared in readiness for a conclusion which sets out the SIA monitoring options, and the implications of selecting one against another. There are, however, developments stemming from the theory of action critique which require further elaboration. These developments, which involve a stratification model of action, are addressed in Chapter 8 in conjunction with an introduction to time-geography. In many respects both model of action and time-geography synthesise aspects of the issues covered in this and earlier chapters, serving the function of bringing us closer to an understanding of the SIA monitoring options.

Chapter Eight

SIA MONITORING AND ALEROW'S DIALECTICAL PARADIGM WITH REFERENCE TO GIDDEN'S THEORY OF ACTION AND HAGERSTRAND'S TIME-GEOGRAPHY

It was argued that the ideas discussed in Chapter 7 provided an alternative to the positivistic perspective on SIA monitoring. There was a particular emphasis on the theory of action discussion, because it translated the philosophical concerns in the anti-positivism debate into a theoretical position amenable to development into alternative SIA monitoring practices. In this regard, the notion that 'human beings reflexively monitor their conduct', is especially interesting for SIA monitoring.

Reference was also made in Chapter 7 to Hagerstrand and the similarities between his time-geography ideas, and those developed by Giddens out of his critique of contemporary social science. In particular, the correspondence between Hagerstrand's time-geography constraints and Giddens' authorisation and allocation

resources was noted.

The purpose of Chapter 8, therefore, is to develop further conceptual associations between the ideas within the Giddens' critique and Hagerstrand's time-geography. The latter developed in the early 1970's, out of a contemporary interest in time and its role in geographers' explanation of man's use and modification of terrestrial space (Hagerstrand, 1970; Anderson, 1971; Parkes, 1974;

Holly, 1976). Initial work in time-budgets within a positivistic framework, moved towards a more general concept of people's lives in relation to time constraints (Hagerstrand, 1970; 1973; and 1975). Ideas drawn from criticisms of positivism were built upon to shape time-geography in more of a non-positivistic mode (Pred, 1977; 1978; 1981a; 1981b; and Thrift and Pred, 1981). The merging of criticisms of positivism and the notion of a time-geography, presents an interesting opportunity to extend the critique of SIA monitoring. This is because the arguments and ideas summarized in Chapters 6 and 7 addressed two relatively abstract problems. The first was a general one, namely the philosophy of (social) science, while the second one was the more particular criticism of the theory of action. By being philosophical, and essentially aspatial, their application to applied research, such as the HMP, requires a connecting set of ideas that develop an approach which can be implemented in a specific research design. It will be argued in Chapters 8 and 9, that time-geography provides that connection, and suggests alternatives to the approach adopted for

monitoring Huntly Power Station.

Chapter 8 consists of four sections, with the first addressing, and elaborating on, the theory of action theme introduced in Chapters 6 and 7. The second section describes the notion of time-geography, while the third section examines it in relation to the SIA monitoring prototypes introduced in Chapter 5. Finally, Chapter 8 returns to the matrix of four issues and three themes developed in Chapter 6 (Figure 25), at which point the preceding ideas are consolidated and summarized.

DEVELOPMENTS IN THE THEORY OF ACTION

The first element in Giddens' writing which suggests direct relevance to the way one thinks about SIA monitoring, in the context of an alternative paradigm, is interest in the individual. That is, the individual viewed as a capable and knowledgeable agent; not one whose actions can be explained solely by reference to normative values, 'processed' through either personality or society.(1) This aspect relates to the philosophical position around which Albrow's dialectical paradigm was developed (Chapter 6). That is, by focusing on the individual as an agent this line of thinking seems to address the tendency for forms of SIA monitoring which not only concentrate on data for collectivities (being the sum of individual's decisions) but also ignore the subject-subject relation as explained in Chapter 7.

Individual as Agent

When explaining his own interpretation of 'individual', Giddens makes reference to Marx. This is of value in itself, because it reconnects with the marxist approach outlined earlier in Chapter 6. However, the quotation also provides another perspective on monitoring social impact, given the objective of understanding social change stemming from a construction project. As Giddens explains (1979:53):

Marx writes in the Gundrisse that every social item 'that has a fixed form' appears as merely 'a vanishing moment' in the movement of society. 'The conditions and objectifications of the process', he continues, 'are themselves equally moments of it, and its only subjects are individuals, but individuals in mutual relationships, which they equally reproduce and produce anew...' (emphasis mine). (2)

When reading the quotation, it was the image of 'a vanishing moment' which also seemed pertinent to the monitoring experience. Often the Huntly discussion came round to acknowledging the difficulty of 'pinning something down'; recognizing that we were dealing with 'slippery variables' (to use the colloquial expression then in vogue). In some, but not all cases, there was recourse to the individuals involved, as a means of clarification, and Drury (1980) argued for monitoring from the 'inside out' (as explained in Chapter 5). These comments confirm, of course, the observations reported in Chapter 5 from Krawetz (1981c), where the HMP was criticised for the way it did not build the identification of cause into the monitoring approach. The context for the HMP's concerns, and the

remarks of Drury and Krawetz as well, was of course the dominant paradigm, not the alternative being subscribed to by Giddens.

However, Giddens' work conveys more than simply a definition of the individual as agent, or an appreciation that human action is a transitory event. As this chapter demonstrates, a closer examination of Giddens' ideas on the 'theory of action' reveals a number of other aspects pertinent to a discussion of SIA monitoring. But the nub of his ideas on the theory of action is the definition of 'action' itself; that is, 'a stream of actual or contemplated causal interventions of corporeal beings in the on-going process of events-in-the-world' (1979:55).

Central to his emphasis on the individual (or 'the acting self'), and intervention (as used above), is the notion that a decision is made by the 'actor' either to intervene or not. As Giddens expresses it, 'the agent could have acted otherwise' (1979:55). The options are either 'intervention' or 'forebearance', but it is also necessary to recognize the related component of 'reason' - why such a decision is made. This returns the discussion to ideas on intentions, purpose, reasons and motives mentioned above. This whole component would appear to be the analytical nexus for SIA monitoring since its ultimate purpose is to show the influence of the project on the change which has been identified.

The way one goes about identifying both the changes and the place of the construction project in those changes, is through the process of reflexive behaviour mentioned

above. In this case it is not only the impact monitor(s) as agent who is being reflexive but also the individuals involved. This is because the impact monitor is enquiring into an aspect of the 'events-in-the-world', and this enquiry is an act which interrupts the flow of action of those other individuals who are involved. It is itself an 'intervention' in the sense contained in Giddens' definition above. Just as individuals decide to intervene or not in the events which make up their daily lives, so too does the impact monitor. This suggests that the analysis of the process underlying the theory of action may also apply to the monitoring operation itself, an aspect which we will return to in Chapter 9. In the meantime it is necessary to examine further suggestions from Giddens' theory of action, by turning to his 'stratification model' of action (1979:56).

Stratification Model of Action

Giddens has brought the ideas developed in his critique of the theory of action together into a model of action (Figure 26). His use of the term 'stratification' with reference to the model acknowledges its structure, with the key elements 'layered' (see centre box, Figure 26). The ideas used here, those of reflexive monitoring, rationalization, and motivation, have already been introduced in this and the previous chapter.

An individual's rationalization of action, essentially inter-related to the other 'stratum', provides a necessary

background to the reflexive monitoring of that action. However, rationalization of action draws upon the individual's set of 'wants': the things which consciously or otherwise motivate action. The return link from the lower to the upper stratum occurs because, to quote Giddens:

the unconscious...can only be explored in relation to the conscious: to the reflexive monitoring and rationalisation of conduct grounded in practical consciousness (1979:58).

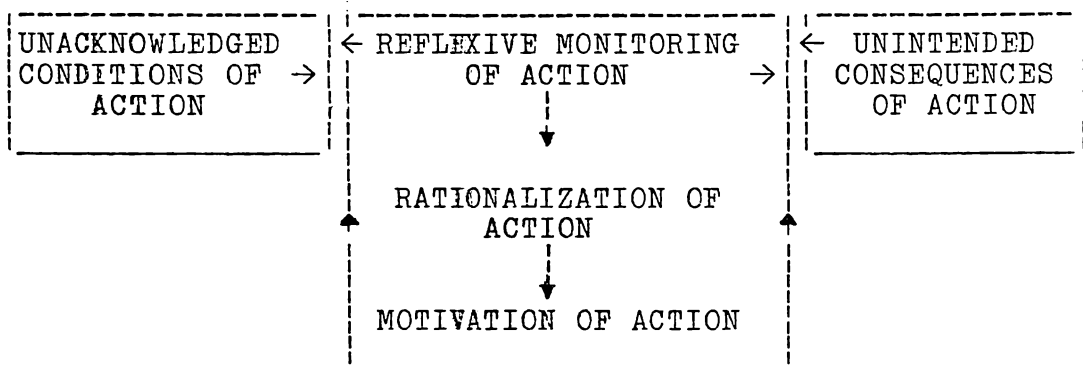


Figure 26. Stratification Model of Action (Source: Giddens, 1979:56)

Affecting and being affected by the iterative process occurring within the strata are the two 'wings' to the model: the unacknowledged conditions of action, and the unintended consequences. The former brings into consideration 'unconscious motives, operating or 'outside' the range of self-understanding of the agent', while 'unintended consequences' tap activities which by-pass the

'actor'. The two 'wings' are themselves connected through the reflexive process: unconscious motives may lead to unintended consequences, while the latter may become part of the unacknowledged conditions as the 'action' continues (1979:58-59).

Since it is intended to return to this model in Chapter 9 when the ideas introduced in this chapter are discussed in the context of the HMP, it is only necessary to note, at this point, its potential importance to SIA monitoring. Two aspects can be noted at this stage. The first is that the model has similarities to impact monitoring as an operation in that it has a similar 'shape' to the process which occurs in monitoring (see Figure 24). The second is that it provides an explanatory framework for understanding the actual changes which SIA monitoring identifies.

Structure-System-Structuration

Another part of Giddens' critique of the theory of action is a three-part scheme based on the concepts of 'structure', 'system' and 'structuration' (1979:66). These are set out in Table 16.

The first two parts in Table 16 are of interest in so far as they are part of the third part - structuration. And it was Giddens' explanation of what a study of structuration would involve which triggered my interest in the way those ideas could be applied to SIA monitoring. The question which emerged was whether an objective of SIA

monitoring could be defined as 'the study of structuration'.

TABLE 16. Giddens' Definitions of Structure, System and Structuration

STRUCTURE	Rules and resources, organised as properties of social systems. Structure only exists as 'structural properties'.
SYSTEM	Reproduced relations between actors or collectivities, organised as regular social practices.
STRUCTURATION	Conditions governing the continuity or transformation of structures, and therefore the reproduction of systems

Source: Giddens, 1979:66.

Before looking further at that question it is necessary to clarify what is meant by 'the study of structuration', which can be done by reference to a quotation from Giddens:

To study the structuration of a social system is to study the ways in which that system, via the application of generative rules and resources, and in the context of unintended outcomes, is produced and reproduced in action (1979:66).

In other words, monitoring would start with the system (as defined above) and examine changes in the 'structure' (as 'the properties of social systems'), and 'structuration'. The emphasis placed by Giddens, in his definition of 'structure(s)', on rules and resources as properties is also pertinent in the SIA monitoring context. This is

because of the interest in changes in social processes; changes in 'rules' (and therefore practices) could be basic to an analysis of social impacts. Furthermore, given the discussion of 'resources' and the linkage with 'power' (Chapter 7), monitoring with the structuration objective provides a new perspective on SIA monitoring, a proposition which is examined further in the following section.

Application of Action Theory to SIA Monitoring?

Giddens' ideas on the theory of action have been developed to the stage where a model has been described (Figure 26), along with a set of inter-related definitions (Table 16).

The stratification model of action has been suggested above as a possible alternative perspective for an SIA monitoring operation. Meanwhile the discussion of the three-part schema in Table 16 (above) seems applicable to a form of SIA monitoring where the objective is stated as 'the study of structuration'. However, the typology of SIA monitoring purposes outlined in Chapter 4 (from Krawetz, 1981c) provides another context for assessing the application of those structuration ideas. These SIA monitoring prototypes are considered along with the notion of 'structuration' as part of the 'time-geography' ideas which follow.

It is the structuration notion, therefore, which provides continuity between the two previous chapters and

the balance of this one. In the discussion which follows 'structuration' is taken a step further and is considered within 'time-geography', itself a comparatively new concept in human geography (Pred, 1981a). At the same time the ideas considered from Pred also incorporate several of Giddens' other notions and the Albrow's dialectic method introduced earlier in Chapter 6. What follows, therefore, is a synthesis of some key aspects arising from the philosophical content above. The reader is then in a position to adopt a critical perspective on these approaches in relation to the HMP in Chapter 9.

The philosophical re-orientation suggested by the ideas presented in Chapters 6 and 7 and their incorporation in schemata which can be seen to apply to SIA monitoring are interesting in themselves. They remain, however, sufficiently abstract and aspatial for an inter-disciplinary activity like SIA monitoring, to raise the question of their direct application to operations such as the HMP. It is at this point that recent work by Allan Pred (1981a; 1981b) appears relevant. Pred takes the previously described structuration ideas of Giddens and links them with Hagerstrand's idea of 'time-geography' (1973; 1974).

Pred writes about time-geography in language which implies it could be pertinent to SIA monitoring when approached as a study of structuration, as discussed in Chapter 7. This is not to prejudice the possible conclusion that time-geography could apply to SIA monitoring with other purposes. Reference has already been

made in Chapter 7 to this possibility, but at this stage our interest is focused on the notion of structuration.

Returning to the idea of 'time-geography', Hagerstrand developed:

a means by which we, as human geographers and human beings, can think about the world around us and the everyday content of our own lives and thereby begin to creatively contribute to the modification and elaboration of social theory (Pred, 1981a:5; emphasis mine).(3)

The interest in social theory in the last quotation is laudable in a general social science context, but particularly so for SIA monitoring, given the volatile nature of the field described previously in Chapters 4 and 5. And so, too, is the reference to 'the everyday content of our own lives', which gels with the notion of 'reflexive monitoring' in Chapter 7. But it is the claim that Hagerstrand has provided 'a means' for human geographers to 'think about the world around us', which ties the time-geography approach into SIA monitoring.

A TIME-GEOGRAPHY APPROACH

The Concept

When discussing the claim that time-geography provides a means for geographers to think about the world, Pred identifies two components. First, time-geography is seen as a 'device' for description and analysis. Second, it is seen as 'a highly flexible language and evolving

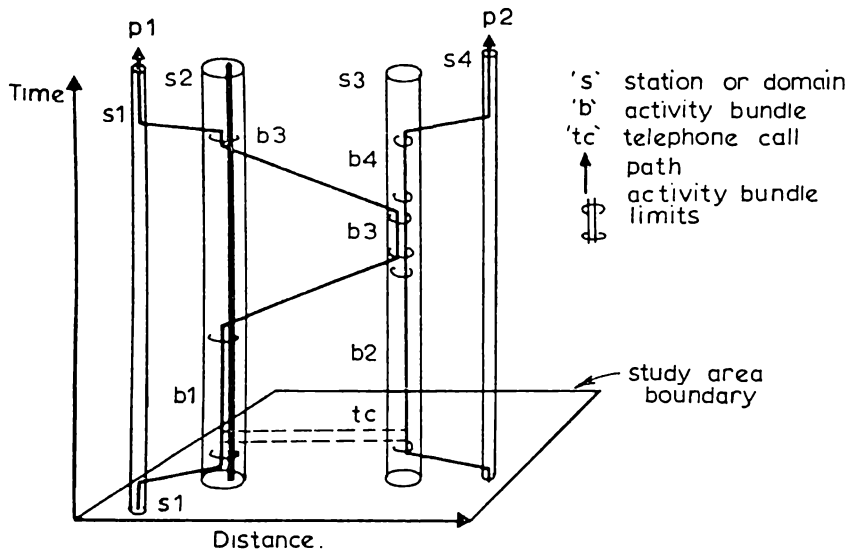
philosophical perspective [on] the individual and society' (1981a:5).(4) These are exciting promises, particularly the second one given the methodological 'disarray' in the social sciences mentioned in Chapter 6. But what exactly is time-geography?

Life-Path, Constraints and Domains

Time-geography is based on a particular concept, the 'life path'. The notion behind the concept is, that, for each individual there is a 'path' in time and space which begins at birth and extends through his or her daily existence to the end point of death (Hagerstrand, 1970:10). Pred expresses this notion as 'space-time choreography' of the individual's existence at daily, yearly, or lifetime (or biographical) scales of observation' (1977:208). The 'trajectory' for each 'path' is guided by constraints, while the 'path' can be described in terms of location in space, areal extension, and duration in time. Hagerstrand sees an individual's biological condition and the 'tools' available constraining the 'trajectory' within the bounds of a prism shaped figure, when expressed diagrammatically (Figure 27). Other constraints affect inter-path interaction, in time and space terms, within the prism, with 'paths' being bundled together for defined purposes (i.e. activities, hence the term 'activity bundles') and controlled within spatially defined 'domains'.(5)

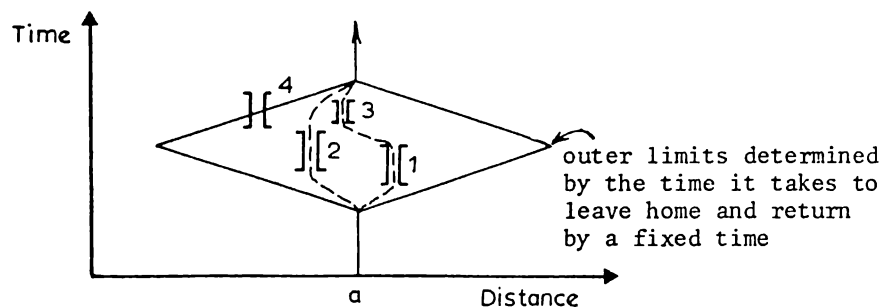
Whereas it is conventional to view people as parts of activities to be performed at defined locations, in the

a. SOME BASIC TIME - GEOGRAPHY CONCEPTS



Two people (p_1 and p_2) leave their respective homes (s_1 and s_4) and travel to work (at s_2 and s_3). For p_1 his 'activity bundle' (b_1) is formed by the convergence of his 'path' with a machine, while p_2 works on his own in an office. Early in the day p_1 telephones p_2 (tc) and they agree to meet later that day (b_3). After the meeting p_1 returns to his work (b_3) and then goes home, as does p_2 at about the same time. After Pred (1973)

b. CHOICE OF ACTIVITY SEQUENCES WITHIN A SPACE-TIME PRISM



Activity sequences (1,2,3,4) are of given duration and location with home base (a). 1 and 3 can be completed in the time available; 2 and 3 cannot, and 4 extends outside the daily prism. (From Pred, 1973)

Figure 27. Time-geography concepts (Source: Pred, 1973)

Hagerstrand schema 'individuals are entities who need to make sense out of their paths between and through the activity locations' (1970:7).(6) By using the phrase 'making sense out of', Hagerstrand is adopting the same philosophical position as Giddens, viewing the individual as a capable and knowledgeable actor (see Chapter 7). At the same time, the concept of 'domain' is recognition of authority beyond the individual. There is a reference in Hagerstrand (1970:18), for example, to:

....highly institutionalized power and activity systems (and) pre-established programs of organisation which are made up with no particular regard to the individuals who happen to enter these systems....

Project

'Project' is another important concept in time-geography, consisting of 'the entire series of simple or complex tasks necessary to the completion of any intention-inspired or goal-oriented behavior' (Pred, 1981a:10). 'Project' relates, therefore, to Hagerstrand's 'activity bundle' through the existence of 'tasks'. There is an internal logic to each task requiring their application in a defined sequence, so each task:

....is synonymous with the formation of activity bundles, or with the convergence in time and space of the paths being traced out either by two or more people, or by one or more persons and one or more physically tangible inputs or resources, such as buildings, furniture, implements, and raw materials (Pred, 1981a:10).

Central to that quotation, therefore, is the notion of interconnectedness; of different biographies, particular practices at specific times and places, as well as biographies and the continual workings and transformation of society.

Time-Geographic Realities

Time is seen as no more than one of the dimensions within which activities occur:

Time is a scarce resource, and not merely a medium through which events pass or a passive backdrop before which events unfold...'(Pred, 1978:345).

Because of the central role of 'time', Pred identifies time-geographic realities which 'intersect' with daily path activities, influencing the way activities affect the biographies of each 'actor'. A summary of time-geographic realities follows (Table 17), but since this is an evolving notion it should not be taken as a definitive list. The application of time-geography to SIA monitoring, for instance, may well reveal additional 'realities'.

A Critique

The ideas presented by Pred have not been without their critics, and it is through one particular critique that further elaboration on time-geography is possible.(7) A H R Baker's (1979) paper, 'Historical geography: a new beginning?', challenges the claims which Pred has made for

TABLE 17. Time-geographic realities

1. Every human being is physically indivisible. He cannot be at more than one physical location at any point in time. Or, in tracing out his path, or trajectory, of existence through time-space at daily and lifelong scales, he cannot participate simultaneously in activities that are spatially separated from one another. (All inanimate objects, such as machines, tools, and buildings and all nonhuman living beings, such as animals and plants, are also indivisible "individuals" subject to the same simultaneity constraints.)
2. Every task or activity that a human individual conceivably can undertake is time demanding. Hence, every commitment to a task or activity diminishes both the finite daily (or lifelong) time resources of the participating individual and the finite daily time resources of the population as a whole within any bounded area. (The total daily time resources of the "population system" of any bounded area are equal, obviously, to 24 hours multiplied by the number of persons inhabiting the area.) Put alternatively, whether viewing one human or an areally aggregated segment of "society" as a whole, only so many tasks and activities may be packed into a single day.
3. Movement between any pair of points in space can only be accomplished through the sacrifice of time. Therefore, a person can only take part in two successive activities x and y, if they are so located in space that the distance separating them can be traversed, with the transportation mode at his command, in the time interval occurring between the termination of x and the commencement of y.
4. Space has a limited packing capacity, or ability to accommodate events, no two physical objects being able to occupy the same space at the same time. Thus, any set of activities whose occurrence requires the use of uniquely designed physically fixed structures or objects must be placed spatially apart from one another, regardless of their timing. (Of course, this does not preclude two such activities from being physically adjacent to one another.)
5. Insofar as a given "activity bundle" definitionally consists of a specific set of roles, the bundle becomes closed to additional participants once those roles are fully staffed. ("Activity bundles" are formed when the paths of two or more individuals converge in time at a particular location ["station" or "domain"].
6. Because realities 1 to 5 are always true, regardless of individual and cultural variations in the perception, conception, and definition of time,² there is always a complex local connectedness between the apparently unrelated and unconnected events and activities experienced by different individuals. That is, collateral processes, each of which has its own time-geography, constantly impinge upon one another. (The more academic specialists assign events and activities to arbitrarily defined, context-divorced categories of analytical convenience, the more "invisible" the local connectedness of phenomena tends to become [14,15,22].)

time-geography (as outlined above). According to Thrift and Pred's (1981) response, the critique interprets time-geography:

...merely as a rigid descriptive model of spatial and temporal organization which lends itself to accessibility constraint analysis (and related exercises in social engineering) (1981:277).

They contend, however, that 'time-geography is much more than that', being 'a discipline-transcending and still evolving perspective on the everyday workings of society and the biographies of individuals' (Thrift and Pred, 1981:277).

Baker also points to 'the process underlying the form' which he claims is (at least) 'of paramount concern' to historical geographers (1979:561). Thrift and Pred express surprise at an interpretation which to them mis-represents their position. In the explanation they introduce the notion of interacting biographies - of the individual and family as well as 'of animals, institutions, and all other man-made and natural objects found in the area under study.' Through these biographies, and their interaction with each other and wider social processes, one explores the social and cultural characteristics of an area - not solely as descriptions, but rather as an explanation of the underlying processes (Thrift and Pred, 1981:279).

A further criticism aligns time-geography with the positivist tradition as discussed in Chapter 6. Baker argues for the adoption of 'marxian humanism' (see

Albrow/Smith discussion in Chapter 6). Thrift and Pred argued in return that the 'path' and 'project' concepts provide 'a concrete and consistent means of empirically linking the workings of economic institutions and culturally entrenched practices with the specific everyday social relations of people' (Thrift and Pred, 1981:279). Pred's (1981c) paper on the dominance of factories and the large-scale workshop in the nineteenth century US city is cited as an example of that position. Baker's criticism clearly puzzled Thrift and Pred since neither they nor Baker view the problem as a positivist would.

Clearly conscious of the developments in social science thinking during the last two decades, and refuting Baker's positivist label, Thrift and Pred emphasise that:

Insofar as time-geography is fundamentally dialectical, it does not only address the underlying processes it supposedly neglects, but it can also incorporate them.

They add further emphasis to the point by asserting that:

...time-geography is capable of helping...human geographers...to bring a dialectical and therefore dynamic perspective to the study of the interplay between individual behaviour and experience, the workings of society, and societal change' (Thrift and Pred, 1981:283). (8)

The way to achieve that perspective is through the concepts of 'path' and 'project' as explained above.

Time-Geography Dialectics

The claim by Thrift and Pred that time-geography is able to introduce a dialectical perspective to the study of society (above) requires further elaboration. The idea of a dialectical approach to social science was introduced in Chapter 6, through the work of Albrow. Several dialectics underly time-geography as described in Pred (1978), with him using the term 'dialectic' in a broader sense than in marxism. These are:

- (a) the individual-societal;
- (b) the daily path-life path;
- (c) the external (corporeal action)-internal (mental experience and intention); and
- (d) the path convergence-path divergence.

Each one of these dialectics can be described in turn.

Definitions

The individual-societal dialectic identifies the interaction between an individual and society as a whole. In time-geographic terms, since the society's daily time resource is the sum of the individuals', any allocation (voluntarily or involuntarily) by any one individual of a part of his/her path to an activity affects the time-activity mix of that society. Similarly, any claim on an individual's time to fill a role prescribed by society will affect the composition of his/her daily (or life) path.

The daily path-life path dialectic means either path is sensitive to changes in the other one. If a new role is added to one's life path then adjustments are required in the daily path, with the addition and subtraction of activities and locations. Similarly, changes in the daily path will have implications for the life path since the latter is the accumulated experiences of one's daily existence.

The external (corporeal action)-internal (mental experience and intention) dialectic refers to the interaction between activity - generated experiences (corporeal actions) and the mind. The experiences obtained from being in the 'external' world become accumulated mental experiences that influence attitudes, skills, and preferences - and affect the way intentions are defined. And yet the individual chooses between activities and interactions, subject to the time-geographic constraints outlined in Table 16 (above), influenced by previous mental experiences and consequently derived intentions.

The path convergence-path divergence dialectic addresses the dynamics of the time-space trajectory. 'No activity bundle or interaction can come into being via the convergence of paths without necessitating the divergence of previously joined paths.' Similarly, it can be taken, therefore, that 'no activity bundle can terminate, via the divergence of paths, without necessitating the convergence of paths in new combinations, or new activity bundles or interactions' (Pred, 1978:368).

By identifying these four dialectics, which have also been described as 'contrapuntal dynamics' (Pred, 1978:368), it appears that time-geography contains the means for examining how and why changes occur in the social systems being studied. The second and third dialectics apply to a study of structuration, a theme introduced above in discussing Giddens' theory of action. It is also apparent that all the dialectics are closely connected. Commenting on this overlap, Pred notes how it occurs between the life path-daily path dynamic and the external-internal one. He explains how the former:

...is closely related to the external-internal dialectic, but somewhat more explicitly deals with the interplay between the long-term commitment and everyday practice, between a person's lengthier institutional role connections and the daily life content (Pred, 1981a:13).

Application

By 'institutional role connections' Pred means those involving the family through to the specialized roles associated with work and leisure contexts. But the life path-daily path dynamic means that, at any one time, the institutional roles and experiences which make up a person's biography directly influence choices 'appearing' on the daily path. At the same time, we must bear in mind Hagerstrand's three constraints - capability, coupling, and authority - referred to above. And by virtue of making a choice (voluntarily or otherwise) at the daily path level, one's life path is affected, dramatically in some cases and less dramatically (even trivially) in others. The former

may have the long-term effect mentioned in the last quotation.

But it is the individual as an agent, trading off options and constraints, which involves the external-internal dialectic. We are not dealing with isolated events; not only is each daily path occurring simultaneously with all others (animate and inanimate) in the society, but at the same time each person brings to the process their 'internal' inputs: what one does and thinks. In other words, there is an interplay between 'doing' and 'thinking', each one acting on the other. Pred summarizes the idea by explaining:

The operation of the external-internal dialectic does not only mean that every determinate intersection of individual path and institutional project is both past rooted and potentially future rooting. It also means that, since the physical enactment of each everyday practice cannot be separated from the influence and modification or reinforcement of mental activity, the corporeal unfolding of an individual's path in a succession of projects is synonymous with the constitution or development, and expression of consciousness (1981a:12).

Once again we are reminded of reflexive monitoring by individuals (Chapter 7) as the process whereby each person 'reflects' on their own and others' actions. Attitudes, values and intentions are influenced by this process, while it also establishes areas of common-thinking (a shared-consciousness) and communally agreed actions. This 'common-thinking', or ideology, is also an outcome of the external-internal dialectic, but its role extends further into the creation of institutional projects. By arguing, in time-geographic terms, that projects occur with the

coming together of individual paths, as activity bundles, they cannot be taken as 'givens'. As Pred explains:

The component activity bundles and roles are the result of the goals established and decisions reached either by the separate individuals, or coalitions of individuals who hold power and authority within institutions (1981a:12).

And we know enough about decision making to appreciate the interplay between 'corporeal action' and 'mental action and intention': that is, the external-internal dialectic in operation.

Returning to the subject in question - how to approach SIA monitoring as a study of structuration - it would appear that time-geography as outlined provides both a way to design a longitudinal study such that it will be sufficiently comprehensive, and a perspective which will encompass the philosophical positions built into Giddens' theory of structuration. The design will work with the concepts of 'path', 'project', and 'domain', as well as the related notions of 'activity bundles' and 'time-space prism'. The interpretive perspective will draw on the time-geographic realities and the four dialectics. An application of this approach occurs in Chapter 9, which will further consolidate the position being argued here. In the meantime there is another aspect of the discussion on time-geography which needs to be explored. That is, the way time-geography can be applied to the SIA monitoring prototypes which were first introduced in Chapter 4 (Appendices 10-16).

TIME-GEOGRAPHY AND SIA MONITORING PROTOTYPES

While the previous section examined time-geography where the SIA monitoring objective was identified as 'the study of structuration', knowledge of alternative purposes (Krawetz, 1981c) demands the same treatment. This section will take, therefore, each of the seven prototypes of SIA monitoring in turn and assess their acceptability in the light of the philosophical and conceptual foundations of time-geography outlined above. The seven prototypes have been described in Chapter 4 as monitoring for: 1) compliance; 2) knowledge; 3) short-term management; 4) project control; 5) future planning; 6) research and development; and 7) credibility (Krawetz, 1981c).

The assessment will follow Pred's (1981a) view - as discussed above - that time-geography can be viewed as a 'language and philosophical perspective on the individual and society'. It is illogical to proceed with the assessment of an SIA monitoring purpose if the purpose (or prototype) is clearly grounded in a positivistic philosophy when the other basis of assessment is not. Where the two positions are consistent on philosophical grounds, then the assessment can proceed to consider whether time-geography can be applied as a 'technique' (or a device, to use Pred's term). To proceed otherwise would be a perversion of the philosophical position on which time-geography is based.

Prototype Assessment

1. Compliance

Monitoring for compliance has been described from an organizational point of view as 'established, well-defined, and passive', and 'bureaucratic'(see Appendix 10). From that description the prototype appears to have a positivistic foundation. One is reminded, for instance, how the positivistic perspective on society was outlined in Chapter 6, that is, as 'a rigorous dichotomy between fact and value, theory and practice, and the pure and the applied' (Smith, 1979:358).

When considered further in terms of the organizational elements, that initial impression is confirmed with the emphasis on terms and conditions, and their being enforced (Table 18). Finally, the way the relationship between the interested-parties is described, places the conclusion, that the prototype has a positivistic foundation, beyond dispute. The references in Table 18 to 'adversarial' and 'legislated to co-operate' clearly places the prototype outside the alternative philosophical context. This can be confirmed by reference to Albrow's (1974) comparison of the categorical and dialectical paradigms (in Chapter 6) where the former was described as 'a quest for stable elements underlying change' while the dialectical focuses on 'the generation of new phenomena, on all that is associated with emergence, creation and novelty' (1974:184).

TABLE 18. Organizational Elements for Compliance Prototype

Commitment to objective	Commitment to monitoring	Relationship of parties-at-interest
Explicit policy to protect human health and welfare	varies with enforcement; legislated standards and explicit program; or terms and conditions capable of enforcement	adversarial; legislated to co-operate (if necessary by force) in the public interest

Source: Krawetz, 1981c: Appendix (Table A)

Turning to the monitoring approach outlined by Krawetz for the first prototype (Table 19), its positivistic foundation is also readily apparent. Whether considered in terms of scope of data, the basis for assessing change, or personnel, the emphasis is on quantifiable data, deviation from legislated standards, and 'technicians'. The prescription echoes Smith's previous comparison, thereby eliminating monitoring for compliance from further consideration with regard to its relationship with time-geography.

2. Knowledge

The second prototype, monitoring for knowledge, has an objective which could be sympathetic to the non-positivistic foundation of time-geography. This is because the pursuit of knowledge, as such, is the purpose

of both contrasting philosophies. Further consideration of the prescription for this prototype, however, reveals some ambiguity. This is because by describing the characteristics of the monitoring situation as 'passive, reactive, remote' (Appendix 1i) there is the suggestion that the observer-subject relationship of positivism is retained (see Chapter 7). If the characteristics of the situation could be changed without affecting the other elements in the prototype that reservation may be overcome. The issue seems to hinge on the purpose for pursuing knowledge. The organizational elements as described (Table 20) seem to reflect an ambiguous view of the value of knowledge, since there is little support for the objective as such (i.e. knowledge), but high levels of support for the idea of monitoring.

TABLE 19. Monitoring Approach for Compliance Prototype

Scope of data	narrow; highly specific; univariate; method and frequency of collection and reporting often specified
Other essential characteristics	hard (quantitative) data; establish a data base for each facility or situation
Basis for assessing change	'cause' is known and defined; change measured by comparing data to legislated standard
Basis for assessing the significance of change	deviations above standard constitute non-compliance (that is, they are significant)

Source: see Table 18

Expressed another way, the more abstract statement of the monitoring endeavour's objective - knowledge - does not engender a positive reaction in the interested-parties. But they are open to the idea that there may be things which they were unaware of, and so they do not reject the idea of monitoring. Since it is said that the relationship between the interested-parties 'varies', this also maintains the feeling of ambiguity, and the feeling that the prototype could be shaped by the positivistic mould. On the other hand, if approached by way of time-geography, there is the possibility that it could be consistent with the alternative paradigm. The irony, in that case, is that it would be likely to find official support for the monitoring reduced, and relationships between the interested-parties even more difficult to sustain.

TABLE 20. Organizational Elements for Knowledge Prototype

Commitment to Objective	Commitment to Monitoring	Relationship of Parties-at-Interest
Little support; usually under-taken pre-policy	High	Varies

Source: see Table 18

The monitoring approach described for the second prototype (Table 21) supports the previous impression of ambiguity, with its declared descriptive emphasis. While it can be read from a positivistic perspective, there is sufficient scope for an alternative one to prevail. In the

first instance, the scope of data 'varies', although there are opportunities for the collection of primary data outside established data bases, and the approach does not include any basis for assessing the significance of change. The participation of 'any interested-party' also leaves the way open for the subject-subject relationships, as introduced in Chapter 7 from Giddens' criticisms of the dominant paradigm. While acknowledging the apparent ambiguity, it is possible, however, to see the application of time-geography as a possibility.

TABLE 21. Monitoring Approach for Knowledge Prototype

Scope of Data	Varies
Other Essential Characteristics	Relies on established data bases and/or ability to collect primary data
Basis for Assessing Change	Deviations from baseline (fraught with methodological difficulties); sometimes control groups used

Source: see Table 18

3. Short-term Management

Monitoring for short-term management; by virtue of its identification with management and the implication of 'control' this third prototype appears likely to embrace positivism. With the characteristics of the situation (Appendix 12) defined as 'dynamic, uncertain, urgent, pragmatic', that initial impression is confirmed. It appears as a narrowly focused, problem-oriented prototype

with a 'practical' outcome well suited to the engineering world-view described in Chapter 5. The organizational elements (Table 22) are consistent with this interpretation, as is the monitoring approach (Table 23). Described overall as 'interventionist', the scope of study is highly focused (one project and one community, both well defined), and the emphasis is on quantitative data for only those variables where action can be taken. The result of this assessment is, therefore, to conclude that the third prototype is not amenable to a time-geography perspective and approach.

TABLE 22. Organizational Elements for Short-term Management

Commitment to Objective	Commitment to Monitoring	Relationship of Parties-at-Interest
High; explicit acknowledgement of responsibility and role	High; seen as necessary for justifying mitigation	Minimum required is developer and community

Source: see Table 18

TABLE 23. Monitoring Approach for Short-term Management Prototype

Scope of Data	Emphasis on hard (quantitative) data
Other essential Characteristics	Relies on established data bases available in appropriate form and accessible, but must be able to generate own data base as required
Basis for Assessing Change	Depends on variable; notion of causality important to justify impact by demonstrating project as cause/causal agent

Source: see Table 18

4. Project Control

The fourth prototype, monitoring for project control, is acknowledged by Krawetz to be similar to the previous one. The only difference between short-term management and project control, as SIA monitoring objectives is the focus adopted; for the former it was the affected community while for the latter it is the particular project. The close similarity between the prescription for the fourth prototype (Appendix 13) results, therefore, in the same conclusion as reached for the third - not amenable to the time-geography approach.

5. Future Planning

Monitoring for future planning, the fifth prototype, is described as 'long-term, reflective' (Appendix 14), which suggests it is potentially suitable for the time-geography approach. As with monitoring for knowledge, however, the prescription contains elements of ambiguity (Table 24). Not only that, but the commonsense meaning of 'planning' is itself positivistic since it normally means one group carrying out the 'directions' of another. Considering the organizational elements, however, the language used is at variance with a non-positivistic philosophy. For example, under commitment to the objective the two phrases, 'potential long-term gain' and (ability) 'to mobilize resources', convey an impression of 'manipulation' and 'domination' which is alien to the non-positivistic philosophies embedded in time-geography.

Similarly, the prescriptions for commitment to monitoring and relationship of the parties-at-interest suggest client dominance. There is a high commitment to the monitoring, but not necessarily to apply the results, while the client defines the role of the monitor and also grants permission to carry out the monitoring.

TABLE 24. Organizational Elements for Future Planning Prototype

Commitment to Objective	Commitment to Monitoring	Relationship of Parties-at-Interest
Varies based on interest in potential long-term gain and resources (party with interest must be able to mobilize resources)	High to the activity, though not necessarily to use of its results	Interested party defines its role and that of monitors; passive co-operation required in terms of permission to monitor.

Source: see Table 18

However, by virtue of its use of the word 'future' the underlying notion for the fifth prototype could be interpreted in a way sympathetic to the non-positivistic paradigm. That is to say, learning from the past in order to improve one's ability to cope with the uncertainties which lie ahead, which is the reflexive component (Giddens, 1979). It is that component which makes 'monitoring for the future' amenable to a non-positivistic approach as long as the organizational elements are consistent with that

philosophical position. In other words, the fifth prototype could be modified in such a way as to accommodate a non-positivistic approach like time-geography. For example, if the focus was the individual rather than the highly general (and ambiguous) 'public interest' which underlies 'planning' in our society, then the 'shape' of the monitoring would change. Similarly, if an additional change was the identification of the interested-party as the affected community rather than a bureaucratic institution, such as the Ministry of Works and Development, the outcome of monitoring for future planning could be radically different.(9) It follows from that conclusion that the monitoring approach for the fifth prototype, as described in Appendix 15, is also couched in positivistic language. However, a change in the organizational elements as outlined, could result in similar alterations to that approach. If that were to occur, then time-geography could be an appropriate way to proceed.

6. Research and Development

Monitoring for research and development, the sixth prototype, as described in Table 25, is highly positivistic. This is readily apparent from the characteristics of the situation being described, in part, as 'long-term, 'top secret' (i.e., proprietary, at least until fully developed); product-oriented;...' (Appendix 16). Furthermore, the relationship of parties-at-interest is described as an internal (or 'in-house') or in conjunction with consultants - that is, 'contractual'. The

effect of those arrangements is to establish the locus of control firmly with the 'proprietor'. Even the question of 'public interest' may fade in that context, let alone any suggestion that an affected community or its component individuals should participate in ways other than simply as 'objects of study'. All this does not mean to say that this type of monitoring could not be re-oriented in the same way as the previous one, although the scale of resources required probably makes that sentiment of little value. The possibility should probably be recognized, however, with reference to this assessment and time-geography.

TABLE 25. Organizational Elements for R and D Prototype

Commitment to Objective	Commitment to Monitoring	Relationship of Parties-at-Interest
Varies, based on interest in potential long-term gain and resources (party with interest must be able to mobilize resources)	High, to test and refine new data and methods	In-house division in organization or consultants; contractual

Source: see Table 18

7. Credibility

Finally, monitoring for credibility appears to lack any of the 'soft' or 'friendly' elements surrounding the non-positivistic alternative (Table 26). By virtue of its

implementation because of mistrust on the part of non-project interests, this prototype takes on the same 'shape' as monitoring for compliance (Appendix 16). Not only is it adversarial, but also the legal consequences which could result mean it will be highly quantitative, tied to the exact definition of standards, and the specific identification of cause-effect relationships. In these circumstances, the time-geography perspective seems quite inappropriate.

TABLE 26. Organizational Elements for Credibility Prototype

Commitment to Objective	Commitment to Monitoring	Relationship of Parties-at-Interest
High	High	Tripartite (emitter, controller, and watchdog); adversarial; cooperation based on trust, mutual need

Source: see Table 18

Assessment Summary

The outcome of the above assessment of the SIA monitoring prototypes is summarized in Table 27. The positivistic foundation of all the prototypes is recognized, with only two assessed as adaptable to a time-geography position. There is a third prototype, research and development, which can only be categorized as

'uncertain' since it requires a shift in political and professional attitudes. That shift is necessary if the required approvals and resources are to be made available. Under current circumstances, it must be realistic to admit that this type of change is highly unlikely.

TABLE 27. SIA Monitoring Prototypes: Assessment Summary

Prototype	Positivistic Foundation	Adaptable to Time-Geog Position
Compliance	YES	NO
Knowledge	YES	YES
Short-term Management	YES	NO
Project Control	YES	NO
Future Planning	YES	YES
Research and Development	YES	UNCERTAIN
Credibility	YES	NO

FOUR ISSUES AND THREE THEMES MATRIX REVISITED

The issues-theme matrix presented in Chapter 6 (Figure 25), identified the relevance of each of Giddens' 'shortcomings' in the dominant (scientific) paradigm to the themes which emerged from the examination of the HMP

research experience (Chapter 5). The 'shortcomings' challenged attitudes towards similarities between natural and social science, philosophy of language, an oversimple revelatory model, and a theory of action. Each of these issues could be applied in some way to all of the three themes; that is, approaches to monitoring, world-views, and management processes.

One of the issues, the lack of a theory of action, led to Giddens' stratification model of action (Figure 26) and the three-part STRUCTURE-SYSTEMS-STRUCTURATION schema (Table 16). This does not suggest that the essence of the other three issues was of little or no consequence. Rather, as each issue was examined in the light of the HMP experience, a number of pertinent ideas emerged (Chapter 7), helping to clarify particular aspects of that HMP experience. To some extent these 'collapse' into the alternative paradigm subscribed to by Albrow, Giddens, and Pred, and upon which their respective contributions have been grounded. At the same time, each issue does stand alone when considered from the viewpoint of the HMP operation.

It was the theory of action contributions, however, which provided the link with Pred's (1981a; 1981b) developments within Hagerstrand's ideas on time-geography, as explained above. Chapter 9 extends that discussion of the stratification model in relation to time-geography, as part of an examination overall of alternative SIA monitoring approaches.

Chapter Nine

TOWARDS ALTERNATIVE SIA MONITORING APPROACHES

The previous chapter developed the theory of action, and corresponding issues in time-geography. This has laid the foundation for considering in more depth the stratification model of action with reference to HMP examples, and applying the time-geography concepts to SIA monitoring. The application of both the theory of action and time-geography synthesises aspects of the issues covered in the earlier chapters, and brings us closer to an understanding of SIA monitoring options.

In order to structure the time-geography application, use is made of four social processes, previously identified in Chapter 3 as part of the conclusions on 'parameters of concern' (Table 6, above). These are social processes which are affected by, and themselves affect, the interaction of community and project characteristics

(Krawetz, 1981b:1). The nature of the latter two characteristics are summarized in Table 27, while the social processes referred to consist of: 1) differentiation; 2) community interaction; 3) community stratification; and 4) extra-local linkages. Krawetz referred to these processes in her critique of the HMP (Chapter 5, above), concluding that insufficient attention was paid to 'the project-community interface'; that is, the relationship between the characteristics listed in Table 28.(1)

TABLE 28. Community and Project Characteristics

COMMUNITY CHARACTERISTICS:

Previous experience with social change; size and density of local and regional populations; proximity to a regional or metropolitan centre; local population characteristics; prevailing pattern of population change; economic base; cultural organisation; and value orientations.

PROJECT CHARACTERISTICS:

Technology, scale, scheduling/urgency of construction period; and organisational character of the project's sponsor.

Source: Krawetz, 1981b:1; after Thompson and Branch, 1980

The more abstract nature of the social processes, compared with the characteristics (above), should be mentioned because they refer to 'processes' rather than 'entities'. As such they are less easily discerned than the community and project characteristics outlined. However, their importance in influencing, and in turn being influenced, by a project should not be underestimated (see Freudenberg, 1979; 1980a; 1980b; Gilmore, 1976).

The inter-relationship (or interaction) between project and community characteristics is important for SIA. However, it is necessary to remember that:

In general the social consequences of a particular project in a particular community depend on the degree of fit or consistency between the characteristics of the two. While the parameters themselves apply across situations in which a project is to be located in (or near) a community, the actual result of the interaction (of parameters) is specific to the particular situation or case. The obvious implication is that two identical projects being built in two different communities will result in two different sets of social impacts. Similarly, two different projects being built in the same community will result in different impacts (Krawetz, 1981b:1-2).

Krawetz argues, therefore, that it is also important to understand:

...the way in which these two sets of characteristics (of the community and the project) relate to each other, rather than the characteristics in and of themselves; these interactions determine the magnitude, or size, of the resultant impacts (1981b:2).

SOCIAL PROCESSES EXPLAINED

A full description of each of the social processes identified by Krawetz, and their connection to SIA, is included as Appendix 21. Only a brief outline is attempted here, sufficient to enable the processes to be related to specific examples from Huntly later in this chapter. All quotations refer to the text in Appendix 21.

1. Differentiation in the Community

Differentiation 'refers to the number and complexity of institutions in the community.' Increasing specialization and greater complexity in the institutional structure of the community arises out of increasing differentiation. Administrative tasks are subdivided, as for example, with a town clerk's position being augmented by the appointment of an additional accountant to be responsible for daily financial affairs. All community functions experience 'differentiation', since it reflects a pressure on existing resources and the additional population to justify greater internal specialization.

2. Community Integration

The second process, community integration, 'refers to the ways in which relationships among people are connected and coordinated'. Krawetz illustrates this process with the example of community watchfulness:

Watchfulness refers to the things that people in small communities do to keep an eye on one another and their property. In small, stable communities people do a pretty good job of watchfulness. For example, if the Smiths are away and Mrs Brown, their nextdoor neighbour, sees someone coming out of their house at night, she is bound to switch on her light and find out who it is...or call the police. Mrs Brown may not think of herself as a police officer, but merely as someone doing what anyone else would do in that situation. Yet she is acting as an unpaid police officer, in a sense. In these kinds of communities, the number of paid officers is really not a true indication of the total amount of protective service available (because the community is full of watchful citizens) (page 20).

However, as communities grow such mechanisms are more formal; and very rapid growth can mean that the in- and out-migration of people is so frequent that no-one can be quite sure who is a legitimate caller or occupier. As a consequence, community watchfulness, for example, breaks down to be replaced by formal arrangements.(2) In the example above, an increased police squad is required, with a consequential increase in the costs of that service. And other social disbenefits occur as a result of a general lack of neighbour-knowledge and a feeling of insecurity.

3. Community Stratification

The third process, community stratification, 'refers to the levels of rank in a community or society.' It is acknowledged that individuals 'rank' themselves, and others, by their social position. With 'rank' comes certain social rewards: privilege, power, prestige, for example. Related to these rewards are the resources which individuals have access to in order to meet their needs;

the higher the 'rank', the better access to resources. There are a range of criteria for 'rank', including economic (or wealth), political, religious and educational (Krawetz, 1981b:22). The rationale for this process to be included is that three types of change can be observed in communities which have been host to a development project:

- distribution of status within the community: where a newcomer displaces a long-time resident in the social rankings;
- distribution of occupations: where a long-time resident obtains work at the new project and assumes increased status because the occupation, while the same as before, is at the new project;
- status inconsistency: where the criteria used to assign status are contradictory, as in the case of a scientist (high educational status)^{who} becomes unemployed (low occupational status).

4. Extra-Local Linkages

The fourth process, extra-local linkages, refers to the interaction which occurs between a particular community and the larger society of which it is a part. The interaction occurs in both directions, and through all types of institutions: government, commerce, family, and so on. The importance of this process to SIA is because of the way linkages change with the arrival of new development projects, and the fact that since most linkages involve a

power relationship (as, for example, between central and local government), the 'balance' may be affected. Local communities may become more dependent on larger authorities, with a reduction in autonomy, for example.

The importance of these social processes for a retrospective analysis of the HMP rests on the fact that they move the discussion further away from a treatment of 'variables' and quantitative data, to an interest in social processes and the place of individuals within them. It is that interest which underlies the following discussion. The four processes also provide a suitable structure for an application of 'time-geography' ideas (Pred, 1981a; 1981b).

THEORY OF ACTION ELABORATED

Having introduced the four social processes which are to be applied later in this chapter, it is also pertinent to extend the foundation for the following discussion by elaborating on two developments which rose out of the ideas presented so far in Part II. By synthesising aspects of issues covered in earlier chapters, these developments bring us closer to understanding SIA monitoring options. The first development concerns the stratification model of action, forming part of the Theory of Action.

Stratification Model of Action
with Reference to the HMP

The stratification model of action described in Chapter 7 was developed further in relation to time-geography ideas (Chapter 8, Figure 26). However, it is possible to consider the model of action as a theoretical entity in itself with reference to the Huntly case. The figure is repeated below for the purpose of clarification.

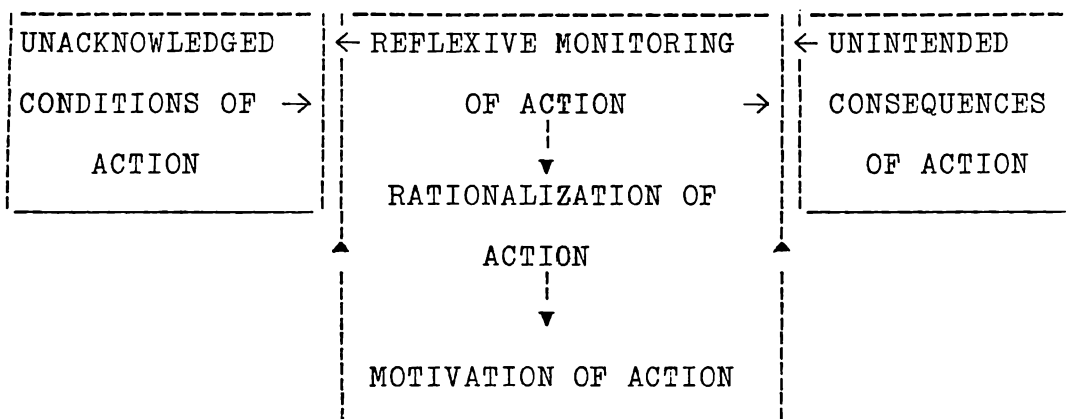


Figure 28. Stratification Model of Action (Source: Giddens, 1979:56)

In the example which follows, the model has been adopted as a framework for considering the behaviour of particular individuals involved in a particular action; in this case the role of NZ Electricity's Huntly Power Project Liaison Officer in negotiations over the Huntly Rugby sports complex. The model also provides a framework for

SIA monitoring as such, by using the two 'wings' of the model and its inter-related nature, as an analytical process. Two applications of the model are described, with the first centred on the Project Liaison Officer and the complex of intentions, motives and reasons underlying his actions. The second application considers the model as a way to explore patterns established through the analysis of particular variables. In this example that variable is Employee Place of Residence, which, among other things, describes daily commuting behaviour.

Background to the Example

The Project Liaison Officer was a senior NZ Electricity Head Office staff member, with the task of maintaining liaison within the triangular relationship between Head Office, the power project, and the affected community. Consequently, a number of community-related matters came within his brief. One of these was the provision in the Electricity Act 1968 to permit the Minister of Electricity to allocate grants for public amenities (see Chapter 3). Known as 'the one percent clause' it offered the prospect of a veritable Pandora's box for those who could persuade the Minister to exercise his discretion in their favour. With an estimated 1972 project cost of 180 million dollars, the provision in the Act could have meant 1.8 million dollars being spent on public amenities in the Huntly district. The fact that it was a matter entirely at the discretion of the Minister

must be emphasised. No community, or group within it, could view a grant as a right simply because it was believed that the power project was placing pressure on its facilities. Therefore, whatever action was taken could be expected to reflect the advice from N Z Electricity staff to the Minister. The Project Liaison Officer, as the senior departmental officer involved with project implementation, could be expected to be closely involved with that advice.

As explained in Chapter 3, very little public discussion on the distribution of funds from the 'one percent clause' had occurred between August 1973, the beginning of construction, and October 1975, the month a Ministerial announcement was then made on the subject. It was stated that the Minister of Electricity had decided to make a \$459,000 grant to the Huntly Borough Council for a 'sports complex'. The site was to be Huntly's Rugby Park and its present owners, the Lower Waikato Rugby Union, was to vest it in the Huntly Borough Council in return for the grant. Existing rugby facilities would be upgraded, with new developments under the auspices of the borough council including netball courts, a softball diamond, and a pavilion/clubrooms (Waikato Times, 29 October, 1975).

The Minister was obviously pleased to be able to offset some earlier, unfavourable, publicity - over Maori and farmers' concerns, and bickering between Huntly Borough and Raglan County Councils - by demonstrating a positive outcome from the power project. The press report on the

announcement quoted the Minister's expectation:

Not only will the complex be of benefit to construction workers and permanent residents of Huntly, it will also be a valuable asset to the entire Lower Waikato (Waikato Times, 29 October, 1975).(3)

Unfortunately all was not well. By 17 November 1975, the newspapers were reporting a deputation had met the Minister to protest about the grant. It seemed that there were other sports clubs and cultural groups not included in the scheme, whose representatives had not been invited to submit ideas of their own. Although proceeding through the auspices of the borough council (and supported by the neighbouring Raglan County Council), it appeared that the Lower Waikato Rugby Union had become aware of the opportunity provided by 'the one percent clause'. To have obtained the Minister's agreement without the support of NZ Electricity (and power project staff) was unlikely.

However, the opposition was sufficiently vociferous to achieve the withdrawal of the borough council as the sponsoring body, and finally, deferral of the grant until full community requirements had been canvassed. As explained in Chapter 3, it was not until September 1977 that the replacement decision was made. The 'sports complex' plan remained intact, but a further 1.6 million dollars ^{were} allocated to other schemes covering townscape improvements as well as the upgrading of selected sports and cultural facilities, and the refurbishing of Waahi Marae. Significantly, the Raglan County Council assumed responsibility for Rugby Park, with the land being vested

in that body even though the land was inside Huntly borough.(4)

While the HMP research unit had not been established when the events of 1975 occurred, it is possible to speculate on how the stratification model of action could have provided a basis for following through the events described above. As it was, some of the information used in the above account was collected some two or three years later. A number of individuals would have been involved - from the government departments but also the borough and county councils, and the Lower Waikato Rugby Union. For the purpose of the first case in this example I will take one 'actor' only; that is, the Project Liaison Officer.

First Application of the Model

The establishment of the 'Project Liaison Officer' as a head office-based position, provides a central figure in the activities surrounding the establishment of a major construction project. Considered in terms of the stratification model of action, the application of the model proceeds on the premise of a person consciously 'monitoring' the events going on around him or her. Decisions made by that person, and others, would be reflexively monitored, and the outcome added to the growing store of personal knowledge (Figure 28, above). The researcher in an SIA monitoring operation, cognizant of the reflexive process, would examine that process in the light of the inter-related components of rationalization and

motivation. These would be explored to provide clarification of, and particular perspectives on, the recollections obtained.

This SIA monitoring exercise is in itself a sophisticated 'intellectual' process, requiring careful design and a wide range of skills - from psychology, for example. Since clarifying the unacknowledged conditions and unintended consequences of action is part of the required monitoring 'knowledge', the two 'wings' of the model (see Figure 28, above) would also be examined and that content brought into the overall 'picture'.

After exploring the intention-reason-motive complex which forms the essence of reflexive monitoring, as explained in Chapter 7, it may have been possible to establish what were the unacknowledged conditions, or if there were any at all. For example, careful interviewing at the time of the announcement, might have revealed a wish, embedded in the subconscious, to have a committed ally within the Raglan County administration. In other words, a covert political objective may have been revealed. At the same time, it could have been shown that 'reflexive monitoring' by the Project Liaison Officer had identified the means to achieve that end. That is, collaboration with the Secretary of the Lower Waikato Rugby Union, who conveniently happened to be deputy to the Raglan County Clerk, and Town Clerk of Ngaruawahia borough.

With the power station site located in Raglan County the logic in this speculated rationale is apparent. It is believed that the HMP research unit, working with the

stratification model as an analytical frame would have meant deliberate research/monitoring strategies to ascertain such unacknowledged conditions. Without that 'aid', it was not until late 1977 that the research unit 'stumbled' on the dual position held by the Clerk. By then, however, some of the principal 'actors' in the earlier years had moved on. That meant opportunities to explore the issue generally, and the relationship between Town Clerk and Secretary, were greatly reduced.

Returning to the model, implicit in the idea of someone reflexively monitoring their actions (and those of others), is that this generates new information which becomes part of the knowledge on which further 'action' is based. In the case of Project Liaison Officer and the new sports complex this new information may have included the fact that rugby league and not rugby football was the local game.(5) He would have become conscious that Huntly is a major centre for rugby league in New Zealand, with support coming especially from Maoris and coalminers. He would have become aware as well, that rugby football draws its support from the surrounding rural population. It may even have been expected that the power project (with its professional and technical staff) would boost interest in the game. Approaching the 'sports complex' issue through the stratification action model, the research unit would have been particularly interested in the reflexive process and the way the new 'knowledge' was being 'processed' by the individuals involved. Being sensitive to the the Project Liaison Officer's 'new knowledge' about support for

rugby league versus rugby football, the research unit would have examined NZ Electricity's attitudes towards requests from rugby league sources.(6)

One important element in the model is clarifying an actor's intentions, and that has been central to the description so far. It would have been possible, in the sports complex case, to identify some unintended consequences arising from the decision. Obviously one can categorize the politically embarrassing community reaction as an unintended consequence.(7) Also it was unlikely the Project Liaison Officer felt pleased that the Huntly Borough Council had been forced to go back on the decision to be responsible for the Rugby Park scheme, for no other reason than his Minister's wrath at being made to defer the rugby/sports complex grant; that is, unless he subscribed to Niccolo Machiavelli's (1513) ideas on political manoeuvring (as in The Prince). Of course, pursuit of this line of enquiry may also have revealed a somewhat surprising (but unlikely) altruistic interest in stimulating further community interest in the one percent grant, because that was one of the (unintended) outcomes. However, enquiries by the research unit after the event could well have found officials citing 'further community interest' as a positive effect of the decision, thereby providing an example of the rationalization of action discussed above.

Second Application of the Model

By focusing on particular individuals and their perceptions, the first case in this example, was intended to illustrate an application of Giddens' stratification model of action, with the model providing a conceptual framework within which the research could proceed. In the second case to follow, the model is used where the SIA team is monitoring a particular set of variables. In the specific case, the variables are those which describe the residential location of a project's workforce (see Chapter 1).

It should be remembered that the approach, as Giddens proposed it, was for understanding human conduct in general (see Chapter 7). In our case it is being considered for a particular research situation. Such a specific application of the model is justified on the grounds that the researchers are themselves 'actors' in the very process of everyday life. For example, the enquiry into residential location is itself an 'intervention', in the sense meant by Giddens in his definition of 'action' (Chapter 7).

In the hypothetical case, what the researchers would be doing is following a reflexive process; looking back at what was happening as the project recruited its workforce, and then, as the patterns begin to emerge, putting questions to the various parties involved in order to clarify the conditions of action - unacknowledged and acknowledged - and the expectations held. The questioning process would require attention to rationalization of

action, and a searching out for 'motives'. With that 'background' the researcher(s) would be in a position to explore the area of unintended consequences. The inter-related character of the model would require the monitoring to be highly responsive to the linkages between each stratum, and connections between them and the two 'wings' in the model.

Considering the Huntly case in the light of the application as outlined, the pattern of workforce residence included a majority of wage-workers living in places other than Huntly (see Chapter 1). Hamilton had the largest proportion for any one place, and as a consequence single person camps in Huntly were under utilized.(8) As described in Chapter 3, there were other consequences stemming from the commuting pattern. For example, there was the absence of a sustained property market boom, interpreted by the HMP as an unintended consequence of a Government decision to accede to Public Service Association and NZ Workers Union representations to pay a generous travel allowance which increased with distance from Huntly on a zonal basis.(9) Working within the stratification of action model, scrutiny of that decision in terms of motivation would have revealed an interesting set of 'reasons'. Included in the 'explanations' advanced by the various parties would have been a number of rationalizations, such as the claim that it was the only pragmatic way to proceed in order to accommodate all the workers in time, when camps were built never to be fully utilized.(10) At the same time, questioning N Z Workers Union representatives would have

revealed an underlying set of matters - unacknowledged conditions - including using the travel allowance provision to cover for other payments which could not be justified to senior management, the State Services Commission, and the general public.

From this process of exploring 'actor's' motives, reasons, and intentions, the unintended consequences would emerge. The extent to which the intended outcomes underlying the original decision were achieved would also emerge. An example of the latter would be harmonious industrial relations. Since the reflexive process is continuous, the particular monitoring subject (i.e., commuting and the travel allowance) continues as a subject of research. That research would involve new knowledge resulting from the appreciation of the unintended consequences, and the revelation of unacknowledged conditions, and redefined 'motives'. For example, there would be changes in official explanations/rationalizations as time progresses and the other components of the model operate. This process has been illustrated by the MWD and NZ Electricity telexes referred to in Chapter 5 (Appendix 20).

Relevance to SIA Monitoring

The last example confirms what is a wider scope for SIA monitoring. That is, going beyond the description of where the workforce is living and its reasons to an examination of the 'acts' which influenced the 'shape' of

the phenomenon and the components which underlie it. This was a direction which the HMP did not pursue, in part for methodological reasons, but also because of direct resistance from the interested parties (see Barclay and Cumpstone, 1978).

Identifying 'Hidden' Impacts

The two cases outlined have demonstrated how the stratification model of action could be used as a framework for examining the details within an overall SIA monitoring operation. The examples, however, were of cases where either an issue erupted onto the public stage through press publicity, or analysis of statistics identified a pattern which called for explanations. There remain social and economic 'impacts' which may not become 'visible' in the aforementioned ways. The question remains, therefore, how one designs an SIA monitoring operation which will be sensitive to that latter group?

It will be recalled from Chapters 1 and 5 that the HMP depended on inter-personal contacts to identify 'hidden' issues. These included attending local meetings, using members of the Interviewer Panel as a source, and generally 'moving' through the town on occasions. Newspaper reports also provided 'clues' for issues to be followed up. The usefulness of participant-observation has also been identified in earlier chapters (see also Paper No.13).

In light of the philosophical orientation of Part II, however, it is possible to see that all those approaches

still require the close involvement of the monitor(s) (whether trained researchers or not) and the affected community. While this is appealing to someone trying to operate within the strict margins of the scientific paradigm, it leaves unanswered a more fundamental question in relation to the dialectical method. That question concerns the nature of the systematic conceptual basis which is being used to ensure monitoring is comprehensive and integrated. Is it sufficient to use the hypothetico-deductive method, whereby one would test for 'actual impacts' by having first established the initial set of 'impacts'? Or wouldn't the argument used in Chapter 6 in support of an inductive approach, suggest this was not the most satisfactory method? And yet, the HMP experience described in Part I, shows how unwieldy the operation can become unless priority is given to some directions over others.

The answer may lie in an approach which proceeds on the basis of 'expected impacts'. The foundation for this type of approach was established in the discussion of SIA monitoring prototypes (Chapters 5 and 8) and the four social processes, above. However, that discussion remained squarely in the traditional (positivistic) paradigm. It still remains for the SIA monitoring ideas developed as part of the HMP Final Report (and discussed in this thesis), to be considered in the light of the dialectical paradigm. One approach for such a critique is to adopt Giddens' study of structuration (explained in Chapters 7 and 8, above) as an objective for SIA monitoring; this

will occur as part of the time-geography concepts also explained in the previous chapter.

SIA MONITORING AND TIME-GEOGRAPHY

The discussion now turns to the elaboration of time-geography with reference to SIA monitoring as a study of structuration, as promised in Chapter 8. It was argued in Chapter 8 that time-geography provides two opportunities. The first is a way to design a longitudinal study such that it will be sufficiently comprehensive. The second is a perspective which will encompass the philosophical positions built into Giddens' theory of structuration. It follows from the previous description of time-geography that the research design would work with the concepts of 'path', 'project', and 'domain', as well as the related notions of 'activity bundle' and 'time-space prism'. The interpretive perspective would draw on the time-geographic realities (Table 16, above) and the four dialectics.

In order to illustrate the role of time-geography a number of social impact situations will be described. The approach being followed in this hypothetical case is, first, to turn to the outline of four social processes through which Krawetz described the 'project-community interface'. She identified these processes as: 1) differentiation in the community; 2) community integration; 3) community stratification, and 4)

extra-local linkages (Krawetz, 1981b:18-24). In the following discussion, time-geography concepts will be applied within the framework provided by those social processes, and specific examples drawn from the Huntly case study will provide the illustrations.

For the first process, community differentiation, a detailed but hypothetical description of a four-weekly period in the daily life of a Mayor of Huntly is included. This is in part to help clarify the time-geography concepts and its language generally, and, therefore, that type of example will not be repeated for the other processes. Instead, more general examples of situations where the ideas could apply will be indicated.

1. Community Differentiation Analysis

Central to each of the processes Krawetz describes is the behaviour of individuals as agents. In the case of 'differentiation', our interest from a time-geography perspective is in the consequences of an increase or decrease in the number of 'projects'. These may be new institutions, such as the Huntly Planning Forum, or new organizations like the Huntly Playcentre Association. It could also be increased specialization within an existing 'project', such as local government. The consequences - one of SIA monitorings' interests - stem from the creation or destruction of 'activity bundles', according to time-geography realities and constraints. While 'differentiation' focuses on institutions within a

community, it is the individual 'actor' operating along a daily time-space trajectory who sustains each particular institutional 'project'. This occurs as his or her 'daily path' converges with that of others, to form 'activity bundles'. As 'projects' change (e.g., increased specialization) and/or 'activity bundles' are altered (e.g., bifurcation) the consequences are felt by the various individuals involved, and reflected in subsequent behaviour.

Taking the Krawetz example of local government, it is possible to recast it as a time-geography account expressed from the stand-point of the Mayor. This account is based on a fictitious set of 'projects' and 'activity bundles', although they are based to some degree on Huntly knowledge. Two 'phases' within the construction project time scale are described, for illustrative purposes. The first is immediately prior to the decision to locate a 1,000MW thermal power station adjacent to the town. The second is three years later, as the project reaches the mid-point in peak workforce recruitment. The period covered in the account is four weeks.

Phase one, when studied through a time-geography framework could result in the following 'biography' of the Mayor. That is, nearly two-thirds of his time is spent in household or family-related 'projects' (which includes time sleeping). His normal gainfully employed occupation is as a self-employed dentist; that takes up a further 25 percent of the time. A group of community-related 'projects', including those attributable to the mayoral

position, consume a further six percent. Independent recreation time, a weekly game of golf, takes up a further two to three percent. To compensate for time lost to the dental practice due to the demands of the mayoralty, a retired dentist travels each day from Hamilton to work half a day.

Three years later (phase two), the 'biography' would reveal changes. To begin with, the Mayor has experienced an expansion of the community-related activities, which now call upon nearly 10 percent of his time. Most of the increase is due to additional day-time hours spent at the Council Chambers - in meetings with executive staff and/or other parties. Once a month formal power project-related meetings, such as the Huntly Planning Forum and the HMP Steering Committee, take an additional seven hours, including travel time. Council meetings now tend to extend past the previous concluding time of 9.30pm.

In order to accommodate the increased community demands several adjustments have been made. The 'working day' has been extended in order to cope with Council business. What he considers 'the day'- outside the home - now starts 30 minutes earlier (8.30am instead of 9.00am). The number of 'normal' hours put into the practice have been reduced; arrival at 'the rooms' is 30 minutes later than before, which added to the earlier start provides a further hour per day for Council business before 'work'. Each month an extra two hours are lost in order to attend Council committee meetings, while formal power project-related meetings mean a further six hours away from

the practice. It was not possible to persuade the part-time dentist to extend his hours, although he did agree to stay late in cases where people were 'in pain'. After six months, however, the pressure became more than he could handle and he resigned; no replacement could be found. Consequently, it became necessary to work on after 5.00pm as well as reduce the number of patients each day. Ironically, by working later it became possible to attend to power project and coal mining employees, which 'encouraged' their attendance somewhat, but at the same time it increased pressure on the practice overall. With a home arrival time now regularly after 6.30pm, the 'working day' has been extended at the expense of the time previously available for either household/family activities, or sleep.

While the scenario as outlined is a time-budget type of account, it does point to a number of implications for the individual concerned (the Mayor), and others in the family, as well as the society at large. It is an interest in these implications which takes time-geography beyond time-budgets per se. For instance, the household/family demands are more difficult to ignore: time is, therefore, 'cribbed' from the night period available for sleep. (And catnaps are a regular event during TV News time.) But loss of sleep is telling over a four-week period - tempers tend to be shorter, involvement in family activities becomes passive rather than active, and Sunday 'sleep-in' becomes a regular routine. (His doctor would describe that as 'obligatory'.) The last change is not inconsequential

because the Mayor is an active member of the local church, and that role is placed in jeopardy. In other words, the individual's interest and direct participation in a number of former activities is reduced - and therefore the pattern of 'activity bundles' changes. (He hangs on grimly to the weekend game of golf, however.)

Some of the consequences, however, extend beyond the household. Participation in church activities has declined for him (he is no longer a vestryman) and his family, since he was the driving force behind their attending. His wife and children did, however, contribute to other church activities, such as Mothers' Union, Bible Class, and the church fete, and these now suffer. His children seem to be less interested in their sporting activities (i.e., 'projects') since their father no longer attended the games to barrack with other parents. The son even drops out of one sport, causing a decline in the team's morale overall because he was a valuable member, and contact is lost with acquaintances who provided a sense of 'community'. The father is similarly juggling his time to such an extent that informal 'chats' with friends and acquaintances (a quick drink after work, or dawdling over the bar after Rotary meetings) no longer happen. Expressed in time-geography terms, another 'activity bundle' or two are lost.

So far the implications have been viewed from a particular 'station' or 'domain': the household/family unit, or 'home'. But there are implications for other individuals and activity bundles - at his dental practice

and at the Council Chambers, for instance. His nurse-receptionist has found his changed hours at 'the rooms' have affected her arrangements (or 'activity bundles'). She always lunches with her 'boyfriend' at 12 Noon, but now 'the boss' wants her to have a flexible lunch time to fit in with his broken schedule. Some days that means both of them eating sandwiches in between seeing patients. And because he stays later she finds herself 'doing the last job' well past her usual finish time. Not wanting to 'leave him in the lurch' she does not complain, but her 'boyfriend' has taken to waiting for her down the road in the Huntly Hotel bar. That worries her.

At the Council Chambers the day now starts sharp on 8.30am because the mayor comes in then; the normal first-in gossip sessions are difficult, as is reading the newspaper, until he leaves at nine o'clock. And, of course, he leaves mail 'to be actioned immediately!' The Town Clerk is finding the increased pace a little disconcerting. Not only does he have to re-organize his day to fit into the mayor's new schedule, but he has to prepare for the extra meetings (or new 'activity bundles') now occurring. His friends are finding it less easy to arrange 'sessions' at the hotel, and games of darts at the Workingmen's Club. In time-geography terms, the old 'activity bundles' begin to break up. And on top of the increased activity demanded of the mayor, the councillors are being 'pushed' as well. Committee meetings are taking longer and extra meetings are sometimes required. The monthly council meeting is going later and on occasions has

to be adjourned to the following day to complete the agenda. One councillor has found already the task couldn't be handled with his job as well, and has resigned. Several others are not doing justice to the pre-circulated material for committee and council meetings. (Just preparing the council and committee agendas meant the Town Clerk has had to take on an additional typist, and a 'junior' to do the copying and collating.)

It was now necessary to employ an accountant-type to look after the day-to-day finances and to run the office. Also the part-time, semi-retired Health and Building Inspector, who came in three mornings a week, was not keeping up with the load and a new person had to be appointed. To make matters even more difficult, engineering services required more specialized staff than Huntly could provide (or afford), and so the Hamilton-based Waikato County Engineer has also become the Borough Engineer (part-time). Private consultants in Auckland were now handling the town planning applications, subdivisions, and district scheme preparation. But the logistics of meeting and communicating (sending papers back and forth) was making life even more complicated. The Town Clerk thinks he will resign and find a small town, like Huntly was once, to work in.

2. Community Integration Analysis

With the description of time-budget changes for one person, and the effects of these changes on the subject and

others with whom he or she interacts, it has been possible to identify the usefulness of the time-geography concepts for an analysis of community differentiation. Can the same be said for community integration, the second process?

Since community integration refers to the 'ways in which relationships among people are connected and co-ordinated' (Krawetz, 1981b:20), the independently acting individual is also the nexus in this case. In time-geography parlance, relationships develop by way of inter-personal interaction, which means the convergence of daily (and life) paths and the creation of time-space activity bundles. Krawetz's example of community watchfulness can be viewed, therefore, from a time-geography perspective.

The informal system of local 'policing' begins with contact between 'neighbours', and each contact is an 'activity bundle' no matter how brief or for whatever purpose (or 'project'). Obviously, with more frequent and involved contacts the degree of integration is increased. Similarly the greater the number of 'activity bundles' people have in common the stronger community integration will be. But this type of neighbourhood 'bundle' formation can be a slow process - time serves to bring people together as mutual 'projects' arise and/or contact is made. Given a situation whereby the number of newcomers in a neighbourhood, or small town, increases rapidly (with many clustered together in new subdivisions) people's daily paths may not converge. That is unless a deliberate effort is made to draw the newcomers into existing 'projects',

such as a sports club or church.

A study of 'projects' and 'activity bundles' would, therefore, provide a means for understanding the process of community integration if approached by way of the 'paths' of newcomers and residents. Alternatively, one could take existing 'projects', like the numerous sports and cultural clubs, and 'activity bundles' established within the resident population. Concurrent with the contacts such a study would require (itself part of the 'project'/'bundle' complex), the researchers could explore the wider implications of the patterns. These could be people's 'feelings' about watchfulness and caring, as mentioned by Krawetz (1981b:20), and reviewed above.

3. Community Stratification Analysis

It should be remembered that this third process is part of the Krawetz set, and does not refer to the work of Giddens discussed above. Since it involves the way people 'see', or 'feel about', each other as they make social status decisions, stratification has a substantial perceptual content which links it to the previous integration topic (section 2, above). Furthermore, Krawetz mentions three types of changes which can occur within the stratification process: the distribution of status; the distribution of occupations; and status inconsistency (1981b:23). Each type is pertinent to SIA monitoring with reference to time-geography, as will be explained next.

The connection with SIA monitoring and time-geography is through the way status can be ascribed to 'projects', such as Huntly Power Station. Participation in an industrial establishment like Huntly Power Station may bring improved social status simply by way of association. Being employed as an 'engineer' in a local workshop is not the same, in status terms, as being 'Supervising Electrical Engineer' at Huntly Power Station. Status change, as a general phenomenon, affects daily path interaction, which means the formation or decay of activity bundles. Changes in the distribution of status, such as with the Project Engineer having higher status than the Mayor (Krawetz, 1981b:23), could see a rearrangement of people's paths and a consequential effect on activity bundles. Viewed specifically in the Huntly context, one could see this also occurring with the arrival of the power station Superintendent, and a possible 'status struggle' between him and the State Coal Mines District Manager. That could arise out of two factors. Firstly, both of them could be vying for the position of 'largest government employer in the district'. And secondly, both electricity generation and coal mining fall within divisions in the Ministry of Energy introducing consequential career implications for the two 'managers'.(11)

Changes in the distribution of occupations and occupational rank can also be described in 'project' and 'activity bundle' terms, with the same notion of converging daily paths. And as time passes and the power project construction nears the end, status inconsistency can begin

to emerge; people are declared redundant, which means various 'projects' are deleted from individual's time paths, and 'activity bundles' are redefined. There is also a consequential 'lack of fit' among rank criteria, as illustrated by Krawetz's account of the scientist whose occupation is now 'Registered Unemployed' (1981b:23). The former occupation had comparatively 'high' status compared with the latter one. As individuals adjust to their new situation, decisions will be made and reflected in existing and new 'projects' and the pattern of 'activity bundles'. The way an individual redefines 'projects' and 'activity bundles' (for example, the scientist above may migrate) will be both affected by, and affect, that process.

4. Extra-Local Linkages Analysis

Finally, there is the fourth process, extra-local linkages, which involves interaction between one collectivity (such as Huntly) and the wider society of which it is part, and vice versa. Once again the process can be examined in time-geographic terms with the individual as the nexus. Whether it is the example of political, economic, or familial links (all suggested by Krawetz, 1981b:24), the process involves the 'paths' of individuals in both 'domains'. It is also subject to time-geographic realities and constraints as explained in Chapter 7.

A major construction endeavour, like the power station, introduces new 'projects', and 'sub-projects',

with accompanying political, economic and social goals. The necessary 'activity bundles' involve individuals operating from different locales and so the interactions occur within extended time-space limits (the 'extending of the web' as daily paths are 'stretched', to use Hagerstrand's [1970:10] imagery). That process has consequential effects throughout the 'system'.

Conclusions

The examples outlined above illustrate how the time-geography perspective provides a particular image of society. There is a web-like image with the daily (and life) paths of its individual members converging and diverging at points (as time-space activity bundles), and within the context of 'projects'. The 'threads' of each path change the 'web's' shape as decisions are made in the light of events, influences, and constraints, including several underlying (contrapuntal) dynamics. The individuals in a society monitor their daily paths, with the knowledge gained by this reflexive process becoming part of the resources continually drawn upon, as goals are considered and action occurs.

In the context of monitoring the social processes identified in Krawetz's paper, a small town like Huntly and its surrounding rural district, can be described in terms of 'projects' and 'activity bundles', and be seen as subject to the 'realities', constraints, and dialectics outlined in Chapter 8. A major construction project like

Huntly Power Station has the potential to set in train changes which serve as 'interventions' in the complex system of converging and diverging daily paths. New 'projects' have to be defined, existing ones may be superseded, and new 'activity bundles' occur with the convergence of paths. And the result is a complex series of inter-related human consequences, many of a stressful nature (Krawetz, 1981a).

It was suggested in Chapters 7 and 8 that a study of structuration could possibly be adopted as an objective of SIA monitoring. Having considered the four social processes identified in Krawetz's work in the light of the time-geographic notions, it is instructive to return to Giddens' brief outline of such a study; to be reminded that it:

...is to study the ways in which that (social) system, via the application of generative rules and resources, and in the context of unintended consequences, is produced and reproduced in action (1979:66).

In short, the philosophical basis and concepts of time-geography provide a means to penetrate the complexity of the structuration process. By virtue of its dual capabilities to be both a 'device' for description and interpretation, and a language and philosophy for explaining the sub-processes operating within the structuration model (Figure 28 and Table 16), time-geography appears promising. It is clear, however, from the variety of ideas, notions and approaches discussed in Part II that a number of possible types of SIA

monitoring remain possible. It is also clear that the selection depends on the intended purpose, and the initiator's philosophical position.

IMPLICATIONS FOR SIA MONITORING

Social processes involved in the interaction between project and community characteristics were explained at the beginning of this chapter. By including those social processes, the thesis is examining a different perspective to the one typically held by SIA practitioners. The 'alternative' perspective is an orientation away from the utilitarian interest in project characteristics, material objects and mitigation, to a concern for the effects on people as individuals.(12) The social process ideas, with their functionalist orientation, are acknowledged as being grounded in the dominant paradigm (Chapter 6). Their contribution to the discussion in this chapter, illustrates the presence of 'middle ground' in the continuing debate on which paradigm, if any, is best suited to the logical and methodological needs of social science. (The emphasis on 'best' is a reminder of the observation made by Bird (1978), and quoted in Chapter 6, that 'monistic methodological solutions for social science seem to be falling out of fashion...').

The assessment of Krawetz's SIA monitoring prototypes is another example of the existence of 'middle ground' (Chapter 8). At least two prototypes, although

positivistic in their origins, satisfied the philosophical criterion as appropriate for development within a dialectical paradigm. These two cases illustrate the scope which exists for applications which bridge the extremes in the debate on appropriate paradigms, because the crucial element was shown to be the way in which the practitioner chose to interpret the purpose (or objectives) of the particular application. In other words, it was not definitions per se, but the frame of meaning within which they were considered that set the philosophical 'shape' of the applications. At this point the balance of the Bird quotation (above) appears appropriate, because he muses that the 'falling out of fashion' is '...perhaps reflecting the fact that society is itself organized around more than one major principle' (1978:134).

Criticisms of current SIA practice identified in Chapter 4, appear pertinent at this stage because, in essence, they questioned the ends of SIA, as well as the means. Whether it is Krebs (1974) querying the covert political elements, or Torgerson (1980) and Tester (1980) arguing that SIA is a social phenomenon, it would be misleading for this thesis to ignore the veracity of the cases they present. I suspect that the suggestion of identifying 'middle ground' would be received in an unfavourable light by those mentioned above.(13) It would be seen as 'a typical liberal gesture, designed to placate concerns while continuing with work which has the same result.' In other words, the end is still effectively 'control' because of who the sponsors are, and therefore,

where the 'power' rests.

Contained in all that has been written so far are the signs of a philosophical and moral dilemma, something which the HMP research unit came to realize in the later phases of the Huntly contract. As shown in Parts I and II, while increasingly sympathetic to the arguments against the SIA status quo, at the same time members of the research unit recognized the need to establish the viability and benefits of SIA monitoring in order for all people to be more knowledgeable about the consequences of major (energy) projects. Reference has been made to the public and private 'faces' of the research unit, as it tried to maintain its official (and academic) credibility while at times approaching its tasks sympathetic to the alternative (anti-positivism) paradigm (Chapters 5 and 8).

While it would be possible to 'resolve' the dilemma by adopting one of the available ideologies - and justified on practical or moral grounds - it is believed that the dilemma is too pervasive an influence in the field of SIA for that approach to be accepted as a resolution of the problem. The debate will go on, just as practitioners will continue to undertake SIA contracts. All that can be hoped for in such a context, is that this thesis will help highlight the political nature of SIA generally, and its monitoring component in particular. At the same time, it will provide people with an appreciation of the wide range of activities which can be called SIA monitoring, and the need to recognize the implicit and explicit objectives which each one has. By presenting SIA monitoring options

which are sympathetic to the philosophical and moral position of the alternative world-view, it is hoped that this will contribute to the eventual recognition of non-positivistic social science.

Alternative Approaches to SIA Monitoring

This thesis has reached the same point as I did in the HMP when the 1980 Variable Review (Fookes, Drury, and Meade Rosé, 1980) reached the stage where alternative approaches to monitoring had to be written. At that time, the intention was to set out a full slate of options, with a clear preference for the one which reflected ideas found in the anti-positivism debate. Strenuous opposition within the research unit persuaded its members to present one alternative. This was the community-centred one (see Table 9), which it was hoped, would force the clients to respond to the explicit and implicit implications in it for their institutions. The subsequent move by government departments to let a contract for a social monitoring operation in Taranaki which essentially mirrored the 1975 HMP terms of reference, demonstrates the naivety of that hope (Landon, 1982). Or is this expecting bureaucratic institutions to respond immediately, when the adjustment - by being philosophical and intellectual - requires time for the new 'positions' to be prepared? Perhaps the next effort at social monitoring may show some small influence from that 1980 HMP initiative.(14)

Today the problem is not as acute because the record has been 'balanced' through the HMP Final Report with the Krawetz papers detailing parameters (No.8) and prototypes (No.10). The prototypes identify options available to those interested in establishing a monitoring operation (see Appendices 10-16). However, with their positivistic and structural-functional foundations they will only appeal to persons who identify, philosophically and professionally with those foundations.(15) There is a need, therefore, for further research into alternative SIA monitoring approaches. This is critical if the positivistic dominance is to be redressed in favour of an approach which recognizes the role of the individual in controlling his or her life. The discussion in the following chapter is a contribution to this research.

PART III

IMPLICATIONS FOR SIA MONITORING AND CONCLUSIONS

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Chapter Ten

SIA MONITORING OPTIONS AND ALTERNATIVE PARADIGMS

Chapter 10 continues the theme of alternative approaches to SIA monitoring, by relating a number of options, identified in Parts I and II, to the dialectical paradigm derived initially from Albrow and discussed in Chapters 6 and 8. Comparing the categorical and dialectical paradigms, at least two of the SIA monitoring prototypes identified by Krawetz (1981c) appear to be amenable to modification in order to meet the philosophical requirements of the latter paradigm. One other prototype remains classified as 'uncertain', while the study of structuration (Chapters 8 and 9) is added to the initial (categorical) list.

SIA MONITORING OPTIONS

The options which have been described in, or emerged from, the content in Parts I and II have been categorized

in Table 29 according to the two paradigms identified in Chapter 6. The SIA prototypes, as detailed in Appendices 10-16, had a structural-functional base which located them unequivocally in the categorical paradigm. Consequently, they were able to be placed under that heading in Table 29. The identification of alternative approaches, and their location in the table within the dialectical paradigm, produces a smaller list. Since the positivist prototypes were discussed in Chapter 8, and identified as options for those comfortable with the traditional (categorical) paradigm, they will not be examined further. Given the emphasis on an alternative paradigm in the thesis overall, and Part II in particular, it is necessary to explore alternative approaches which are grounded in a non-positivistic (or dialectical) paradigm.

Options with Reference to Alternative Paradigms

As a result of the assessment made in Chapter 8, two of the Krawetz (1981c) prototypes have been allocated to the dialectical paradigm. This has been done on the assumption that they will be implemented in a way which is philosophically sympathetic to that paradigm, as described in Chapters 6 and 8. The research and development prototype which was classified as 'uncertain' in the prototype assessment, retains that label as indicated by the '?' in Table 29. Only if the whole philosophical and practical foundation of research and development was altered would it be possible to view it as a dialectical

option. A university-based operation like the HMP, with strict adherence to principles of academic freedom, non-interference in the programme, and so on, could achieve that state, but its likelihood of receiving funding from a government or private sector sponsor is not high.

TABLE 29. SIA Monitoring Options with Reference to an Alternative Paradigm

	CATEGORICAL	DIALECTICAL
P	Compliance	-
R	Knowledge	Knowledge
O	Short-term management	-
S T	Project Control	-
I O	Future Planning	Future Planning
A T	Research & Development	?
Y	Credibility	-
P	-	Study of Structuration
E		
S		

It is necessary to emphasise the need to define the purpose of the particular monitoring operation and its covert political role (Krebs, 1974). Furthermore, multi-purpose monitoring is possible, subject to the caveat that the difficulties increase at an exponential rate, although the need for priority setting is relevant in this context (Chapter 5). It must also be remembered that the resources required (labour and finance) for successful completion of all objectives are substantial, increasing at an exponential rate as each additional objective is added (Krawetz, 1981c).

It is also possible to consider the content of Table 29 in another way. That is to take the options, knowledge

and future planning (and possibly research and development) and view them as part of a continuum, with the categorical paradigm at one end, and the dialectical at the other (Figure 29).

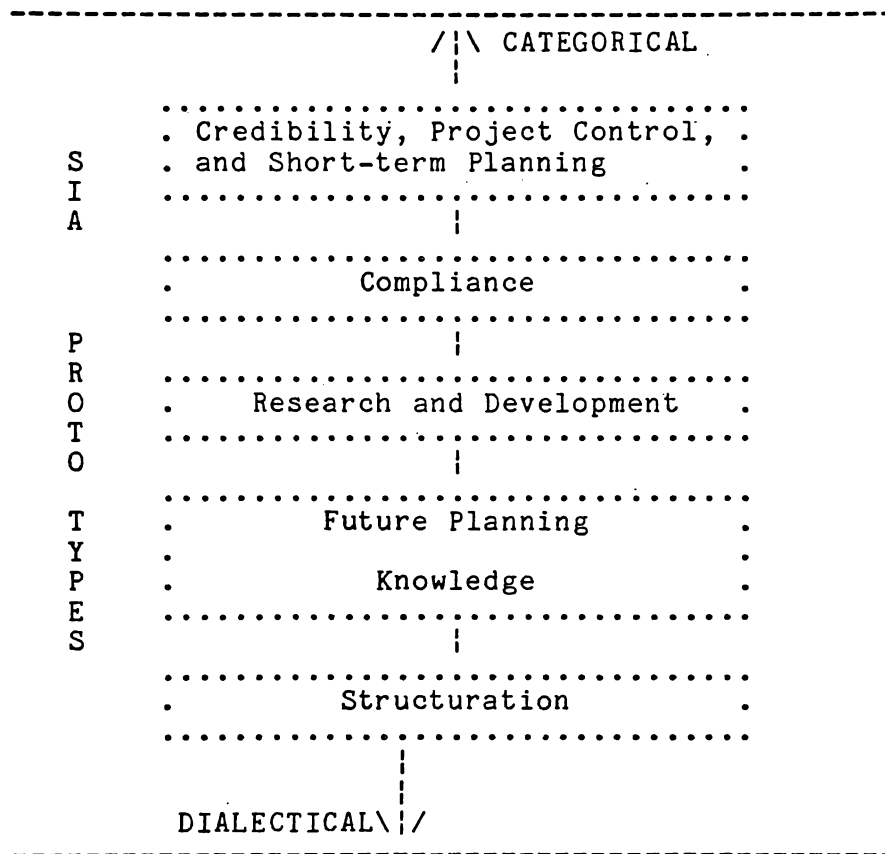


Figure 29. Prototypes as SIA monitoring options on a continuum of paradigms

By conceptualizing the options in the way set out in Table 29 and Figure 29, it is possible to see where the ideas developed within the critique of the categorical approach described in Part II can be applied. Since those ideas identify with the dialectical paradigm it is logical to associate them with those options which also can be

identified with that paradigm. The ideas developed within the critique of the categorical paradigm are summarized in Table 30.

As illustrated by the HMP examples in chapter 8, these ideas could provide direction to the SIA monitoring, contributing to the achievement of the defined purposes (e.g., knowledge or future planning). There is still, however, the shadow of the critics of SIA mentioned in Chapter 4 (Krebs, Torgerson and Tester). How, then, do these ideas relate to those criticisms?

TABLE 30. Summary of Ideas from the Critique

METHODS AND LOGIC OF NATURAL SCIENCE

Inductive v deductive approaches and
commonsense notions
Law-seeking and law-applying
Definition of terms
Science's quest for order
Attitudes to Data
Subject-object relation

THE REVELATORY MODEL

Lay critique
Frames of meaning
Paralysis of critical will
Authenticity and justification of belief

PHILOSOPHY OF LANGUAGE

Language as practical activity
Mutual knowledge

THEORY OF ACTION

Taken-for-granted-knowledge
Intentional acts
Language and action
Hierarchy of purposes
Rules and resources
Layers of enquiry and principle of action
Reflexive monitoring
Emotions
Discursive consciousness
Understanding context

SIA Criticisms

One of the criticisms concerned the question of content versus context; whether the former was being pursued without regard for the way that content was being applied: that is, its context. The 'establishment' view of context, as explained in Chapter 4, is the particular EIA process. I interpret Tester's argument to mean that SIA in the Canadian context of the EIA process is not furthering the philosophical intent of the dialectical paradigm. Since the options identified with a dialectical paradigm identified in this thesis (Table 29) are intended to incorporate ideas which reflect the ideology underlying the arguments for an alternative paradigm, the Tester criticism is resolved. For example, incorporating the lay critique and frames of meaning ideas into a monitoring operation, would introduce a focus which reflects a greater consciousness of the cultural and individual perspectives involved in that exercise. However, the context of the SIA as a product, is not changed if one presumes that monitoring is proceeding as part of the EIA/SIA process, as described in Chapters 1 and 4.

To meet Tester's objection in that regard would require SIA monitoring to occur in another context; one in which the affected community would be both subject and object, as explained in Chapter 7. That notion should be recognized as an ideal case, however, since I believe most societies cannot achieve the greater level of personal and collective consciousness required. In a world where

nuclear disarmament is still the active pursuit of a minority of citizens, it is difficult to believe that something as personally less relevant as SIA monitoring will receive the change in attitude which a new context would require.

The pessimistic conclusion above does not mean that further effort should not be directed towards improving the approaches which do operate within the established context of EIA/SIA. The ideas on which Chapters 7 and 8 were developed still reflect a non-positivistic philosophy, and should be incorporated in SIA monitoring approaches. There is a need for a specific approach which would implement those ideas, as argued in Chapter 7. It is in that respect that the time-geography framework is relevant, because it provides a way into a monitoring operation which is still compatible with the ideas of the dialectical paradigm. By relating time-geography notions (Chapter 8) to the social processes (Chapters 3 and 8) it was possible to demonstrate the improved insights made possible by that approach. As explained in Chapter 8, time-geography's value to SIA monitoring is enhanced by it functioning both as a device for description and interpretation, and as a language and philosophy for understanding the actions of individuals.

There remains an important question about time-geography which has been briefly touched on in Part II. That concerns the actual techniques which one would use in collecting information on daily paths, projects, activity bundles and domains. While the time-geography literature (see Pred, 1981a; 1981b; 1981c) provides

examples of its applications in a range of situations, the subject of techniques remains a major research opportunity in the field of SIA monitoring.

With further research opportunities established within the SIA monitoring application of time-geography, it now remains to return to the Huntly Monitoring Project, and to consider it with the benefit of the ideas explored in this thesis. This is the task of the Conclusion which follows.

CONCLUSION

HUNTLY MONITORING PROJECT REVISITED

It was argued in Chapter 10, that the ideas summarized in Table 30 could provide direction to an SIA monitoring operation. Such an operation would assist in the realization of clearly defined purposes, such as monitoring for knowledge, or future planning. It was also asserted that SIA monitoring consistent with the dialectical paradigm would be unlikely, due to a lack of the required individual and collective consciousness and the record of support from funding agencies. It stands, however, as an ideal case for further academic discussion.

As part of the Conclusion, this section considers the HMP as if it was being designed today with the ideas in Table 30 in mind. Obviously this can only be a general treatment, since the topic fully explored would possibly be a thesis in itself.

Overview

Initially, the design of another HMP will be examined through the general philosophical issues raised by the critiques presented in Chapters 6, 7 and 8. Designing a monitoring operation on the basis of an alternative philosophical perspective will necessarily lead to a different approach. After that, the discussion will focus on the structuration option (see Figure 29), with its application of time-geography. In this way, the question as to how the HMP would be different can be answered at two levels, with the first more abstract than the second. It is coming to terms with the principles contained within the more abstract discussion, however, which requires the greater shift in professional and political attitudes. That is because those principles involve a reconsideration of the traditional paradigm, on which this century's scientific achievements have been based.

An Alternative Paradigm

The criticisms of the traditional paradigm in Chapters 6 and 7, when considered overall, emerge an image of a social science tied, by virtue of its logic and methods, to the the political power base of the respective society. The philosophical orientation confirms the essential element of social control. The previous critiques on the acceptance of law-seeking, and law-applying, the quest for order/stability, rigid attitudes to 'hard' data (with the

overriding criterion of 'objectivity'), and the strict rules for maintaining the subject-object relation, provide illustrations of science's contribution to social control.

Expressed another way, SIA monitoring was not a new direction for the application of social science theory and method. It was simply another opportunity for the 'social technologists' to apply their sophisticated techniques. This time it was to be applied to the problems of communities faced with the introduction of major development projects. The process within which the technology was applied, however, simply served to maintain the status quo. In short, while the need for an alternative paradigm (the dialectical) has been demonstrated in the previous discussion, the way that it would change the nature of another HMP is not clear.

'Son of Huntly'

Designing the HMP on the basis of the dialectical paradigm means a number of characteristics of that research would have to be different. In addition to confirming the use of an inductive rather than a deductive approach, and avoiding implicit references to law-seeking and law-applying, the research design would have to operate on an inter-subjective basis. By that it is meant, the traditional observer (object)- observed (subject) relation would have been replaced by one which saw the individuals involved being both subject and object. In this way, the essential notion within the dialectical paradigm, of people

reflexively acting in response to their consciousness, is harnessed as they incorporate the knowledge gained as 'object' into their lives. Similarly, their knowledge as 'subject' can be related to the SIA monitoring, subsequently changing that operation in the same manner as the individuals involved.

How the HMP would have proceeded on the basis of those ideas is indicated by the list of 'principles' (Table 9), introduced as part of the HMP research unit's initial thinking on the subject of alternative approaches (Fookes, Drury and Meade Rose, 1980). Where the experience gained from this thesis extends that initial set of ideas, is in the recognition of individual reflexivity, and the way people are changed by events in their lives while themselves affecting the society of which they are part. Consequently, more effort would have gone into encouraging people to explore their taken-for-granted-worlds, in order for them to better understand the subtle ways an 'intervention', such as Huntly Power Station, affects their lives and the collectivity of which they are a part.

It is evident from this brief explanation that the HMP would have replaced its dedication to the collection of quantitative material (with over 100 variables initially listed)(1), with increased attention to individual responses to change in their community of interest. It follows, that rather than be a high technology operation centred on the University, with computerized files and sophisticated household surveys, the latter being processed into tables produced through software like SPSS, the HMP

would have been Huntly based and organized by the community. Information would reflect that altered basis, containing individual 'testimony' and being perhaps more anecdotal in its presentation.

To be fair to the HMP research unit, within the constraints applied by finance, the contract, and other practical matters (Chapter 5), it did attempt to introduce the collection of qualitative information. There was the Huntly Interviewer Panel, consisting of local people who met informally as well to exchange ideas on local 'happenings'. Attempts were also made to attend local meetings as a means of keeping in touch, while visits to the town always included a social stroll along the main street in order to maintain 'nodding acquaintance' with people. However, the alternative being discussed would invert the relationship between quantitative and qualitative information, with the emphasis changing to the latter.

Structuration and Time-Geography

Moving from the more general ideas on another HMP, to the specific option introduced in Chapters 8 and 9, it should be apparent that the previous description of changes in the HMP research approach would apply to the particular SIA monitoring approach. What the study of structuration would require, would be the introduction of a deliberate component in the monitoring which examined the process of social change. That is to say, the way in which the impact

object (e.g. Huntly Power Station 2) was an intervention in the continuing process of a society's transformation. All the ideas listed in Table 30 would be drawn upon in order to penetrate the complex 'network' of cause and effect. In particular, the conceptual framework provided by time-geography would be used to identify the changing dynamics of the society in question. The subtle consequences of the construction project for the lives of individuals as well as local institutions, as illustrated by 'the Mayor's story' (Chapter 9) could be understood. The emphasis, as explained above, would shift from a concern with 'hard' data on material aspects, such as housing and workforce build-up, to an understanding of the fundamental adjustments required in people's lives as a consequence of such an 'intervention' as a power station.

It should be evident from the presentation so far, that the 'client' for such a study could not be the MWD or NZ Electricity, as was the case for the original HMP. Given the emphasis on the individual as an acting-self (Chapter 7), it is apparent that the affected population would be the 'client', with the monitoring legitimated and directed by them. If that was the case, then the effective involvement of individuals in the monitoring tasks, and the absorption of information into their personal reflexive process (their personal monitoring operations), would result in a more conscious and politically effective group of people. The achievement of that result would demonstrate the triumph of the dialectical paradigm over traditional positivism.

CONCLUDING REMARKS

It should be apparent from this thesis that the subject of SIA monitoring provides a fruitful field for further 'social science' research. From the perspective of human geography, the identification of a role for time-geography creates a major opportunity for students. For example, it is a way into the examination of the philosophical foundations of the time-geography concepts, in general, and as applied to SIA monitoring. In addition, the methodological and technical difficulties faced when applying the concepts to SIA monitoring can be identified. The complex series of ideas developed as part of this critique of the HMP, and SIA monitoring in general, also provides further evidence of the inter-disciplinary character of SIA monitoring, with a diverse series of issues requiring a similarly diverse set of intellectual and practical skills. The discussion of mediating frames of meaning, and the identification of discursive consciousness, provided examples of research skills which cannot be taught by all disciplines. Clearly, some degree of specialization is inevitable, and yet the co-operation of people in order to examine social and economic impacts is also essential if the monitoring task is to be completed. Ironically, the successful welding of people together to mount a community-based monitoring project would in itself contribute to the process of structuration, a concept around which so much of this thesis was developed.