Griffith University
Faculty of Environmental Sciences
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Industry/Community Relationships in Critical Industrial Developments

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Thesis Submitted for the Degree of Doctor of Philosophy

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Statement of Originality

The material presented in this thesis has not been previously submitted for any degree or diploma in any university and to the best of my knowledge, contains no material previously published or written by another person, except where due acknowledgement is made in the thesis itself.

Ingo Carl Peter Hoppe
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Dedication

I wish to dedicate this thesis to my dear late wife Bodil. Without her love, understanding, unwavering patience and encouragement, this thesis would never have happened. My gratitude is overwhelming, my respect genuine, and my love real.
Abstract

Traditionally, proponents of industrial developments emphasise the technical and economic factors associated with development and largely underestimate the importance of the social, cultural, economic and political dimensions, which are critical in all industrial developments. These socio-cultural factors include community value and belief systems and notably, also the techno-economic values and ideologies to which government agencies and industrial developers subscribe. This thesis argues that to assure local peace and a socially, culturally and environmentally sustainable development, different stakeholder values and ideologies must be aligned and industry/community interests balanced.

These opposing value positions, however, are widely believed to be irreconcilable and that responsible industrial development cannot occur without a fundamental shift from the traditional resource management paradigm to its ecocentric alternative. In contrast, this thesis found that different stakeholder values and ideologies could be successfully aligned without a wholesale paradigm shift. This was made possible by merging social variables with the traditional resource management paradigm as well as with various organisational change theories.

This thesis, therefore, advances a new synthesis that combines the social variable of project specific power sharing, the traditional resource management paradigm, and organisational change theory and in particular the punctuated equilibrium and deep structure paradigms. This synthesis is particularly useful to better understand how and why organisational structures and substructures respond to punctuated techno-economic equilibria, such as resource availability.
This thesis analyses these discontinuous change processes of punctuated equilibrium by applying its paradigmatic synthesis to two large industrial developments. These developments were chosen because the developer of the FEnza, Kleiner HASelboden, hence the project name FEKLHAS, in Switzerland and the operators of the East End Mine in Central Queensland faced the same problem of resource availability.

In contrast to the organisational change literature, the deep structure and punctuated equilibrium paradigms this thesis found that incremental change does not necessarily occur when only the more marginal levels of deep structure are affected. Furthermore, revolutionary change does not necessarily occur when fundamental levels of deep structure reconfigure, supposedly changing with them all marginal levels embedded in the core levels.

Consequently, this thesis argues fundamental external perturbations such as limitations in resource availability do not necessarily alter deep structure commitments at all organisational levels. Instead, a new phenomenon emerged from this study, which this thesis calls, project specific deep structure commitments. This thesis found that these case specific deep structure commitments are capable of isolating the marginal organisational level from the core. This may be tolerated by the core organisational level to avoid legal exposure, thereby assuring stability, while maintaining the earlier deep structure commitments at the margins. Revolutionary change or the reconfiguration of deep structure commitments at the core organisational level on the other hand, may exclude organisational substructures at the marginal level for the same reasons. Against this background this thesis argues that organisational deep structure forces associated with incremental change are more compatible with the punctuated equilibrium idea than previously considered.
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Chapter 1

Introduction

Organisational change research primarily examines change in relation to competition, product development, and innovation, perceived to be the main drivers of change. If, however, applied to large industrial developments, which fundamentally change the social, cultural, economic and political structures of local communities, then organisational change, its motivators and overall change processes are driven by very different dynamics. Here, as argued by this thesis, relationships between organisations, institutions and local communities become the key components in organisational change processes. These differences in organisational change processes are further accentuated if the largely neglected, underlying order of institutional deep structures is added to the analysis.

This also applies to the equally neglected socio-environmental motivators of change, which this thesis defines as the social, cultural, economic and political environments of local communities that are threatened by large industrial developments. Based on this definition the term socio-environmental is quite frequently used throughout this thesis. Also extensively used is the notion of deep structure, which Gersick (1991:14) defines as, “a set of fundamental choices a system has made of (1) the basic parts into which its units will be organised and (2) the basic activity patterns that will maintain its existence”. Extending Gersick’s approach this thesis adds the external relationships of local organisational structures to its analysis. Both, the notion of deep structure and the term socio-environmental are elaborated further in the subsequent theoretical chapters of this study.
It is in this context that this thesis sets out to examine how organisational change works particularly in relation to large industrial developments and by adding the socio-environmental variable of community engagement to planning and decision-making processes. This is achieved by analysing how deep structure choices of industry, government agencies, and local communities emerge and how these deep structures prevent or support community engagement and socio-environmental change? Furthermore, how and to what extent does such change influence positive and/or negative climates in industry/community trust relationships? To answer these research questions this thesis approaches organisational and deep structure change as punctuated equilibrium. According to most punctuated equilibrium scholars this means that if long periods of techno-economic equilibria are punctuated by fundamental external events, as for example, sudden limitations in resource availability, then deep structures and their core values are altered (Tushman and Romanelli, 1985, Wake, Roth and Wake, 1983, Gersick, 1991).

This thesis challenges this assumption about deep structure change both conceptually and practically, by tying together the currently fragmented components of the organisational change, contingency, punctuated equilibrium, deep structure and social trust theories. To satisfy the practical requirements of this task, a transnational cement producer and in particular two of its local semi-independent organisational subsystems are comparatively studied. These local subsystems are examined in relation to their ability and/or limitations in changing their approaches to community participation in two large limestone-quarrying operations in Untervaz, Switzerland and East End/Mt Larcom, Central Queensland, Australia. This thesis approaches the global/local organisational structure of the cement manufacturer as a loosely coupled organisational system with semi-independent local subsystems. This more accurately answers
emerging questions about the heterogeneity or uniformity of their socio-environmental and participatory contingencies responses.

Conceptually, three general types of socio-environmental contingencies are proposed by this thesis, which need to be analysed in relation to the deep structure commitments of local organisational subsystems. These are:

1. the inclusion of community value positions into local deep structure planning and decision-making;
2. the adoption of strategic and paradigmatic deep structure choices that move beyond simple regulatory compliance and participatory symbolism; and
3. the development of a climate of social trust, to assure genuine community participation and collaboration in industrial developments.

The addition of these three socio-environmental variables to Gersick’s (1994) multi system analysis and Wollin’s (1999) theory of multilevel ordering significantly advances organisational change studies and generates new research questions about organisational deep structure commitments and particularly about the role of industry/community relations in organisational change. This thesis further contributes to organisational change research by applying this theoretical approach to the previously mentioned two large industrial developments and thereby to their respective organisational subsystem decision-makers. This provides new insights into how organisational change in project specific deep structure commitments works. It is in this theoretical and practical framework that this thesis moves beyond the macro level analysis of multi system deep structures, by applying Wollin’s (1999) theory of multi level ordering, which reaches down to the last sub-unit in organisational systems. Thus, this thesis proposes an analysis of the deep structure histories, choices and strategies of
local subsystems at the micro level, meaning at the \textit{case specific} and \textit{project specific} level of large industrial developments.

It is expected that the proposed micro level analysis of two organisational subsystems reveals firstly, deeply entrenched, \textit{case specific} deep structure commitments and secondly, highly inertial \textit{project specific} deep structure choices. This thesis suggests that these case and project specific deep structure commitments by local organisational subsystems allow fundamental organisational changes in participatory, environmental and socio-environmental policy. Conversely, they disallow such changes to local, case and project specific deep structure commitments. This thesis proposes therefore that organisational structures are capable of isolating change, thereby assuring stability, while maintaining earlier deep structure choices and strategies that are exclusive to specifically critical or controversial developments. This would further mean that organisational deep structure forces associated with incremental change are more compatible with the punctuated equilibrium paradigm than previously considered. Consequently, drastic punctuating events such as resource availability do not necessarily result in fundamental deep structure change, effecting change throughout an organisation.

This definition of selective deep structure commitments adds to the punctuated equilibrium paradigm by raising fundamental questions about organisational change, particularly in relation to the sudden discontinuation of resource availability and the role of local community relationships. Therefore, this thesis proposes that uncertainties in resource availability punctuate prolonged periods of techno-economic equilibria, but if analysed in relation to project specific deep structure commitments at the micro organisational substructure level, fundamental organisational change cannot be expected. Instead, project specific deep structure commitments at the micro substructure
level may determine the project specific contingency responses of core organisational substructures and even those of the organisational structure at the global or fundamental level.

A comparative analysis of organisational and subsystem deep structure commitments, which either support or resist change in socio-environmental and participatory behaviour, begins with a three part theoretical framework. Within this analytical framework an applied literature review is offered, which is designed to find alternatives, appropriate interpretations or definitions for particular deep structure, and punctuated equilibrium contexts, which fit the comparative case analysis of this thesis. In some instances concepts and theories are traced back to their origins to provide a more objective and explicit means for analysing, comparing, developing and presenting perspectives of deep structure and punctuated equilibrium conditions that can be applied to the two cases studies of this thesis.

It is in this context that Chapter 2 proposes the merging of appropriate concepts of traditional organisational change models with those of the punctuated equilibrium paradigm. This paradigmatic combination, which is applied to subsequent research, is expected to provide a better understanding of organisational multilevel deep structure choices by global and in particular local organisational subsystems. These local subsystems are approached by this thesis as loosely coupled systemic sub-units, because it can be expected that they modify and adjust local socio-environmental contingency responses even to an extent of contravening global organisational policy. Consequently, a spatial heterogeneity analysis is proposed because loosely coupled global organisational subsystems are most likely to respond differently and in different timeframes to local socio-environmental and participatory contingencies.
The aim in Chapter 3 is hence to add the largely neglected socio-environmental and participatory variables to the organisational change debate. Their absence is particularly prevalent in relation to the local developments of the global cement industry, which directly affects local rural and isolated farming communities. The resulting tensions between industry and local communities are primarily based on the belief that environmental conflicts are driven by disputes over techno-economic financial or ecological facts, rather than competing value positions (Schein, 1996; White, 1970). This means that serious incongruities between the techno-economic value positions held by the industrial developer and the socio-environmental values to which the local community subscribes, is most likely to result in sustained resistance to industrial developments. The chapter therefore emphasises the importance of aligning these different value positions to avoid cognitive dissonance among community stakeholders.

The chapter further highlights communication deficiencies that are grounded in expert ideologies. These translate community value questions into techno-economic language, claiming interpretative objectivity. It also reveals that most techno-economic inquiries, on which traditional business practices rely, are not approached holistically, largely excluding socio-environmental community concerns. In response to this exclusion, some scholars request a fundamental paradigm shift by industry from accustomed traditional management paradigms to their ecocentric alternatives. This chapter questions such request, suggesting that ecocentrism is not necessarily a prerequisite for pro environmental and socio-environmental responsibility. To find a balance between corporate egocentrism and ecocentric worldviews, participatory and collaborative structures need to be introduced. These community engagement structures where the industrial “ego” and the socio-environmental and environmental “eco” can be thought
together, requires a social climate of trust in which sustainable community engagement models can be developed.

Chapter 4 therefore recognises three key dimensions of social trust as important elements in developing a social climate, which allows community stakeholders to engage in a continuous dialogue with the industrial developer at the micro as well as interpersonal level. The chapter also focuses on the role of social trust in facilitating community participation in relation to risk communication. Scholars cited in the chapter agree that differences in risk perception and the exclusion of socio-environmental community concerns from risk communication processes significantly increases community distrust. To exclude socio-environmental community concerns from risk strategies violates the social and cultural expectations of community stakeholders. Consequently, community distrust that arises from this form is not easily reversed into social trust and requires significant participatory efforts and concessions by the industrial developer and government agencies before it is fully restored. To gain a better understanding of this problem the chapter offers a multidimensional analysis of trust, identifying key aspects of social trust and trust development and raises a number of fundamental questions about the relationship between trust and public participation. These questions are applied to the subsequent cases studies in Chapters 6 to 9, providing a detailed insight into the relationship between trust and public participation.

Chapter 5 outlines the methodological approach taken by this thesis to answer the questions, which arose from the social trust analysis in Chapter 4, and more generally, the research questions that emerged from other chapters of this study. To this end the chapter introduces the subject of this research, a global cement producer and two of its large quarry development, the FEKLHAS quarry project in Untervaz, Switzerland and
the East End Mine project in Central Queensland, Australia. The FEKLHAS and East End Mine development represent a combined mining capacity of about 145 years. These sizable developments and the wider impacts of the cement production on the natural and social environments guided the selection of this industry for analysis. To underline the significance of these impacts the industry’s withdrawals of non-renewable resources from the environment and the emission of significant levels of CO\textsubscript{2} to the atmosphere are examined. These withdrawals and emissions reached such levels that any decision made by the cement industry directly impacts on both, the local environment (resource depletion) and the global environment (CO\textsubscript{2} emissions). This means that industry decision-making extends beyond the natural environment and also affects local communities, socially, culturally, economically and politically. It is in this context that the chapter offers some quantitative estimates of global cement production and their impact on non-renewable resources, which leaves no doubts about the industry’s impact on local communities.

Moreover, in contrast to theory generated by logical deduction from a priori assumption, the chapter suggest a research method, which develops theory from data pertaining to the social contexts of the FEKLHAS and East End Mine developments. The systematic discovery of theory from data is a sociological method developed and coined by Glaser and Strauss (1977), *Grounded Theory*. The grounded theory approach continuously and comparatively analyses data from the FEKLHAS and East End Mine case examples rather than compares totals from indices. This means that theory is developed by continuously comparing and analysing data, which emerges from the deep structure histories, strategies and socio-environmental behaviours of the quarry operator in Switzerland, the Bündner Cement Untervaz and the developer in Central Queensland, Cement Australia. This equally applies to data, which derived from documents and
interviews from these industrial developers, interest groups, local and state government agencies and the local community of Untervaz and East End/Mt.Larcom.

The chapter further describes the processes of theoretical sampling and explains how and why the two case examples were identified for analysis. This is followed by the proposal to employ a transactional system analysis, studying the interactions between FEKLHAS and East End Mine stakeholders and the socio-environmental context in which these interactions occur. The need for an appropriate data collection method is considered by the chapter, developing data accumulation strategies that are used in the subsequent research chapters of this thesis. To establish interpretative validity, methodological as well as data triangulation strategies are proposed. Furthermore, approaches to the conceptualisation and categorisation of data are discussed and methods for their application to the FEKLHAS and East End Mine case examples are provided. These strategies are employed to underpin the grounded theory approach, which has been selected because of its suitability for studying the two relatively small research populations of Untervaz and East End/Mt Larcom.

It is in this research framework that Chapters 6 (Case Study A) introduces the FEKLHAS quarry development, whereas Chapters 8 (Case Study B) is concerned with the East End Mine case. Both of these Chapters begin with background information, thereby setting the scene for the developments.

Chapter 6 then continuous outlining developmental, environmental and socio-environmental problems the emerged from the FEKLHAS project and shows how these problems were overcome by the developer, local and state government agencies, interest groups and the local community. It introduces and examines participatory structures,
which move beyond accustomed models of community engagement, which include participatory planning and monitoring processes, which offer quorum voting rights and case specific power sharing.

In sharp contrast to the FEKLHAS approach, Chapter 8 introduces a long-standing controversy, which is driven by techno-economic reasoning and the exclusion of socio-environmental community concerns. It describes and comparatively analyses the East End Mine and the FEKLHAS approaches to community engagement and development of participatory structures. The chapter further studies the historical development of deep structure commitments, which still inform East End Mine specific decision-making. A comparative summary Table, showing significant discrepancies between the FEKLHAS and East End Mine approach to community participation and social trust development, follows each sub-heading text. The chapter offers a re-definition of the East End Mine problem, moving from exclusive techno-economic and geo-hydrological reasoning to an inclusive socio-environmental, social trust and community engagement analysis.

Chapters 7 and 9 respectively analyse the research data collected from the FEKLHAS and East End Mine case examples. Chapter 7 recognises four participatory factors, which provide the basis for the FEKLHAS project’s successful public participation approach. Conversely, from the East End Mine data six primary events emerged which proved to be the main contributors to a social climate of distrust. Chapter 9 comparatively analyses these vastly different approaches towards community engagement and social trust development, pointing to the deep structure choices and strategies that led to the success in FEKLHAS case and to failure in the East End Mine development.
This thesis concludes with Chapter 10, which offers a final comparative analysis, analysing the primary differences between the FEKLHAS and East End Mine approach to community engagement. This includes the deep structure commitments of FEKLHAS and East End Mine decision-makers in relation to the provision of a positive social climate, high levels of social trust, sustainable and effective participatory structures and a favourable social trust behaviour. The contribution of this thesis and its position within the wider deep structure and punctuated equilibrium theory is examined and potential future research directions are considered.
Chapter 2
Theoretical Framework (Part One)
Punctuated Equilibrium and the Dynamics of Organisational Substructures

2.1 Introduction

Influential frameworks in organisational theory perceive technical and economic contingencies as the archetypal motivators for change (DiMaggio and Powell, 1993; Hannan and Freeman, 1984; Blau, 1970). In these frameworks, organisational structures change through various stages of adaptation and incremental change, until the organization, as a whole, is transformed (Rickson and Parlane, 1994; Tushman and Romanelli, 1994). This implies a gradualist approach,suggesting that organizations may adopt any change at any time in response to internal or external contingencies, which means that a specific transforming event is not identified.

In contrast, the punctuated equilibrium model stresses that long periods of stability in which organisational activity patterns evolve, are punctuated by fundamental and discontinuous change. According to this view, major changes in performance, the environment or resource availability are strong enough to overcome deep seated inertia, thereby instituting fundamental change (Tushman and Romanelli, 1994, 1985). Inertial structures, it is argued, are based on long-sustained fundamental strategic choices made by interdependent organisational substructures (Gersick, 1991). These choices may include cultural, paradigmatic and ideological commitments that either constrain or encourage fundamental organisational change. For example, particular parts of the interrelated organisational structure might subscribe to progressive or conservative
environmental ideologies, thereby either substantially increase or decrease the likelihood of fundamental change. Such a system of interrelated parts, which includes the value positions held by substructure managers is described by Gersick (1991) as organisational "deep structure". Substructure deep structures attempt to maintain a complex network of historical commitments and entrenched relationships that cannot be overcome by incremental adaptation. The organizing principles of these deep structures are institutionalized, mostly inertial previous substructure choices that are maintained by internal and external mutual dependencies. Accordingly, the result of interdependence is not adaptation or change but resistance to change.

Adding to the notion of interdependent systemic structures, this study points particularly to the analytical importance of semi-independent or independent, loosely coupled local substructures that are an integral part of global organisational structures. It is in this theoretical framework that the research question, examining the processes through which industry relates to local communities in industrial developments, is analysed. Consequently, the socio-environmental and socio-economic contingency responses of a transnational cement manufacturer and two of its subsidiaries located across global, local and cultural boundaries, are examined. Thus, within the punctuated equilibrium framework, a spatial analytical approach is proposed. It is designed to determine whether, or to what extent, the deep structures of the two local organisational substructures in this study include community concerns into their planning and decision-making process. The theoretical significance of a spatial analysis lies with its ability to uncover and explain the underlying reasons for either the heterogeneity or the uniformity in organisational contingency responses. It furthermore allows an assessment of the intensity of local substructure resistance or adaptation to socio-environmental contingencies.
This chapter firstly provides an overview of three traditional organisational theories that reflect common processes. Some of these may be applicable at different times throughout this analysis. Secondly, the key components of the punctuated equilibrium paradigm are examined, with a particular focus on organisational substructures and their multilevel deep structures. Consequently, the merits of combining appropriate concepts of the traditional organisational theories with those of the punctuated paradigm are assessed. The justification for choosing the punctuated equilibrium paradigm as a theoretical tool is embedded in those questions and will evolve as they are answered.

2.2 Theoretical Background

A large body of literature and empirical research on organizations has emerged over the past three decades. Here organisational theorists consider how new forms of organizations develop and equally important, how adaptation and inertia encourage or retard organisational transformation. To reduce the vast number of publications to a manageable level, two decisions were made. Firstly, the organisational literature was selectively surveyed with a final focus on three theories of change. These were found to be the most appropriate for this study. Secondly, research themes were chosen, which offered advanced interpretations of the selected theories. To assist in the spatial heterogeneity analysis, the selected theories and concepts are merged with those of the punctuated equilibrium paradigm. This analytical approach develops an explanatory model of participatory strategies and is grounded in two eco-industrial developments. These are comparatively analysed across cultural, social and political boundaries and in terms of either heterogeneous or uniform organisational and institutional contingency responses. To clarify the proposed spatial heterogeneity approach, the following definitions are designed to outline its basic principles. This analytical approach
distinguishes between physical and theoretical spatiality and between heterogeneous and uniform contingency responses:

- Physical spatiality refers to industrial developments in terms of their geographical location and their impact on natural and non-renewable resources, either globally, locally or across any of these specific locations.

- Theoretical spatiality identifies the socio-environmental sphere of industrial developments and its socio-environmental and socio-economic complexities as its primary analytical focus. Particular emphasis is placed on institutional and organisational deep structures that are incongruent with their socio-environmental, economic, technical and regulatory environments.

- The heterogeneity or uniformity in contingency responses are examined in a physical and theoretical spatiality context. This assists in determining the effectiveness or failure of organisational structures in responding to socio-environmental contingencies and participatory community demands. Heterogeneous contingency responses that do not fit changed environments will punctuate global and local organisational equilibria.

Thus, the spatial heterogeneity analysis examines local participatory demands that, if ignored due to organisational inertia and substructure resistance, are expected to increase social, economic and political complexities. This will prolong periods of adaptation and change causing significant delays in the settlement of increasingly costly community claims. Such entrenched inertia or adherence to simple regulatory compliance will, over time, negatively affect the operation and profitability of eco-
industrial developments. This is particularly the case if organisational contingency responses are rejected by local communities as insufficient. These insufficiencies could be publicized by local communities not only nationally but also globally, thereby increasing the likelihood of class action and legal processes. There seems to be little doubt that such a scenario leaves little room for incremental adaptation or gradual change.

The frameworks in organisational theory selected for this analysis are commonly seen by theorists to reflect an incremental or gradualist approach, that includes the structural contingency theory as well as the population ecology and institutional theories (DiMaggio and Powell, 1993; Hannan and Freedman, 1984; Blau, 1970). Gradualist paradigms imply that systems develop along the same path in a forward direction, virtually accepting any change at any time. Conversely, significant or fundamental changes are perceived as being the result of the accumulation of small, incremental changes (Gersick, 1991). These organisational models may share some commonalties and are quite useful to investigate incremental or gradual change processes. However, if used independently, they are less helpful for determining how local substructures respond to socio-environmental contingencies. In other words, whether these responses are heterogeneous or uniform and how they encourage or retard change.

This study proposes, therefore, to merge appropriate concepts of the selected organisational theories as well as advanced interpretations thereof with those of the punctuated equilibrium theory. From this synergistic approach an explanatory model of participatory strategies is expected to emerge. This model proposes that these strategies be viewed in terms of three general types of participatory contingency responses: a) the organisational legitimization of community value positions and their inclusion into the
planning and decision-making process; b) appropriate ideological choices that move beyond simple regulatory compliance and participatory symbolism; c) developing a climate of social trust to assure genuine ecodemocratic community participation and collaboration.

Prior to analysing the role of socio-environmental contingencies in a punctuated equilibrium context, it is useful to provide a brief overview of the competing organisational theories that may be applicable at different times in this analysis.

2.3 Contingency Theory

The structural contingency paradigm, pioneered in the late 1950s and early 1960s by Woodward (1965, 1970) and Burns and Stalker (1961), holds that individual organizations adapt to their internal and external environments in order to survive. Consequently, management adopts survival strategies that are not only reflective of changed environments, but also of organisational goals and objectives (Christensen et al., 1987). Proponents of the structural contingency theory seem to agree, that to maintain functional and optimal structures, requires organizations to utilize existing resources to pursue strategies, that assure particular levels of size, technology and diversification. Each of these is considered in the organisational literature to be a contingency variable. (Christensen et al., 1987; Blau, 1970; Hage and Aiken, 1970; Chandler, 1962; Burns and Stalker 1961). If organizations are confronted with a discontinued equilibrium between those contingency variables and environments, they will move back into congruity by either adaptation or change. Structural contingency theorists see this as an adaptive process designed to regain effectiveness and performance (Christensen et al., 1987; Blau, 1970; and Woodward, 1970).
In more recent organisational literature, Burke and Litwin (1992) point to the pressures of environmental discontinuities and the resulting consequences for organisational cultures, belief systems and internal organisational behaviour. Consequently, to assure the successful adaptation to external contingencies, internal behavioural changes are proposed. These include a revised approach to managerial leadership, the transformation of organisational cultures and fundamental changes in mission and strategy (Burke and Litwin, 1992). Similarly, Vollman (1996) focuses on organisational change imperatives and lists a number of potential transformation factors that underlie successful organisational adaptation and change. Five of these appear to be most appropriate for this study. Successful responses to socio-environmental contingencies and to participatory community demands requires organizations to develop a) strategic responses such as planning of appropriate programs and actions; b) assign organisational competencies to the relevant environmental contingencies; c) display a learning capacity that identifies and integrates newly acquired knowledge into the organisational structure; d) develop contingencies for possible challenges and anticipated problems; and e) apply strategies effectively to the relevant issues (Vollman, 1996). These transformation factors, which are viewed from a punctuation and deep structure perspective, will be revisited as this chapter progresses.

Vollman’s (1996) as well as Burke and Litwin's (1992) accounts both focus on structural and strategic transformation factors that include organisational culture and behavioural dimensions. This inclusion of organisational value and belief systems, as well as individual and organisational behaviours is of particular interest to this study. Primarily because this approach has direct consequences for establishing an organization - environment fit and for assessing the congruency of competing community and

\[\text{The five transformation factors taken from Vollan’s list have been modified to suit this analysis.}\]
corporate value positions, particularly in an industrial development setting. For example, when confronted with a discontinued equilibrium between stakeholder value choices, organizations will move back into congruity by either adaptation or change. Spatial heterogeneity in organizational substructure contingency responses, however, is more likely to further deepen inconsistencies between organizational and community value positions. Concurring with Vollman (1996), Burke and Litwin’s (1992) approach to contingency theory seeks to explain the final outcome of strategic choices. Conversely, punctuation models identify different value choice within the organizational deep structure and allow these to be settled in varying sequences resulting in particular solutions for each individual system. Change, however, may be “…actively prevented by [local organisational] sub-units because no adaptive advantage would accrue” (Gould, 1989:124). This implies that fundamental organisational transformation as proposed by the punctuation paradigm, will result in regaining equilibrium, rather than limited or symbolic change favoured by individual local organisational substructures and their deep structure.

Other authors characterize adaptation in terms of rapid continuous change. They describe how organizations succeed in relentlessly changing competitive environments by linking organizational structures to high velocity market environments (Eisenhardt and Tabrizi, 1995; D’Aveni, 1995). Emphasizing the need for rapid adaptation, D’Aveni, particularly points to the rigors of competition, whereas Stalk and Hout (1990) view organizational strategic competencies as the most important prerequisite for fast adaptation. Other theorists consider a fast pace in product innovation and the development of new technologies to be the central path by which organizations transform and adapt themselves to new environments (Eisenhardt and Tabrizi, 1995; Dougherty, 1992; Vesey (1991); and Womack et al., 1990). There seems to be
agreement among these authors that fast adaptation to rapidly changing environments is of central importance for organisational strategy, innovation and ultimately, vital for organisational survival.

These accounts, however, fail to pay enough attention to the complexities of organisational substructure independence or semi-independence. In other words, local independent substructures may respond to external contingencies heterogeneously. This means that as an integral and interdependent part of the same global organisational structure, independent local substructures have the optional freedom to adopt and maintain positions contrary to the contingency response behaviour of their global organization. Such freedom may not be formally allocated, but central administrations often decide that they cannot override local contingencies or culture. Consequently, if independent or semi-independent local substructures decide to introduce varying levels of change or adopt different adaptation sequences, they actively prevent or retard rapid change.

However, attempts have been made to portray organizations as more dynamic than they are commonly assumed to be. For example, Brown and Eisenhardt (1997) suggest that extant organisational dynamism together with continuous rapid change more realistically reflect how organizations survive in competitive environments. Instead of inaction, it is argued, organizations firstly attempt to overcome sectional inertia and substructure resistance. Secondly, they try to control the pace, level and speed of change or adaptation. One could argue, however, that this depends largely on the level of substructure independence and the congruency or heterogeneity in organisational substructure contingency responses. Previous strategic choices, which are maintained by inertial substructure deep structures and complex internal and external
interdependencies, cannot be expected to be suddenly abandoned in favour of a unified response to environmental discontinuities. Heterogeneous contingency responses by independent substructures are, therefore, expected to retard or prevent rapid organisational change. Managing substructure independence in local socio-environmental and industrial development contexts is a continual problem. Success in integrating global economic activities and local socio-environmental diversity may be achieved through local manager’s knowledge of local conditions and their identification with local communities (FitzGerald, 2000). Local socio-environmental and socio- environmental diversity as well as substructure independence and semi-independence, however, appear to be the principle sources of structural heterogeneity in global organisational structures.

There is no doubt that the structural contingency literature offers numerous different approaches and possible solutions in terms of rapid continuous change. Studies, however, focus on interdependence rather than on the independent organisational substructure behaviour and how substructure and deep structure independence retards or prevents rapid change. The gap in literature and in empirical data is particularly evident when the heterogeneity in substructure contingency responses is analysed in the context of socio-environmental or socio-environmental contingencies. Some aspects of fast adaptation and the punctuation concept of deep structure, however, are merged in this study and applied to subsequent research. This will aid in the understanding of whether heterogeneous substructure contingency responses promote or retard change.

Studying the effects of organisational decline on innovation most authors agree that there are some unresolved theoretical contradictions in the organisational decline debate (Mone, McKinley and Barker, 1998; Ocasio, 1995; McKinley, 1993). One stream of
research suggests that decline inhibits innovation (Ross and Staw, 1993, 1986; Brockner, 1992; Nystrom and Starbuck, 1984), whereas another implies that low performance acts as a stimulant for organisational risk taking and innovation (Miller and Leiblein, 1996; Wiseman and Bromiley, 1996, Burgers et al., 1993; Bromiley, 1991). To overcome this schism Mone et al (1998) suggest focussing on isolating the factors that cause organizations to respond either innovatively or conservatively. Such an approach contrasts contingency traditionalists, attempting to determine whether particular contingencies promote or inhibit innovative organisational responses. Expanding on Mone's argument, this study not only identifies the underlying factors that drive socio-environmental contingencies in an industrial development setting, but also examines the reasons for the heterogeneity in organisational responses to those contingencies. However, in spite of the apparent differences in the contingency debate, there seems to be agreement in the literature that gradual or incremental adaptation, rather than short burst of revolutionary change, transforms, over time, the organization in its entirety. This assumption may fit analyses that approach organisational structures as unified systems of organization. If, however, global organisational structures are viewed as a conglomerate of loosely coupled systems, a different analytical picture emerges.

The underlying reality of this approach suggests that complex global structures are not unified systems of coordination (Selznick, 1996, Gross and Etzioni, 1985; Weick, 1976). They are instead, a framework of loosely coupled interrelated and independent organisational substructures that function across global, national and local socio-environmental and socio-environmental boundaries. The advantage for global corporations to maintain loosely coupled systemic structures is evident. If, for example, structural elements of transnational organizations are loosely coupled to one another,
anyone element can adjust and modify local contingencies without affecting the whole organisational structure (Weick, 2001, 1976). However, specific core elements of global organizations such as finance, investment, tax minimization and the transfer of profits across global boundaries are traditionally tightly controlled structures of organization. Organisational elements such as global and local environmental management, on the other hand, may well be organized as loosely coupled systems of organization. In the event of local environmental discontinuities, for example, the loosely coupled local sub-unit can easily be sealed off, thereby preventing it from affecting other elements in the global structure (Weick, 1976, 1969). It could be argued, therefore, that loose coupling is not imperative but a strategic choice made by transnational organizations which, over time, is integrated into the global deep structure.

It is unlikely, therefore, that incremental change in global systemic structures, remains linear, accumulative or results in consistent change across the global / local divide. This study, therefore, comparatively examines whether or to what extent incremental change in local substructures accumulates before the entire global systemic structure fundamentally and discontinuously changes. These global organisational and systemic complexities are discussed in more detail in Chapter 4 and are applied to subsequent research.

2.4 Population-Ecology Theory

Population-ecologists, although analysing non-biotic organisational structures, apply Darwinian natural selection theory to the study of organizations. This is not only radically different to the structural contingency theory, but also equally disconnected from the other organisational paradigms selected for this study. In contrast to these organisational models, population-ecology suggests that organisational change and
adaptation occurs at the population rather than individual organisational level. Shaped at the population level through the selection processes of birth and death, organizations are either well adjusted to or misfit their new environments. The birth of better fitted organizations and the demise of those that misfit their new environment completes the biological cycle of birth and death (Donaldson, 1995; Singh et al., 1986; Aldrich, 1979; Hannan and Freeman, 1977). Thus, it is argued that regaining equilibrium is achieved at the population level rather than through individual organisational adaptation. Consequently, the birth of new organizations specifically adapted to their environment, and capable of more efficiently utilizing the resources left by the deaths of unfit populations, is seen as the principle mechanism for change (see Singh et al., 1986; Hannan and Freeman, 1984; Aldrich, 1979).

The theoretical translation of organic or biological population dynamics into inorganic organisational structures, however, raises serious questions about its applicability to organisational theory. In the absence of genetic reproduction, Donaldson (1995) argues, new organizations that join the population of survivors do not faithfully reproduce the form taken by successful firms of the previous generation. Although lessons from the failures and successes of the previous generation will be learned there is, however, the probability that the emerging organizations may develop structures less suited to the environment than the structures supporting the presently surviving organizations (Donaldson, 1995). This means that learning from the previous generation is inherently less certain than parent genes passed on by successful survivors. These points raised by Donaldson (1995) are of particular interest to this study, especially when applied to global systemic structures, its substructures and deep structures. Although it is difficult to relate organic evolutionary processes to non-biotic organisational structures, it is at the local organisational substructure level where a more suitable analytical scenario
emerges. This study will therefore investigate the learning processes of local substructures as well as their deep structures. This establishes firstly the learning capacities of local organisational substructures and shows whether newly gained knowledge is translated into effective contingency responses. Secondly, it provides an insight into how knowledge about the successes or failures of previous substructures are actually reflected in the contingency responses of the new generation of organisational sub-structures.

The Darwinian notion of natural selection further suggests that in response to the high death rate of the unfit an overabundance of births occurs, supplying new members to the population (see Darwin, 1996). Organisational ecologists, however, might have some difficulties pointing to overabundant births and deaths in the processes of organisational evolution. Fligstein (1991), for example, investigating the largest one hundred corporations in the United States demonstrates that, although significant changes in strategy and structure occurred, new additions to the population only reached twenty new entrances each ten years. Fligstein found that each of these new arrivals remained stable for over half a century. In view of these findings organisational ecology, it seems, is not as well crafted as the Darwinian model of natural selection and analogies and metaphors, although useful, cannot replace the discovery of real mechanisms required for theorizing (Donaldson, 1995).

Population ecologists also suggest that organisational change occurs primarily through deaths and births at the population level. Thus largely ignoring the processes of adaptation and organisational change at the individual level. Individual members across populations may experience vastly different environments, forcing some members to change. Others not exposed to the same pressures, however, may escape the need for
organisational transformation or adaptation entirely. Even if the entire individual membership across populations were exposed to the same level of environmental pressures, it seems highly unlikely that whole populations of organizations simultaneously reorganize, which raises some serious questions about the heterogeneity between organisational populations. (Ranger-Moore, 1997; Baum, 1997; Peli et al., 1994). There seems to be little doubt that contingency pressures are not distributed evenly among organisational populations. Instead, they impact directly on individual organizations and their substructures with different intensity, resulting in heterogeneous organisational responses. This is particularly apparent if contingency pressures and the consequent responses are linked to socio-environmental contingencies and examined in a spatial heterogeneity setting of geographically separated organisational sub-structures.

The phenomenon of the geographic agglomeration of competitors in industrial centers has been well documented in the organisational ecology and organisational literature (Lomi, 1995; Saxenian, 1994; Maarten de Vet and Scott, 1992). Over the last decade various organisational ecologists have provided insights into the mechanisms that initiate these agglomeration processes (DeNoble and Galbraith, 1992; Scott, 1989). However, the question of how geographical clustering influences the behaviour of individual organizations and their independent or semi-independent local substructures within and outside these clustered populations remains largely unanswered.

Adding to Baum and Mezias's (1992) analysis of localized competitive processes and their impact on population dynamics and organisational evolution, Poudor and St.John, (1996) studied the behaviour of competing firms that agglomerate in industrial centers. They found that these geographic locations or “hot spots”, in which clusters of firms compete, are subject to evolutionary processes that differ from the evolution of
organizations outside the geographical cluster (Pouder and St.John, 1996). A hot spot, for example, after initially growing faster than the industry as a whole, may decline again without immediately impacting on populations situated outside the sphere of their clustered competitors. Consequently, incongruent contingency responses across the geographical cluster divide will emerge, resulting in “… two separate evolutionary path for clustered and unclustered competitors” (Pouder and St.John, 1996:1195). It seems reasonable to assume that economic decline among geographically clustered populations will also lead to changes in resource arrangements, market responses and competitive behaviour, largely controlled by local deep structure choices. This indicates that deep structure is a set of fundamental strategic choices to which individual organizations and their local substructures subscribe. These individual organisational substructures rule in or out appropriate contingency responses, depending on their geographical position and on the previous strategic choices of their deep structures. Consequently, contingency responses are inherently heterogeneous and are not population specific. Instead, they are local responses made by individual organizations, their local substructures and their substructure specific deep structures.

Pouder and St.John’s (1996) model of geographical clustering supports this study’s earlier claim that spatially heterogeneous environmental pressure will result in incongruent contingency responses. This means that deep structure choices determine not only patterns of competitive behaviour but also decide when and how to change. Therefore, contingency responses do not emerge from clustered or unclustered populations but derive from individual deep structure choices. It is in this context that this study examines the spatial heterogeneity of the deep structure choices made by a transnational corporation and two of its local substructures.
2.5 Institutional Theory

Institutional theory, in contrast to the contingency and population theories, holds that organizational structures are influenced and shaped by institutional pressures enforced by legitimizing entities such as the state and the professions (Zucker, 1988; DiMaggio and Powell, 1983). This indicates that organizations are a reflection of the institutional environment in which they operate. There seems to be agreement among authors that the basic principle for receiving support and legitimacy from the environment is that organizations comply with the regulatory requirements of the institutional sector (Donaldson, 1995; DiMaggio and Powell, 1991a; Zucker, 1988). Institutionalists theorize, that by sharing the same socio-environmental and political environment within the same organisational field, organizations imitatively adapt their own organisational structures to those perceived to possess normative and legitimized structures. At the core of this argument is the assumption that organizations are structured out of conformity with institutional norms (Donaldson, 1995). This process is described by DiMaggio and Powell (1983) as institutional isomorphism, meaning that organizations within the same organisational field come to increasingly resemble each other as a consequence of institutional pressures (DiMaggio and Powell, 1991a, 1983).

This process of institutional isomorphism, it is argued, is underpinned by three primary sub-processes, coercive, mimetic and normative isomorphism. Coercive isomorphism assumes adaptation and organisational change to be a consequence of institutional pressures, whereas mimetic isomorphism refers to organizations that model their own structures to those already institutionalized by institutional legitimization. Mimetic isomorphism, however, applies not only to established organizations attempting to improve their competitiveness by imitatively adapting to legitimized organisational norms, but also to new and emerging organizations that seek to receive legitimization.
from institutions. New organizations are particularly susceptible to both mimetic isomorphism, as well as coercive isomorphism, because they hope to become government-sanctioned role models for other organizations seeking legitimacy (DiMaggio and Powell, 1983). Finally, institutionalists relate normative isomorphism to professional institutions as well as professional groups that provide legitimacy for their members through organisational standards and behavioural guidelines (DiMaggio and Powell, 1991a). These organisational standards are to a varying degree sanctioned and reinforced by government and its regulatory agencies, often leading to the consolidation and extension of power and legitimacy of professional bodies.

Institutionalizing and legitimizing professional standards and organisational behaviour are assumed to be the final result of coercive, mimetic and normative isomorphism. Particularly institutional pressures, requesting organizations to comply with regulatory demands, is seen by institutionalists as a vital factor for organisational adaptation and change. It appears, however, that institutionalists pay not enough attention to regulatory compliance distortions and political manipulation by individual organizations, their local substructures and deep structures. According to Holm (1995), institutions may either be perceived as solutions to predefined problems or as instruments that must operate outside the scope of strategic manipulation to effectively perform the tasks for which they were created (Holm, 1995). Holm’s (1995) view, however, cannot be followed without some qualification. Previous research reveals that institutions are neither positioned in a sacrosanct sphere outside organisational, economic and political pressures, nor are they beyond strategic manipulation by organisational interests (Hoppe, 1997). Organizations are not lethargic victims of institutional arbitrary dictates or regulatory vindictiveness, they are instead, co-authors of the very regulation and standards they are required to adopt. Therefore, these organizations are most likely to
demand and obtain regulatory concessions and can expect to be allowed to implement the remnant of once firm regulatory requirements in a timeframe aligned to organisational, not institutional demands (Hoppe, 1997). Concurring with this view, Jepperson (1991) indicates that there is indeed an apparent institutional vulnerability which is wide open to exploitation by organisational interest in the overall power processes. This vulnerability cannot be ignored, primarily because institutions are not only socially constructed, they are routine-reproduced, interest-driven and highly political (Jepperson, 1991).

In view of these apparent distortions in regulatory conformity, coercive isomorphism can be expected to lead organizations no further than to adopt a ritualistic appearance of compliance. Critics of institutional theory, as well as some institutionalists, agree that institutionalism pays little attention to the socio-economic realities of organizations in favour of political rituals and symbolisms (DiMaggio and Powell, 1991a; Perrow, 1985). Institutionalists with their roots in the study of bureaucracy, fail to accept that organizations are not slavish copies of institutional policy and regulation. Scholars in this field, therefore, continue to define institutions and their bureaucracies not only as contingent but also as essential, inevitable and finally, as a remedy (Selznick, 1996). Consequently, institutional concerns regarding policy relevance, particularly in relation to the socio-economic realities of organizations, remain contentious. Neglecting organisational realities is primarily based on the “taken-for-granted” concept which is widely favoured by institutionalists. It assumes the inevitability of internal and structural organisational change in response to institutional and regulatory pressures. Continuous effective institutional coercion, however, may be unsustainable mainly because of “…the impossibility of empirically assessing true taken-for-granteds” (Donaldson, 1995:128).
Fox-Wolfgramm et al., (1998), investigated the strategic adaptive behaviour of two American financial institutions in relation to institutional coercive pressures applied by federal and local institutions. These pressures were deemed by government agencies to be the appropriate measure to implement the US Community Redevelopment Act. Fox-Wolfgramm and her colleagues found that organizations not only initially resist institutional coercion but also mimetic forces. They further argued that organisational change is motivated only by unambiguous evidence of identity and image incongruence reflected in organisational performance failure (Fox-Wolfgramm et al., 1998). This indicates that coercive isomorphic pressure, although closely associated with organisational performance, is not the prime mover of organisational change. Oliver (1997, 1991), examining the influence of institutional and task environment pressures on organisational performance, similarly suggests that regulatory stringency as well as coercive and mimetic forces, are of secondary importance to task environment pressures. Task environments such as size, technology and strategy, he argues, take precedence over coercive and mimetic pressures, primarily because these more directly influence organisational success and performance.

Both, Wolfgramm et al. (1998) and Oliver (1997,1991) do not support the notion that institutional rules and norms are the primary cause for organisational mimetic and structural change, instead their findings emphasize the limits of institutional pressure. In spite of these findings it seems reasonable to assume that these limitations may permit changes to some elements of internal organisational structures. There is, however, no empirical evidence to support the notion of overall structural change in individual organizations or mimetic change across entire organisational populations (Wolfgramm et al., 1998; Oliver, 1997). The claims of traditional institutionalism are clearly at
variance with these findings and appear to be valid only in terms of a limited or restricted coercive isomorphism that forces organizations to adopt certain internal, but not overall structural changes. Therefore, the institutionalist assumption suggesting that organizations are structured out of conformity may not be followed without qualification.

This study in its investigation of two industrial developments specifically charts the role and the approach taken by public institutions in each of the development projects. Particular emphasis is placed on the heterogeneity of institutional coercive and mimetic pressures within and across each of the developments under study. The comparative analysis of the heterogeneous organisational responses to these institutional pressures may lead to the discovery of unexpected alliances that possibly undermine the concept of coercive, as well as mimetic isomorphism. It is in this context that this study may find some alternative answers to the traditional conformity claims.

2.6 The Punctuated Equilibrium Paradigm

The punctuated equilibrium model has recently emerged as the most prominent theoretical framework for investigating organisational transformation and fundamental organisational change. Punctuated equilibrium theory, as described by its proponents, depicts organizations and their activities as evolving through relatively long convergent periods of stability or equilibrium which are punctuated by relatively short bursts of fundamental change (Romanelli and Tushman, 1994; Tushman et al., 1986). The punctuated equilibrium literature views the abrupt discontinuation in equilibrium not only as revolutionary change but also as the beginning of new periods of stability (Gersick, 1991; Tushman and Romanelli, 1985).
There are three primary reasons for this study to adopt the punctuated equilibrium paradigm as its organizing theoretical framework. Firstly, because it provides the most suitable framework to explain the behaviour of a global cement manufacturer, as well as the behaviour patterns of two local subsidiaries, in their response to socio-environmental and socio-environmental discontinuities. Furthermore, the punctuation approach has been chosen because it allows moving beyond the teleological process theories of organisational development and change that primarily focus on organisational factors. In other words, the punctuation model clarifies the causes of organisational change rather than explaining the purpose of change. This research approach provides a better understanding of the socio-environmental factors that influence industry / community collaborative structures in periods of socio-environmental and environmental punctuation. Secondly, the model has been chosen because it has not previously been formally applied to explain the spatial heterogeneity of organisational substructure responses to complex socio-environmental and socio-environmental contingencies. Thirdly, the punctuated equilibrium paradigm has been selected because of its wide disciplinary base and broad applicability to organisational theory.

Punctuated equilibrium models have their origin in biological evolutionary theory which argues that biological lineages change little during most of their history. Evolutionary theory further holds that events of environmental and genetic selection not only disrupt periods of equilibrium, but also result in rapid and fundamental change (Gould, 1980; Eldredge and Gould, 1972). Although this theory is primarily used in the discipline of biology, Gersick (1991) reminds the interested scholar of the largely independent emergence of the punctuated equilibrium paradigm across a number of disciplines. Kuhn (1970) for example, concerned with the study of the history of science, suggests
that traditional scientific activity is interrupted by tradition-shattering scientific revolutions that lead to new scientific paradigms. Others, such as Abernathy and Utterback (1982) or more recently Erickson and Kuruvilla (1998) studied industrial transformation, arguing that industrial relation systems cannot be changed unless the underlying value and belief systems that drive organisational structures are firstly changed. These changes, they assume, could occur gradually or abruptly (Erickson and Kuruvilla, 1998). Romanelli and Tushman, (1994), Tushman and Romanelli (1985), and Miller and Friesen (1984, 1980a), in investigating organisational transformation, describe organizations as evolving through relatively long periods of stability punctuated by rapid revolutionary change. Levinson (1986), engaged in the psychological sciences, views life structures as evolving through orderly periods of structure building, interrupted by periods of structural changes and transition. Finally Gersick (1989, 1988), conceptualizing change in a group and team building context, suggests that stable infrastructures permit only incremental adaptation, and brief periods of revolutionary upheaval.

Even though these models display striking similarities from which the same paradigm emerged, they nevertheless show some differences. The commonalties converging into the overall punctuated equilibrium paradigm have been summarized by Gersick (1991). Gersick concluded that systems evolve through the alternation of periods of equilibrium, in which "...persistent underlying structures permit only incremental change, and periods of revolution, in which these structures are fundamentally altered" (Gersick, 1991:13). This implies that the punctuated equilibrium paradigm consists of three main components: a) persistent underlying structures or deep structures; b) equilibrium periods; and c) revolutionary periods of fundamental change.
The concept of deep structure has its origin in Chomsky’s (1966) analysis of Cartesian linguistics. It has been chosen by Gersick (1991) for its general appropriateness as a set of fundamental interdependent choices made by an organisational structure into which its substructures and deep structures are organized. These choices or strategic orientations of a organisational deep structures consist of interdependent and interrelated organisational parts. These may include core values and beliefs, organisational culture, norms and ideology, organisational structure, technology and different types of power and control systems (Romanelli and Tushman, 1994; Gersick, 1991). Punctuated equilibrium theorists, therefore, describe organisational deep structure as a system of interrelated organisational parts or choices, which are maintained by mutual dependencies that exist among these parts or choices (Romanelli and Tushman, 1994; Gersick, 1991; Tushman and Romanelli, 1985). However, these interrelated relationships apply not only to internal organisational deep structures, but also to external relationships across the internal / external deep structure divide.

Wollin (1999), using Simon’s (1996) concept of hierarchic systems, extends Gersick’s (1991) earlier notion of deep structure by pointing to the importance of the multi level ordering of a system’s multi-dimensional deep structure (Wollin, 1999). The concept of multi level ordering indicates Simon (1996) argues, that any system is comprised of interrelated substructures, which in turn are hierarchical in structure, until the lowest level of elementary substructure is reached. Therefore, this systemic order, Wollin (1999) suggests, applies equally to organisational deep structures where the multi level order of substructures determines the extent and depth of organisational change, depending on the level where punctuated change actually occurs. This means that change at the fundamental level is most likely to affect substructures at the marginal

2.24
levels of the deep structure. Change at the marginal levels, however, does not necessarily result in changes at the fundamental level (Wollin, 1999).

Deep structure, as previously mentioned, reflects the choices and strategic orientations of interdependent substructures. These choices and strategies not only maintain an organization’s multi-dimensional deep structure, but also determine how the organization will behave in its contingency responses. In other words, these choices, if institutionalized, result in inertial multi level deep structures that are highly stable. Consequently, earlier choices made by these interdependent deep structures will most likely restrict contingency responses, primarily because most of the later decisions and strategic options in response to socio-environmental discontinuities can be expected to be ruled out by deep structure inertia (Gersick 1991). Similarly to Clark (1985) and Dosi (1982), Wollin (1999:361) emphasizes the analytical importance of system history, primarily because different system histories may have significant impacts on organisational change. Wollin, therefore, suggest that fundamental change to deep structures requires the “…remaking of earlier fundamental choices and the abandonment of more marginal choices that are predicated on them”. This process of selection and retention akin to evolutionary theory is central to the punctuated equilibrium paradigm. Therefore, if environmental discontinuities disrupt one or more levels of an organization’s deep structure, its systemic order may retain its inertial structure at some levels and resist change. However, other levels of its systemic order may select to adopt change. The overall result will be extended periods of limited change with very little or no effect at the fundamental level. Furthermore, new constellations within a system’s deep structure are most likely to emerge. Thus, to change the multiple levels of a system’s deep structure depends on the successful transformation of earlier strategic orientations and choices.
The following model captures the most common responses of organisational substructures to environmental contingencies. It is set against the background of earlier strategic orientations and choices as well as deep structure inertia. These systemic contingency responses may take three different paths in responding to socio-environmental and socio-environmental discontinuities.

The first of this three-path process shows organisational structure (A) illustrated in Figure 2.1. Fundamental organisational change occurs here because all substructures within the organisational deep structure reorganize uniformly in response to environmental contingencies. However, such a uniform response, although not entirely impossible in smaller organizations, is highly unlikely in global corporate structures. The primary reason preventing uniform responses in global structures is the size and complex nature of transnational systemic structures. Other factors are the interdependence as well as independence or semi-independence of its local substructures, operating not only within the complexities of a vast organisational structure, but also across global, national and local boundaries. Therefore, global organisational structures are not expected to adopt change or respond to contingency impositions simultaneous or to the same extent.
Figure 2.1: Deep Structure Contingency Response, Path 1

Figure 2.2 displays organisational structure (B) where earlier strategic orientations and choices result in deep structure inertia. This causes substructure (a) within the organisational deep structure to behave differently from substructure (b) as well as from the organization as a whole. Consequently, organisational contingency responses are heterogeneous, primarily because change is limited to substructure (b) which in contrast to (a) is not constrained by earlier choices and organisational or substructure inertia.

Figure 2.2: Deep structure contingency response, Path 2

Substructure behaviour as presented in organisational structure (B), is expected to be particularly apparent if contingency responses are analysed in a physical and theoretical context.
spatiality context across global / local borders. This analytical approach will be applied later to the data examination and discussion of the two industrial developments under study.

The final organisational structure (C) (Figure 2.3) shows that substructure (a) and (b) are constrained by institutionalized earlier strategic orientations and choices. Thus, organisational contingency responses are uniformly set against change caused by organisational and substructure deep structure inertia. These uniform responses of substructure (a) and (b) show some similarities with the substructure responses of organisational structure (A). However, as indicated earlier, uniform contingency responses may occur in organizations of more limited size, but the simultaneous rejection of environmental contingencies within global / local organisational structures is most unlikely. Change therefore can be expected to be heterogeneous and uneven.

![Figure 2.3: Deep Structure Contingency Response, Path 3](image)

The conclusion that can be drawn from this three path model, is that systemic multi-level deep structures may adopt change at the fundamental organisational level or at the local substructure level or prevent change entirely, depending on earlier strategic
orientations and choices. Contingency responses by organizations and their substructures are, therefore, inherently heterogeneous. The primary reason for this heterogeneity is the exposure of organisational substructures and their deep structures to different internal and external environmental discontinuities, as well as to varying degrees of global and local contingency pressures. If organisational size is associated with those contingency requirements and/or pressures, an additional complex scenario emerges. The link between organisational size and resistance to change is well documented in the literature (Rickson and Parlange, 1994). The larger the organization, it is argued, the more interdependent substructures rely on substructure technocrats to interpret environmental contingencies. (Tushman and Romanelli (1985). If organisational size is associated with global corporations and their local subsidiaries, physical and theoretical spatiality\(^\text{2}\) will directly and indirectly assist substructure technocrats to retard or prevent organization-wide change.

Any investigation of how global organizations and their local substructures respond to local socio-environmental and socio-environmental contingencies, therefore, requires the analysis of each organisational substructure and its deep structure, particularly at the local level. Restricting the analysis to either the traditional structural contingency paradigm, the population-ecology theory or to the institutional approach would limit this study’s global / local organisational investigation and thereby its empirical results. Consequently, the merging of the most appropriate concepts of the traditional organisational theories with those of the punctuated equilibrium paradigm is proposed.

\(^{2}\) Physical and theoretical spatiality has been defined earlier in this chapter. Refer p.4
2.7 Merging Paradigms

2.7.1 Structural contingencies and the analytical significance of multi systemic organization

As discussed earlier, contingency theory holds that, if organizations are confronted with a discontinued equilibrium, they move back into congruity by either adaptation or change. It is in this context that scholars in this field explain how organizations respond to environmental discontinuities. Vollman (1996), Burke and Litwin (1992), for example, focused their attention on structural and strategic transformation factors that include organizational cultural and behavioural dimensions. Their research further points to the potential factors that underlie successful organizational adaptation or change. Other authors characterize adaptation in terms of rapid continuous change describing how organizations succeed in relentlessly changing competitive environments. There seems to be agreement among scholars that an organization/environment fit as well as fast adaptation is central for organisational strategy and innovation and ultimately vital for organisational survival (Eisenhardt and Tabrizi, 1995; D’Aveni, 1995; Dougherty, 1992; Vesey (1991); and Womack et al.).

Adding to the debate, Mone et al (1998) suggest to focus on isolating the factors that cause organisational contingency responses rather than trying to determine whether particular contingencies promote or inhibit adaptation or change. This analytical approach clearly highlights the importance of understanding the underlying factors that drive contingency responses and may additionally shed some light on the causes that promote them. To isolate factors that cause or drive contingency responses, as for example, incongruent organisational and community value positions, may be useful for
investigating local contingency responses made by unified systems of organization. This approach, however, is of limited assistance in determining the reasons for heterogeneous contingencies responses made by complex global multi systemic, loosely coupled and multi-leveled organisational deep structures.

The underlying tenor throughout the contingency literature suggests an analytical approach that views organizations only partly as multi-leveled systemic structures. Consequently, organizations are predominantly analysed as unified systems of organizations rather than as structures of interrelated, independent and loosely coupled substructures, which are also hierarchic in structure down to the lowest level of elementary substructure. Largely ignoring these structural complexities, the traditional contingency approach, therefore, can be expected to limit empirical studies that seek to explain the causes of heterogeneous global / local contingency responses. The main analytical problem with the contingency paradigm, particularly if viewed from a spatial heterogeneity and independent deep structure perspective, is its persistence in assuming simultaneous systemic change. This, as discussed earlier, may be possible in small organizations, but is highly unlikely in large, global, multi-leveled systemic structures.

It could be argued, therefore, that the contingency model fails to clearly differentiate between organisational substructures, their individual deep structures as well as their systemic interdependence and independence, particularly in a global / local setting. The model also neglects to sufficiently recognize the prevalent dissimilarities between the socio-environmental strategic choices to which local organisational substructures and deep structures subscribe. Consequently, the questions raised by this study: whether, why or to what extent organisational contingency responses are heterogeneous or uniform, may not be answered satisfactorily.
Therefore, it is advisable to investigate the strategic choices and contingency responses of global organizations, across the global / local divide down to the lowest local substructure level. This more accurately explains how global organisational structures and particularly their local substructures and deep structures respond to local contingencies. Thus, the organisational cultural and behavioural factors and the concept of rapid continuous organisational change, as studied and analysed by contingency theorist, are expected to take on a wider and more precise analytical and empirical dimension, if examined in a physical and theoretical spatiality context. This will be particularly useful for subsequent research and the analysis of global / local systemic structures, local deep structures and their contingency responses.

2.7.2 Population -ecology and the diverseness of organisational structures

Population-ecology, quite distinctly from other organisational paradigms, invokes metaphors of biological theory such as natural selection, the cycle of birth and death and the survival of organisms in environments. Based on the Darwinian model of evolution, population-ecologists suggest that regaining equilibrium is achieved predominantly at the population level, rather than through individual organisational adaptation or change (Donaldson, 1995; Singh et al., 1986; Aldrich, 1979; Hannan and Freeman, 1977).

To explain disequilibria within and across populations, a number of different evolutionary models have been developed. The most prominent model suggests that organisational change occurs across populations driven by the "survival of the fittest" from a cycle of organisational births and deaths (McKelvey and Aldrich, 1983; Freeman, 1982; Hannan and Freeman, 1977). Other models point to change as being an evolutionary or metamorphic process, which takes place over different periods of equilibria. (Minzberg and Waters, 1982; Cameron and Whetten, 1983). Proponents of
the adaptation model emphasize relatively long periods of stability in which the most effective organizations of any given population adapt to environmental contingencies (Cameron and Quinn, 1999; Quinn, 1981; Kimberly and Miles, 1980).

There seems to be reasonable consensus among authors regarding organisational adaptation and change across populations. None of their models, however, present a conceptual perspective that provides significant insights into the evolution of organisational forms beyond the general birth and death paradigm. Furthermore, these models fail to sufficiently consider the evolutionary processes that result in interdependent, independent or semi-independent organisational substructures and deep structures. This is of particularly importance for the analysis of non-biotic global, multi systemic organisational structures across socio-environmental and socio-political boundaries. This failure gives rise to another unresolved problem in population-ecology namely, the classification of new organisational forms. Romanelli (1991) states, that these new organisational forms refer to the characteristics of an organization, identifying it as distinct entity whilst simultaneously, classifying it as a member of a specific organisational population. Recognizing this as a principle problem of any evolutionary theory, Romanelli (1991) and McKelvey (1982) therefore suggest the development of a reliable method to classify organizations in accordance with their similarities and differences. A basic problem of population-ecology, however, is to generalize organisational forms. This problem primarily arises because of the structural diversity of organizations, which disallows a clear-cut categorization of new, or any other organisational form. That is, the absence of genetic reproduction of organizations means that new forms of organizations are not faithful copies of successful previous generations. Additionally, organizations may merge or particular substructures may be divested to become freestanding independent or semi-independent substructures, but
still remain an integral part of a larger global organisational structure. It could be argued therefore, that future organisational typology will be determined by distinct systemic structures such as organisational divisions, groups, substructures and sub-units. This becomes particularly apparent if applied to organisational structures that evolve across the global / local divide. Here, organisational structures are inherently more complex and diverse than firms that fit neatly into their organisational population such as restaurants or petrol stations.

Organisational diversity particularly applies to complex global structures and their hierarchy of local substructures and deep structures. This demands that any classification and categorization of systemic structures recognizes and accepts each organization as a unique systemic structure. Furthermore, such an analysis requires the researcher to consider that the object of examination, although being of the same organisational "species", may not necessarily fit into its organisational group or population. As discussed earlier in this chapter, Pouder and St.John (1996) used the punctuated equilibrium model as their organizing framework to study the behaviour of competing firms that agglomerate in industrial centers. They found that the geographic locations in which the clustered firms compete are subject to evolutionary processes that differ from the overall industry evolution. Furthermore, external contingencies, which impact on populations inside the cluster, do not have an immediate effect on firms of the same "species" outside the clustered population. This therefore results in two separate evolutionary paths, one for clustered and the other for unclustered competitors (Pouder and St.John, 1996).

This model of geographic clustering supports the notion that spatially heterogeneous contingency pressure result in incongruent contingency responses. Thus, it is structural
diversity, systemic hierarchies and the earlier strategic choices made by organisational substructures, that determine whether individual members of the same organisational "species" fit their population. It is in this context that the structural diversity of individual organizations decides the pattern of competitive behaviour, organisational contingency responses and finally, how or when an organization changes.

These structural diversities no longer permit the researcher, particularly when investigating complex global / local organisational structures, to limit the analysis to assumed unified systems of organization that perfectly fit their population. Instead, one needs to establish a baseline on which global organisational structures, their local substructures, sub-units and deep structures can be grouped and comparatively analysed. The first step is to recognize that global organizations are loosely coupled systemic structures that are governed by negotiated authority and multiple rationality. Secondly, before organisational behaviour patterns and activities can be satisfactorily assessed, the researcher must develop an understanding of the local organisational structures, substructures and deep structures. This includes their histories, strategic choices and paradigmatic commitments, because these directly affect local substructure contingency responses. The analytical difficulty with these structural complexities is that individual organisational structures, their unique local substructures and multi-level deep structures are not so easily compared to other organisational structures.

Therefore, one needs to examine the evolutionary processes that result in the diverseness of local substructures, their interdependence, independence or semi-independence. This means that any successful examination of global / local systemic frameworks requires the analysis of organisational structures down to the lowest level of its elementary substructures. It is at this elementary level where physical and theoretical
spatiality is the most impacting. It allows local substructures and their deep structures to exert direct control over socio-environmental and socio-environmental contingency responses, thereby determining whether these are heterogeneous or uniform in relation to other substructure responses within the organisational structure.

2.7.3 A post-bureaucratic approach to traditional institutionalism

At the core of the institutional paradigm is the assumption that organizations are structured out of conformity with institutional norms, a process described by DiMaggio and Powell (1983) as institutional isomorphism. This deduces that organizations within the same organisational field increasingly resemble each other due to institutional and organisational pressure (DiMaggio and Powell, 1991b, 1983). Three main pillars, institutionalists suggest, underpin institutional isomorphism: coercive, mimetic and normative isomorphism. Coercive isomorphism assumes adaptation and organisational change to be a consequence of institutional pressures, whereas mimetic isomorphism refers to organizations that model their own structures on those institutionalized by institutional legitimation. Finally, institutionalists relate normative isomorphism to professional institutions or professional groups that provide legitimacy for their members through organisational standards and behavioural guidelines (DiMaggio and Powell, 1991a, 1983).

In recent years, however, a notable shift in the institutional literature occurred suggesting a conceptual re-assessment of organisational / institutional environments. Proponents of this "new institutionalism" re-focused their attention from the earlier notion of technical or task environments that emphasize customers, competitors, suppliers and regulators to institutional environments (Pfeffer and Selznick, 1978; Thomson, 1967). These “new” institutional environments, proposed by neo-
institutionalists, include overarching social forces such as norms, standards and stakeholder expectations (Davis and Powell, 1992; DiMaggio and Powell, 1991b, 1983; Perrow, 1986). Scholars supporting a multilevel analysis of organisational structures noticed a considerable diversity in organisational approaches and forms within these "new" institutional environments (Pettigrew, 1992; Gersick, 1991; Tushman and Romanelli, 1985; Miller and Friesen, 1984, 1980b). This indicates that change or adaptation occurs in diverse and multileveled institutional and organisational structures. Institutionalists, however, perceive organisational diversity as temporary, arguing that diversity in organisational approaches and forms is confined to the initial stages of emergent organisational populations. They believe that from this period of initial diversity a homogenized organisational population emerges (DiMaggio and Powell, 1983, Coser et al., 1982; DiMaggio, 1981).

Describing organisational diversity as temporary, however, ignores the multileveled nature of large global organisational structures and the continuous evolutionary process from which mostly stable local substructures, sub-units and deep structures emerge. The notion of limited organisational diversity can be traced to the mid 1960's when institutionalists viewed organisational structures as captives of the institutional environment in which they exist (Thomsen, 1967). Consequently, neo-institutionalists perceive organizations as unified systems of organization that individually embark on a convergent evolutionary path that finally leads to organisational isomorphism. In an attempt to contrast "new" institutionalism from the "old", DiMaggio and Powell (1991b:14) suggest that during periods of convergence "...not specific organizations, but merely organisational forms, structural components and rules are institutionalized". Organisational forms, structural components and rules, however, make up the very essence of any organisational structure. Change to only one structural component,
therefore, intrinsically changes the entire organisational structure. Furthermore, the institutionalization of particular forms, structures or rules in a select group of population members is most likely to prevent a coherent shift of individual organizations towards isomorphic organisational populations. Selective institutionalization as suggested by DiMaggio and Powell (1991b), therefore, would effectively disrupt the very process of institutionalization, thereby significantly limiting the most prominent theoretical proposition of institutionalism, the emergence of a homogenized organisational population.

Contrary to the predictions of institutionalists, structural diversity actually prevents the homogenization of organizations. Kraatz and Zajac (1996), for example, analysed the responses to institutional demands by private arts colleges in the United States. They found that colleges, over time, became less homogenous and failed to converge towards organisational isomorphism. Although coercive, mimetic, and normative isomorphic pressures were applied to diverse college structures, they generally did not mimic the more prestigious and already institutionalized colleges (Kraatz and Zajac, 1996). Consequently, structural diversity not only results in heterogeneous contingency responses to isomorphic pressures, but also prevents individual organizations to join homogenized populations. It appears that the overemphasis on organisational isomorphism by institutionalists underestimates the explanatory power of adaptation-based paradigms, especially in the context of multileveled organisational / institutional environment relations. This is particularly important when investigating global, multi systemic organisational structures and their contingency responses to institutional demands. A multilevel perspective should therefore be adopted that simultaneously investigates the institutional and organisational contexts in which change occurs (Fox-Wolffgramm et al., 1998). Further developing Greenwood and Hinings’s (1993)
research, Fox-Wolfgramm and her colleagues suggest, that by not adopting a multilevel analytical approach, little is learned about the patterns of change within the organisational and institutional environments. This, one may argue, will probably result in limited explanations of the potential causes of different modes of organisational adaptation and may shed little light on the reasons for heterogeneity in global organisational and local substructure contingency responses.

Considering these explanatory limitations, it appears that the institutionalists perception of organisational structures cannot be followed without qualification, particularly if global multi-systemic structures are analysed. It is preferable, therefore, to examine organizations not as carefully controlled and tightly designed structures, but instead, as loosely coupled multileveled systems or even anarchic multi systemic structures (Selznick, 1996). This appears to be particularly appropriate if global, multi-systemic structures and their relation to institutional environments are investigated. However, as Fox-Wolfgramm et al. (1998) point out, there is a notably limited number of empirical studies that use a multilevel analytical approach (e.g. Gioia and Thomas, 1996; Thomas et al., 1994; Meyer et al., 1994; Ginsberg and Venkatraman, 1992; Meyer, Brooks, and Goes, 1990). Therefore, adding to these few exceptions, subsequent research uses a multileveled analytical approach exploring how and to what extent a global / local organisational structure responds to institutional and local community demands.

The global multilevel organisational structure investigated by this study is therefore analysed from a post-bureaucratic perspective using the punctuated equilibrium paradigm as its organizing principle. In other words, organisational and institutional structures are not approached as unified systems of organization. Instead, its loosely
coupled and multilevel structures, substructures and deep structures are viewed and examined as systemic coalitions that are governed by multiple rationalities and negotiated authority (see Selznick, 1996; Gross and Etzioni, 1985; Weick, 1976). Weick (1976) initially introduced the concept of “loose coupling” arguing that organizations often prefer loosely coupled structures rather than tightly knit hierarchies. Rickson and Burch (1996) applied aspects of Weick’s (1976) concept of “loose coupling” to the strategic sourcing of farm products for processing by international corporations. They found that loose coupling in corporation / farmer relationships allowed agri-food companies to exert considerable control over farming processes, whilst simultaneously avoiding responsibility for the impact those processes have on factors such as soil quality and maintenance. Similarly, if loose coupling is applied to global industrial developers and local stakeholders directly affected by such developments, deeper insights into the distribution of socio-environmental responsibilities, costs and risks are to be expected.

2.8 Summary

Existing theory describes the various organisational responses to environmental contingencies, evolutionary discontinuities and institutional environmental demands. Different paradigms may be needed, however, for the study of complex, loosely coupled global / local organisational structures. The primary reason for diverting from the traditional approach is to more accurately answer the questions of heterogeneity and incongruity in global / local contingency responses. A different paradigm has also been chosen to arrive at a better understanding of how these incongruous strategic choices impact on local communities. A consequently merging of appropriate concepts of traditional organisational change models with those of the punctuated equilibrium paradigm is therefore proposed and used in subsequent research. This allows a more
detailed analysis of diverse global organisational structures and their interdependent but also independent substructures and multilevel deep structures. This paradigmatic combination is expected to provide a clearer picture of organisational multilevel strategic choices particularly if they are made in a global / local context.

Such a theoretical approach is expected to provide a useful interpretation of global / local organisational structures and their substructure responses to socio-environmental challenges. Contingency responses by loosely coupled systemic sub-units occur in a variety of methods and sequences as well as in varying timeframes. Local substructures of larger global organisational structures are therefore, expected to find their own specific solutions to local contingencies. If subjected to similar environmental circumstances, local strategic choices might nevertheless be significantly different from the deep structure choices of other substructures within the same global organisational structure. Despite responding to global organisational pressures in core areas of organization, local substructure contingency responses, particularly in the area of environmental management, are not decided globally. They are instead shaped and determined by local, loosely coupled multilevel systems and their deep structures, modifying and adjusting local contingencies even to the extent of contravening global policy.

Thus it is necessary to determine the most promising theoretical approach to assist in explaining the heterogeneous contingency responses of global / local organisational substructures. A traditional approach to adaptation and change would be to link environmental contingency responses to strategic choices, made by supposedly unified systems of organization, rather than by loosely coupled multilevel systems. Choosing a traditional approach to analyze multileveled and loosely coupled global organisational
structures, however, might not yield sufficient empirical results. Primarily because it seems highly unlikely that complex global organisational structures, in their response to either local or global environmental contingencies, change simultaneously or to the same extent at all their organisational levels. Equally questionable is whether any agglomerate of global / local organisational structures, substructures and multilevel deep structures respond and conform in isomorphic unison to institutional norms.

The hallmarks of a successful spatial heterogeneity analysis, therefore, are set to provide an insight into the question of industry / community relationship in eco-industrial developments. This includes three primary theoretical methods: a multilevel approach, a process orientation analysis and the examination of global / local complexities and constraints. A multilevel approach that is informed by a deep structure analysis is expected to provide a better understanding of complex global organisational structures. This is particularly the case if their contingency responses and strategic choices are made across the global / local divide. Furthermore, a multilevel analysis better explains the underlying realities of loosely coupled coalitions of substructures and local deep structures, particularly since they are driven by multiple organisational rationalities and are governed by different authorities (Weick, 2000; Selznick, 1993; Weick, 1976). A multilevel approach is not restricted by a organisational cosmology that views any systemic structure as a tightly controlled organisational singularity. Considering the nature of the subsequent research, it is more appropriate to approach global organisational structures, sub-units and deep structures not as unified systems of organization, but as loosely coupled systems of organization that have permeable boundaries which they control. The spatial heterogeneity approach further requires a process orientation analysis. This involves the examination of changing community demands and interests in an industrial development situation. This requires the analysis
of the evolution of local conditions that results from both the eco-industrial
development per se and equally from the dynamics of heterogeneous organisational
contingency responses. It is also important for a successful spatial heterogeneity
analysis to examine the complexities and constraints that directly affect the
transactional relationships of global organizations with local communities. The main
focus of this analysis is to establish whether or to what extent socio-environmental
issues are considered by multileveled global structures. Particular emphasis is placed on
the question whether local socio-environmental demands are part of contested technical
data, reports and expert advise. The primary aim of this approach is to establish why
technical reports and empirical data, produced by organisational and institutional
experts, are met with significant distrust and criticism by local communities. Finally, the
proposed theoretical methods for the spatial heterogeneity analysis are based on the
assumption that transnational organizations are not unified systems of organization.
Instead, global organisational structures are analysed as a conglomerate of loosely
coupled systems of organization that are guided by multiple rationalities and negotiated
authority (Selznick, 1993). Loose coupling, however, is viewed by this study not as
imperative but as a strategic organisational choice.

These global, loosely coupled systems and their multiple rationalities, if engaged in
local industrial developments, are forced to interact with local communities in response
to their socio-environmental demands. This dyadic engagement with the development
and locals requires transnational organizations to make local strategic choices. There is
little doubt that the primary purpose of these strategic choices is to restore effectiveness
and performance. Shifts in strategy and contingency responses are commonly viewed by
organisational change theorists as a catalyst for change. It is in this context that
variables such as organisational size, structure, strategy, decentralization and technology
are seen as the most significant causes for change. Consequently, they are the most frequently analysed and widely researched factors of organisational change.

Noticeably rare in the adaptation and change debate, however, is the study of socio-environmental and socio-political variables. This is particularly the case in relation to local industrial developments of the global cement industry that directly affect local rural and isolated farming communities. Since the examination of organisational change is predominantly concerned with the study of competition, innovation, effectiveness and performance, the subsequent chapter introduces socio-environmental contingencies to the organisational change debate. It will be apparent that organisational structures, substructures and their deep structures have little choice but to respond to social contingencies in order to maintain effectiveness and long term performance. A fundamental prerequisite for effective socio-environmental contingency responses is the development of participatory and collaborative structures. Therefore, to assure a successful spatial heterogeneity analysis an explanatory model of participatory strategies, which includes three general types of socio-environmental contingency responses is proposed in the following chapter.
Chapter 3

Theoretical Framework (Part Two)

The Triadic Principle of Socio-environmental Contingencies:
Community Values, Socio-Environmental Paradigms, Social Trust

3.1 Introduction

Part one emphasized that adaptation and change are concepts of fundamental interest to organisational theorists. The primary question arising from close examination of these issues is whether organizations are inertial or adaptive. Over the last three decades, scholars have defined organisational inertia as either inadequate adaptation (Hannan and Freedman, 1984; Christensen et al, 1978); as unqualified resistance to change (Hedberg et al, 1976; Blau, 1970); as hindrance to organisational evolution (Romanelli and Tushman, 1994; Gersick, 1994); or as adaptation that simply elaborates existing core policies (Eisenhardt and Tabrizi, 1995; Greenly and Foxall, 1997). However, most of these past studies analyze how organisational structures change, why they change and the consequences of these changes, primarily in relation to contingencies that derive from competition, product development, and innovation. Therefore, the theoretical and empirical scope of organisational change in these studies is largely restricted to corporate performance from a socio-economic perspective. Additionally, most traditional approaches to adaptation and change suggest that environmental contingency responses are made by supposedly unified systems of organization, rather than loosely coupled, multi-level systems that are governed by multiple rationalities and negotiated authority (Selznick, 1996, Gross and Etzioni, 1985; Weick, 1976).
A spatial heterogeneity analysis has been proposed for this study, which follows Gersick’s (1994) punctuated equilibrium paradigm and in particular her notion of organisational deep structure. The focus is on global / local complexities that result from heterogeneous and incongruous environmental contingency responses. To overcome the inherent theoretical and analytical problems, and to adequately respond to the unanswered questions that arise from heterogeneous contingency responses, four methods of analysis have been already suggested in the preceding Chapter. These are: a multilevel approach; a process orientation analysis; the examination of complexities and constraint; and a participatory and collaborative structure analysis. The inclusion of Simon’s (1996) concept of hierarchic systems and Wollin’s (1999) notion of the multilevel ordering of a system’s multi-dimensional deep structure is particularly important for the development of this analytical approach. These approaches extend Gerick’s (1994) earlier multi system deep structure analysis. The successful development of an explanatory model of participatory strategies, however, requires the additional inclusion of three general types of socio-environmental contingency responses:

- the inclusion of community value positions into local subsystems and their deep structures;
- the adoption of strategic and paradigmatic choices that move beyond simple regulatory compliance and participatory symbolism; and
- the development of a climate of social trust, to assure ecodemocratic community participation and collaboration in industrial developments.

Subsequent research points to the latter as the primary determinant for the success or failure of the preceding socio-environmental contingency responses. It requires a more
detailed analysis, however, to better understand the significance of creating a contextual framework for social trust, in which community stakeholders can develop and maintain a continuous dialogue. Therefore, after briefly introducing some trust issues in this Chapter, the following Chapter 4 offers an in-depth study of the social role of trust in relation to participatory strategies and collaborative structures.

However, the introduction of socio-environmental contingencies to the organisational analysis attempts to expand the theoretical and empirical scope of the organisational change debate. Community and organisational value and belief systems directly affect structural contingency variables, particularly technology and strategy. They are, however, largely absent in organisational analyses (Swanson, 1999; Schein, 1996). Therefore, for the remainder of this chapter, the analysis is focussed on socio-environmental contingencies such as environmental value and belief systems; environmental paradigms and ideologies and ecodemocratic community dialogue and participation. These socio-environmental contingencies not only point to a particular view on sustainability, but equally importantly describe an overarching environmental / socio-environmental paradigm to which global organizations and its local subsystems must subscribe to assure congruent and effective contingency responses. However, in a global / local organisational subsystem setting different perceptions and interpretations of local socio-environmental contingencies are particularly frequent, leading to incongruent strategies and consequently to heterogeneous local contingency responses. Two fundamental questions emerge from such a scenario. Firstly, what is the extent to which local socio-environmental contingencies are legitimized by global systems and secondly, to what extent are socio-environmental contingencies included into local subsystem and sub-unit decision-making, as well as into strategic deep structure choices?
3.2 Community Values

3.2.1 Legitimizing Community Value Positions: A Precondition for Effective Socio-environmental Contingency Responses

Although central in environmental controversies, the importance of including different environmental values in the decision-making process is yet to be fully recognized by industry. Organisational structures and their deep structures continue to reflect a view, largely ignorant of the role individual and community values play in environmental disputes. The underlying reason for tensions in environmental decision-making is the widely held belief by industry technocrats, particularly at the subsystem and sub-unit level, that environmental conflicts are driven by disputes over economic, technical, financial or ecological facts, rather than competing value positions (White, 1970). The natural environment, however, is more than simply an objective fact, the environment is instead “experienced”, and thereby given a social and cultural meaning (Cotgrove, 1982). Thus, social experience and socialization organize community perceptions about the environment and its natural resources. Therefore, there can be no thoroughly objective perception of the environment, only distortions that vary with experience and personality (Festinger, 1964, 1957).

There is a considerable body of literature concerned with the relationships between beliefs, values, and behaviour. This provides a key to understand why people differ in their perception of environmental issues. For example, as early as the 1950s Rosenberg (1956) suggests that a person’s evaluation of an object is strongly related to individual expectations or beliefs that the object is consistent with the values and goals to which an individual may subscribe. Similarly, Fishbein (1963) argues that a person’s assessment of an object is strongly related to the total set or pattern of his/her beliefs about an
object. Rosenberg’s and Fishbein’s analyses imply that individual values, attitudes and beliefs informed by socialization and socio-environmental constructs such as politics, economics, science and religion are numerous and diverse. Therefore, social action, whether the action involves political, socio-economic or cultural activities, is directed by these individual attitudes and belief systems (Kreich et al, 1962). For example, if applied to the realities of eco-industrial development it could be argued that individual value positions, which determine the choices in behaviour and action towards the industrial exploitation of non-renewable resources also guide social action for or against such a development. Improved predictions by industry professionals about individual behaviour and action choices in relation to industrial development projects seem unlikely, if these socio-environmental and socio-psychological phenomena are ignored.

Development engineers and industry technocrats might regard these socio-environmental complexities as beyond their responsibility or competence, particularly if these experts maintain a strong professional identification. This could have significant consequences for environmental decision-making for two reasons. Firstly, because professional perceptions, preferences and value positions become the implicit determinants of plans that are presented for public choice (White, 1970). Secondly, this would force individuals into attitude / behaviour inconsistencies if their value positions differ from those supporting industrial development. Significant and sustained resistance, rather than lateral or strategic movement is therefore to be expected. The theoretical underpinning for this argument can be found in various theories known collectively as “consistency theories” (Freedman et al, 1970; Festinger, 1957; Heider, 1944). Based on Fritz Heider’s (1944) earlier work, Leon Festinger’s (1957) theory of cognitive dissonance suggests that there should be consistency between cognitive elements, whether they refer to values, attitudes or behaviour, because inconsistencies
between them will give rise to cognitive dissonance (see also Ajzen and Fishbein, 1980; Heider, 1958). If the inconsistency between cognitive elements persists because of competing eco-industrial motives and conflicting corporate and individual value positions, individuals may be forced to behave contrary to their value and belief systems.

There is consensus in the literature that if confronted with such a scenario, individuals will try to eliminate dissonance by re-establishing a mental and emotional equilibrium between discrepant cognitive elements (Fishbein and Ajzen, 1975; Kiesler et al, 1969; Abelson et al, 1968). Consequently, to regain equilibrium and to eliminate the dissonant state, the individual will either change attitude or behaviour (Ajzen and Fishbein, 1980; Fishbein, 1963). Therefore, to assure successful industry / community relationships in eco-industrial developments, it is of vital importance for organizations to know whether local communities affected by industrial development are actually in a state of dissonance or equilibrium. This awareness must be acquired as soon as the planning and decision-making process commences. Knowledge about the level of cognitive dissonance among community members primarily determines the appropriateness of organisational and subsystem contingency responses.

In more recent literature, scholars extend these earlier accounts of consistency theory by pointing to the importance of congruence between individual and organisational value systems (Schein, 1996; Hoffman, 1993; Posner and Schimdt, 1992; Denison, 1990; Wiener, 1988). Most of these authors agree that the alignment of individual and organisational value and belief systems is intrinsically linked to corporate success. Therefore, in the context of global / local industrial developments, global organisational structures and their local subsystems are forced to appropriately respond to local
societal value and belief systems. These organizations and their local subsystems jeopardize effectiveness and long term success, if these local values and beliefs are ignored. Additionally they can hardly expect loyalty from their own members, because of continuous cognitive dissonance. They may also fail to find support from government agencies or the wider community for the same reason. As a consequence, these organizations forego their chance of achieving excellence in organisational performance (Wiener, 1982). Thus, if incongruity between organisational and community value and belief systems persists, local communities and other local interests are more likely to enforce legal and socio-political sanctions. Local people usually pursue such a legal approach in an attempt to eliminate the inconsistencies between their value choices and the conflicting “object” (e.g. the industrial development which directly impacts on their lives). If the industrial developer ignores incongruity between community and organisational value and belief systems, legal and political sanctions are almost inevitable. This is despite the efforts of subsystem managers seeking to maintain a complex network of commitment and relationships with local communities (Romanelli and Tushman, 1994).

The fundamental interaction between industry professionals and the lay-public is predominantly socio-environmental, although this is not a view shared by the majority of industry technocrats. For example, disputes which arise from incongruent industry / community value and belief systems and the inevitable heterogeneous contingency responses, are often sought to be eliminated by the exclusive or extended application of technical knowledge or by industry prescribed techno-economic solutions. However, to maintain effective community relations operational management and development engineers particularly if acting on behalf of local organisational subsystems, must add socio-environmental issues and complexities to their repertoire of strategic choices.
There is a widely held belief among industry practitioners that finding solutions to socio-environmental problems generates at best a “feel good” experience. This was illustrated at the "Leadership 99 Conference" held and organized in Queensland, Australia, by a major global cement manufacturer. The vast majority of senior and operational managers at the conference regarded social and cultural issues as of little or no importance. Only one of eight focus groups ranked social issues and corporate social responsibility as of medium or high importance. Although most of the participating industry professionals recognized the importance of industry/community relations in an industrial development context, the role and significance which socio-environmental issues play in these relationships seemed to be either misunderstood or misinterpreted.

The most plausible explanation for such misinterpretation is that their technical and managerial training fails to fully recognize that socio-environmental complexes are a major determinant for the long-term success of industrial developments. Thus, if global organisational structures as well as their independent or semi-independent local subsystems do not legitimize socio-environmental contingencies, such as community value and belief systems, ineffective contingency responses are almost certain to follow. It is therefore imperative for planning and development professionals to acquaint themselves with the different value frameworks to which stakeholder subscribe. Furthermore, these industry practitioners need to acquire a solid understanding of these value positions from the earliest stages of planning and decision-making, otherwise costly disruptions and delays to the development process may occur.
3.2.2 Distorting Community Value Questions: Dominant Ideological Norms and Techno-Economic Language

The exclusion of individual and community value positions by organisational subsystems and deep structures, and consequently from their planning and decision-making, has fostered an atmosphere of distrust and suspicion by the public. Recent research suggests that 68% of Australians have no trust in industry to solve environmental problems (Papadakis, 1996), and only 21% regard industry to be a reliable source of environmental information (NSW EPA 1994). Industry, however, distrusts individuals and communities critical of industrial developments, by largely disregarding their positions and value systems as irrelevant or less legitimate. Nevertheless, there are primary values that are “…shared by all reasonable people because their common humanity renders some things harmful and others beneficial”, but there are equally important secondary values that vary with individuals, societies and historical periods (Kekes, 1993:9). This suggests that community and corporate environmental value systems are not static. Instead, the dynamic nature of these value positions is amplified by the continuous metamorphosis of societal attitudes towards the natural environment. These changes, primarily generated by new scientific insights, socio-political debate and regulatory restraint, produce increasingly complex and highly organized environmental value positions.

This raises the question of negotiated interests and legitimization. Community and corporate value positions, for example, are intrinsically linked to the complexities of environmental problems and to the socio-political system in which they occur. The selection and legitimization process of these values is driven by the dominant ideology and its socio-environmental, economic and political interpretations and explanations.
This type of legitimization, Habermas (1976:112) argues, is a “…ideological form of justification, which either asserts or counterfactually supposes the generalizability of interests that is dominant”. Therefore, the legitimization of value positions in the context of environmental complexes consists of interpretations that are designed to assure the validity claims of the dominant ideological norm. The consequences of validating dominant norms are continuous. It follows that strategic choices that are based on previous dominant ideological norms will guide future communication and decision-making structures. For example, by exploiting normative structures which originate from previous socio-political systems and by simultaneously extending the use of technically exploitable knowledge, organisational and institutional experts systematically limit communications with local communities in disputes. Organisational substructures and institutional agencies are thereby forcing themselves, as well as local communities, to live with the legacy of earlier ideological norms and strategic choices.

These communication deficiencies are grounded in an “expert” ideology that translates individual and community value questions into techno-economic language. Individuals and particularly local communities affected by industrial development are increasingly inclined, however, to question technical expertise and its adequacy as a basis for environmental decision-making (Nelkin, 1977). This rift in communication is the consequence of two opposing language systems: 1) an assumed “objective” language that is used by organisational and institutional experts to emphasize information with technical underpinnings and utilitarian aims; and 2), a “subjective” language commonly used by individuals and local communities ostensibly revealing their value and belief systems (Naess, 1986). It is in this context that Habermas (1979) argues that science and technology are the main sources of "distorted communication" that prevent political consensus. Similarly, Brown (1987) suggests that “fact-value” questions are
intrinsically embedded in environmental questions. They are systematically distorted and hidden by the language system of technical experts which consequently prevents environmental consensus. At the center of translating environmental complexities into the language of technical experts is the assumption that environmental problems can almost exclusively be solved by technical means. By denying the importance or even the existence of socio-environmental and socio-political solutions technical experts attempt to separate “facts” from “value” positions, thereby preventing stakeholders from dealing with the value dimensions of industrial developments (Braun, 1987; Pepper, 1984).

**Separating Facts and Values in Techno-Economic Decision-Making**

The difficulties, or rather impossibility of separating “fact” and “value” issues from the planning and administrative process is discussed in some detail in a discussion paper on ethic, science and value systems presented by Brown (1987). This is best described by example. Although value choices are rarely identified in the technical process, they are, however, present in terms of techno-economic decision-making. The decision to use resources in the most efficient way appears to be a sensible and purely economic decision. However, by choosing this particular economic behaviour the technical analyst effectively assumes a utilitarian value position. Efficient economic behaviour is commonly affiliated with the concept of market efficiency. The underlying doctrine of both concepts is utilitarian, suggesting that conduct should be directed towards the promotion of the greatest good for the greatest number of people. By adopting the economic behaviour prescribed by its economist, the global industrial developer acts on prior value choices that might maximize utilitarian benefits at the global, national or regional level. However, these may reduce the socio-environmental and environmental

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1 The examples, modified to fit this analysis, are based on ideas from Brown (1987).
utility for individuals and the community at the local level. Consequently, the techno-economic decision to proceed with a development project has a “factual-economic”, as well as a hidden “value / belief” component (Brown, 1987).

The utilitarian value positions held by technical analysts and industry professionals are most likely to contrast local environmental and socio-environmental value systems. Thus, technical analysts attempt to separate techno-economic facts from individual or community value positions, in order to present these facts to the approving government agencies in conformance with regulatory and legal values and norms (Pepper, 1984). The value formula given by the regulator, however, is based on secondary values that vary with the emergence of new scientific insights, local community values and changing socio-environmental norms (Kekes, 1993). Regulatory norms are therefore the consequence of a reactive response to new scientific evidence and changing community values. It is in this context that techno-economic facts that comply with current regulatory values lag behind scientific reasoning and changing community value systems (Broom, 1992). There are three underlying strategic consequences that result from separating techno-economic facts from community values. Firstly, the separation of facts and values is most likely to prevent organizations from moving beyond regulatory compliance. Secondly, mere compliance to regulation hinders organizations and their subsystems from adequately responding to current community values and demands. Thirdly, it prevents organisational structures from controlling the pace and level of their environmental performance. Although a simplified utilitarian description it nevertheless shows that value questions are embedded in economic considerations and are frequently questions of value positions and belief systems, not of fact (Brown, 1987).
The limits of cost-benefit analysis and risk management in dealing with community value and belief systems

Another way of distorting value positions and belief systems is by cost-benefit analysis. The underlying assumption in cost-benefit analyses is that value and belief systems are nothing more than subjective preferences. Value claims, however, can objectively be judged and categorized as sound or frivolous. The weakness of cost-benefit analysis as a decision-making tool is that, although it can compare the expense of a proposed industrial development with potential savings and increased benefits, it cannot evaluate whether a value claim is socially and culturally tenable (Braun, 1987). Cost-benefit analysis is a useful efficiency mechanism answering the questions of what will it cost and what is the return on investment. However, it is important for industry to recognize that cost benefit analysis is significantly limited if value and belief systems are ignored. For example, based on individual value positions the rights of individuals and local communities to be protected from the long term consequences of, for instance, cement production and limestone quarrying may be greater than the utility of such protection recognized by an efficiency driven market (Brown, 1987). Questions of value and belief therefore cannot be explained, analysed or understood solely from an economic and market efficiency perspective.

Value and ethical questions can also be hidden or distorted by risk assessment studies. Risk assessments can be seen as localized assumptions, which are based on risk comparisons that are central for responsible environmental decision-making. The development of a local quarry or cement production plant, for example, is usually considered an acceptable risk if regulatory requirements are met. Corporations, however, with both national and international facilities, have a social responsibility beyond the local level. A small numerical risk may influence local governments to
expose a limited number of people to the consequences of greenhouse and/or other gas emissions if the emission guidelines conform to local regulations or better still are voluntarily surpassed by the operator. However, if the local risk is added to the risks of all other national or international production facilities that operate at the same time, then the number of people affected, the level of emissions and the associated risks all increase significantly. Emission controls might be exceptional locally and perhaps nationally but may be lacking quality and commitment in countries where regulatory requirements are non-existent or substandard.

Risk assessment studies may therefore distort wider global values and beliefs if evaluated in isolation. A risk accepted locally may not be acceptable globally, because a far greater number of people, as well as the global environment, will have to bear the consequences of additional local emissions. Therefore, before arriving at an informed decision locally, existing global emission levels must also be considered. For example, by only informing local communities about the environmental risk of local emissions while excluding existing global emissions, local risk assessments distort the actual emission levels and impacts generated by the industrial developer globally. Consequently, local communities would be prevented from having accurate insights into the global consequences of additional local emissions. An increase in local emissions may not be accepted by local interest groups if they believed that the global greenhouse contribution of the developer would reach unacceptable emission levels by even the smallest additional tonnage emitted locally. Therefore, it can be assumed that if local communities recognize the limitations of local risk assessments it will influence their future socio-environmental and environmental choices.

3.14
3.2.3 Community Values, Local Wisdom and the Political Economy of Expert Knowledge

There are a number of important issues arising from the traditional practices of separating techno-economic facts from community values, from distorting values by cost-benefit analyses, or by hiding wider value and belief questions via risk assessments. The failure by organisational deep structures to legitimize community values and to deal with community/industry value differences has a particularly limiting effect on analysing socio-environmental complexities in relation to industrial developments. Although it is necessary to fully understand environmental disputes, most industry practitioners, development engineers and their colleagues from the "hard" sciences are nevertheless more than reluctant to examine industry rationales and technical knowledge issues in a socio-environmental and socio-political context. The primary source of this problem is the nature of socio-environmental data, deemed by industry professionals, engineers and technical experts to be uncertain and therefore empirically risky (Harding, 1998). Based on this assumption, development engineers are particularly cautious to use socio-environmental information or distribute it amongst their peers, government agencies and industry professionals. These engineers are fearful that their “hard science” credibility may be questioned (Latin, 1992). The failure by engineers and technical experts to legitimize community value positions, however, significantly contributes to environmental and natural resource conflicts. With the emergence of new disciplines such as environmental engineering, approaches toward community value issues by engineers may change significantly in the future.

However, most techno-scientific inquiries, on which traditional business practices rely, are still predominantly reductionist. Environmental problems require, instead, a holistic
approach that recognizes the interconnectedness of technical and community values as an intrinsic element of environmental problems (Knudtson and Suzuki, 1992). There is little doubt that the most relied upon and trusted form of knowledge in industrial and governmental decision-making is "expert" knowledge. Harding (1998) suggests, that including the community value dimension of “local” knowledge into scientific inquiry would significantly increase the accuracy of assessing and interpreting local conditions, thereby providing a more solid information baseline. Furthermore, incorporating local knowledge and community value positions into expert knowledge structures would provide a better grounding for abstract information, as well as additionally reducing uncertainty (Alexandra et al, 1996). Based on the accumulated experiences of previous generations, local communities are particularly aware of local conditions and processes. Therefore, utilizing such a knowledge base would provide prior insights into local conditions thereby complementing data collection and possibly directing further research. It additionally transfers some decision-making control to communities directly affected by industrial development. The inclusion of locals into the inquiry process is particularly advantageous. If people are allowed to participate in developing and preparing plans that directly affect their lives, they tend to support them. Researchers agree that such an approach reduces opposition, enhances public confidence and increases the acceptability of the final decision (Sarkissian et al, 1997; Alexandra et al, 1996; Social Impact Unit, NSW, 1991). The inclusion of local knowledge into scientific inquiry, therefore, establishes a broader and more accurate baseline of information, as well as additionally assuring a socially aware form of scientific inquiry.

Industry professionals, engineers and technical experts must have some insight into the sociology of science in order to adequately deal with socio-environmental contingencies and industry / community value differences. There is an extensive literature concerned
with the sociology of science and the development of scientific knowledge. Popper's earlier works on falsification (Popper 1972a, 1972b, 1963), Kuhn's (1972) critique of the traditional views on the progress and history of science, and Feyerabend's (1978, 1975) claim that there is no methodological rule in science, have been superseded by Merton's (1973) approach to the sociology of science. Merton (1973) represented the emerging tradition in this field. More recent post-Mertonian texts point to the social construction of scientific knowledge, particularly emphasizing the commercial and political motivations of development engineers and technical experts in relations to environmental disputes (Yearley, 1995; Collins and Pinch, 1993; Knorr-Cetina and Mulkay, 1983). It is in this context that the stakes in environmental and eco-industrial development disputes are particularly high. The role of development engineers, scientists, and industry and government experts are therefore best analysed from a political economy perspective (Jakku, 1998). This approach not only points to the apparent links between science, industry and government agencies, but also to science as being an inherently political activity that is closely linked to industry and governmental power relations and funding priorities (Cozzens and Woodhouse, 1995; Schwartz, 1996; Yearly, 1988).

Although primarily required to provide details on specific technical issues, development engineers and scientists involved in industrial development disputes are not immune to broader socio-environmental, political and historical pressures. Therefore, defining a local environmental problem and the decision on what actually constitutes a problem is not simply the total of expert opinion about the physical environment. It is also the result of socio-environmental, socio-political and historical phenomena. As argued previously, environmental conflicts are not solely driven by disputes over technical and

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2 For a detailed analysis of the sociology of science and in particular the role of science in environmental disputes see Jakku's (1998) Science and advocacy in environmental disputes: boundary-work in the Magnetic Keys marina development.
economic facts, instead, the environment is "experienced" thereby giving a social and cultural meaning (Cotgrove, 1982). This not only points to the importance of environmental values in eco-industrial development disputes, but also implies that these disputes are not restricted to simple physical and technical realities. They are instead socially constructed through the social and political interactions among stakeholders. In an industrial development, for example, stakeholders from industry, government and communities negotiate the meaning of the environment. These negotiations are driven by the values held by the different participants. The dominant political paradigm to which the most powerful stakeholder subscribe, defines the environment, decides what constitutes a problem and consequently decrees whether it poses a threat to that environment.

Therefore, disputes about eco-industrial developments may be seen as a contest between the values held by local people affected by development and wider political and economic priorities (Greider and Gerkovich, 1994). These disputes have little to do with expert interpretations of techno-environmental problems or whether the disputants accept the solutions offered by engineers and scientists. Instead, stakeholder from either side of the spectrum attempt to use technical expertise as a political tool to legitimize their value claims, as well as to control the terms of the debate (Nelkin, 1987).

Consequently, it is inevitable that technical experts engaged in development disputes are drawn into the socio-environmental and political sphere and are exposed to social manipulation and political control. Additionally, as environmental problems become more complex they are increasingly required to provide advice that is not strictly scientific. The technical expert will have already realized that defining a local environmental problem goes beyond technical reasoning. It depends to a significant
extent on socially determined factors such as the intrinsic environmental, socio-environmental and economic worth of a local area. Such intrinsic worth cannot be determined by technological opinion alone, but by the interpretations and values held by different groups of local people whose lives are affected by industrial development (Harding, 1998).

Stakeholders often see engineers, scientists and technical experts as "problem solvers". These professionals, however, do not solve problems, they make choices between options for developing resources in response to a need, in the face of significant uncertainties and gaps in knowledge (Institution of Engineers, Australia, 1990). It is not uncommon in industrial development disputes for stakeholders to expect too much from the technical advice of engineering professionals. Partisan stakeholders see their technical opinions and reports as crucial political resources supplying a ready weapon to justify and legitimate their particular claims. Technical summaries and conclusions are occasionally not seen as what they really are, namely, a very limited attempt to solve environmental problems in a complex, socio-environmental, political and historical setting. Although of decisive significance, social, political and cultural complexities are largely misunderstood by technical experts and therefore usually ignored. Industrial development disputes, however, cannot be solved by technical expertise alone. The reliance on expert opinion and solutions that exclude socio-environmental, political and historical complexities will most likely result in an ongoing dispute that is increasingly difficult to resolve.
3.3 Socio-Environmental Paradigms

3.3.1 Paradigms, Ethics and the Spectrum of Environmental Ideologies

The preceding analysis demonstrates that the failure to include different value positions into organisational deep structures and into the process of technical knowledge development results in ineffective contingency responses. Moreover, if organisational and institutional experts remain unprepared to deal with local values and beliefs, industry and government agencies will be confined to techno-economic reasoning. The development of alternative socio-environmental solutions to socio-environmental problems is therefore difficult to achieve. The analysis of individual and community values to assess whether these are based on the “light green” or “dark green” end of the environmental spectrum (Beder, 1992; O’riordan, 1990), or whether they originate from outside the bounds of rational discourse, leads to a fundamental question. What are the distinguishing factors of socio-environmental and community value dimensions? The most plausible answer lies in the environmental ideologies and paradigms to which local communities and other stakeholders subscribe. Therefore, effective socio-environmental contingency responses need to be formulated using technical and biophysical knowledge about local environments. They also need to be driven by an understanding of the different environmental paradigms and underlying ideologies on which local values are based. Consequently, to be successful, environmental planning and decision-making must include the most important aspect of local value dimensions, namely, that of community involvement, which allows locals to participate in managing local natural resources in a sustainable and environmentally sound manner (see Upreti, 1994).

It was previously established that, attitudes towards the environment are not static. Individuals and local communities may vary in their outlook to environmental issues or may even completely change their positions. Such attitudinal inconsistencies have their
origin in new scientific insights, changing public concerns about industrial developments and increased environmental awareness (Barrow, 1995; O’Riordan, 1991). Therefore, individual and community value positions are determined by constantly changing demarcation lines because these are grounded in either the dominant social paradigm, its greener alternative or in a combination of both. Effective socio-environmental contingency responses necessitate that organisational and institutional deep structures acquire an astute awareness of local value and belief systems. There seems to be little doubt that a clear understanding of these local value and belief structures assists in monitoring trends and sudden shifts in local values. Such knowledge, however, takes on a far greater significance considering that those community values and beliefs fundamentally influence the construction of local socio-environmental realities that may or may not support industrial development.

Catton and Dunlap (1978, 1980) advanced a “new ecological paradigm”, at the then cutting edge of environmental sociology. They emphasize the influence and impact of community values on the social construction of reality. They further suggest that technologies and social structures are intrinsically linked and constrained by the natural environment (Catton and Dunlap, 1980; Dunlap and Catton, 1979). More recent works such as Pearce et al, (1993), O’Riordan (1991), and Cotgrove (1982) are based on Catton and Dunlap’s pioneering work in this field. These authors agree that although some movement along the spectrum of environmental ideologies towards a “greener” position can be observed, the pendulum, however, stopped far short of industrial ecocentrism. The question of whether managerial behaviour in eco-industrial developments may be more effectively altered within the dominant social or traditional managerial paradigm or any of the alternative ecological paradigms is further discussed in the balance of this chapter.
3.3.2 Changing Paradigmatic Perceptions and Interpretations

The continuous interaction between social and natural systems not only influences perceptions and interpretations of social and natural phenomena, it also challenges society’s dominant beliefs (Pearce et al, 1993; O’Riordan, 1991; Milbrath, 1989). Consequently, new scientific discoveries, growing environmental awareness and changing interpretations of socio-environmental and natural environments influence dominant beliefs. They also shape emergent alternative social and environmental paradigms and their underlying ideologies. Confronted with changed socio-ecological conditions and the realization that industrial developments are not exempt from ecological and socio-environmental constraints, environmental sociologists increasingly challenge the assumed dominance of techno-economic reasoning. They further remind modern industrial society, and in particular industry professionals, that industrial activities cannot be separated from the socio-environmental structures that maintain local communities or from the ecosystems that support human and non-human life (O’Riordan, 1991; Cotgrove, 1982; Catton and Dunlap, 1980). The fundamental question arising from this is: how should organisational deep structures respond to local communities and their natural environment, when both are affected by eco-industrial developments. The emerging difficulty is that a myriad of contrasting values and beliefs shaped by culture and social experience may be in conflict with environmental or socio-environmental problems. For example, socio-environmental and environmental impacts of industrial developments may be considered by local communities as significant, whereas technical experts and industry professionals might classify these disruptions as acceptable.
Incongruous value positions and the refusal by organisational subsystems to legitimize and include community values and beliefs into their deep structures are at the core of most development controversies. Thus, expert advice and technical knowledge is increasingly challenged, because it usually excludes community values and beliefs. Consequently, technical expertise and knowledge are widely perceived by local communities as being captured by the dominant ideology and its political and economic priorities. As previously argued the core issue for professionals is the legitimacy and credibility of their technical knowledge and expertise (Gieryn, 1999; Hannigan, 1995; Greider and Garkorich, 1994; Wynne, 1992). Professionalism, however, implies specialization, therefore, most specialists and experts are reluctant to accept the opinion of locals who they regard as “uninformed”. The most promising way of overcoming the apparent mutual distrust between local communities and organisational experts lies in a participatory approach. That is, a sustainable mix of techno-economic and socio-environmental capital, which is based on value consensus. This, however, may only be achieved by firstly, integrating local community values and knowledge into local subsystem deep structures. Secondly, by including local people into the planning and decision-making processes and thirdly, assuring the local socio-environmental equilibrium by accepting socio-environmental and environmental responsibility. To provide an appropriate theoretical framework for this participatory approach a number of traditional and alternative ecological paradigms are introduced in the following analysis. Particular emphasis is placed on the question of how global and local organisational deep structures can modulate their techno-economic priorities by subscribing to one particular or a combination of paradigms. The choice of paradigm is of particular importance because it determines the socio-environmental and socio-economic welfare of those directly affected by eco-industrial development.
3.3.3 The Emergence of Alternative Paradigms

In the late 1960s and early 1970s an extensive literature emerged discussing the causes of environmental degradation. Particularly prominent is Ehrlich's (1968) work on overpopulation, in which he links unfettered population growth with environmental degradation. Hardin's (1968) "The tragedy of the commons" discusses the effects of capitalist and free enterprise on common property resources and was seen by Hardin and Baden (1977) as well as Weisberg (1971) as the main reason for reckless and excessive environmental exploitation. However, White (1968) argues that the primary cause of environmental degradation and abuse is the Judeo-Christian tradition, in which man was appointed to be the "master" over all creation. These early accounts and the continuing debate about the primary causes of environmental degradation and the possible emergence of an ecological crisis encouraged Catton and Dunlap (1978, 1980) to develop a new environmental paradigm. Catton and Dunlap (1980) state that new ecological conditions require a paradigmatic rethink, because the widely accepted dominant social paradigm prevented communities and their organizations from recognizing the socio-environmental significance of the new ecological realities. Thus, Catton and Dunlap proposed an alternative paradigm countering those that favour the institutions and practices of an unfettered market economy.

The new ecological paradigm (last column, Table 3.1) rejects the dominant and anthropocentric western worldview paradigm, primarily because it has no ecological credibility and is overly optimistic. It similarly refutes the human exemptionalism paradigm since it reflects the same inherent optimism and belief in endless socio-economic progress as the traditional paradigm. Therefore, it could be argued that those organisational deep structures subscribing to the dominant western worldview paradigm and/or the human exemptionalism paradigm continue to view environmental problems
as if industrial developments were exempt from socio-environmental constraints. Industrial developments, however, not only result in local ecological crises, they also cause socio-environmental and socio-economic disequilibria to be endured by local people whose lives are directly affected.

Table 3.1: Comparison of Major Paradigmatic Assumptions

<table>
<thead>
<tr>
<th>Assumptions about the Nature of human beings</th>
<th>Dominant Western Worldview (DWW)</th>
<th>Human Exemptionalism Paradigm (HEP)</th>
<th>New Ecological Paradigm (NEP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>People are fundamentally different from all other creatures on Earth, over which they have domination</td>
<td>Humans have cultural heritage in addition to (and distinct from) their genetic inheritance, and thus are quite unlike all other animal species</td>
<td>While humans have exceptional characteristics (culture, technology, etc.), they remain one among many species that are interdependently involved in the global ecosystem.</td>
<td></td>
</tr>
<tr>
<td>Assumptions about social causation</td>
<td>People are masters of their destiny; they can choose their goals and learn to do whatever is necessary.</td>
<td>Social and cultural factors (including technology) are the major determinants of human affairs.</td>
<td>Human affairs are influenced not only by social and cultural factors, but also by intricate linkages of cause, effect, and feedback in the web of nature; thus purposive human actions have many unintended consequences.</td>
</tr>
<tr>
<td>Assumptions about the context of human society</td>
<td>The world is vast, and thus provides unlimited opportunities for humans.</td>
<td>Social and cultural environments are the crucial context for human affairs, and the biophysical environment is largely irrelevant.</td>
<td>Humans live in and are dependent upon a finite biophysical environment which imposes potent physical and biological restraints on human affairs.</td>
</tr>
<tr>
<td>Assumptions about constraints on human society</td>
<td>The history of humanity is one of progress; for every problem there is a solution, and thus progress need never cease.</td>
<td>Culture is cumulative; thus technological and social progress can continue indefinitely, making all social problems ultimately soluble.</td>
<td>Although the inventiveness of humans and the powers derived therefrom may seem for a while to extend carrying capacity limits, ecological laws cannot be repealed.</td>
</tr>
</tbody>
</table>

Source: Catton & Dunlap (1980).

The traditional and the exemptionalism paradigms both seem to indicate that human affairs are paramount, thereby rendering the biophysical environment largely irrelevant.
In response to this assumption, the new paradigm rightly points to the finiteness of the biophysical environment, which imposes potent physical and biological restraints on human activities.

This points to the intrinsic dependency of humans on the natural environment (e.g. land, air, water), as well as suggesting the possible destruction of social and cultural life if the natural world is unduly stressed by human or industrial endeavor. Thus, Catton and Dunlap’s new ecological paradigm points to an ecological / human complex that indicates a functional interdependence between social structures, organizations, technology and the biophysical world. Local communities and their social and cultural life are intrinsically linked to this intricate web of cause and effect. Thus, any threat to the capacity limits of the natural environment equally threatens the socio-environmental and socio-economic fabric of local communities. Organisational subsystems and their deep structures are forced to rethink their previous managerial strategies and paradigms so that they can effectively respond to these socio-environmental contingencies.

Theoretical support for a strategy rethink from Catton and Dunlap’s paradigmatic analysis, however, may have its limitations. Their alternative is primarily based on only two basic assumptions. Firstly, traditional paradigms are seen as flawed and therefore need replacement and secondly, the new ecocentric paradigm is offered as the only option to restore the relationship between the natural environment and society. This dyadic approach, it seems, accepts other paradigmatic constellations only after the wholesale adoption of an ecocentric worldview. This implies that ecocentrism is a prerequisite for responsible environmental management. Most of the apparent failures of the traditional paradigms may, however, be sufficiently addressed by the introduction of the social variable of community participation without the need for a complete
paradigmatic shift, from intensely anthropocentric assumptions to the opposite philosophy of ecocentrism.

A more complex picture emerges if Catton and Dunlap’s paradigmatic assumptions are applied to a global / local context. Global organizations, for example, may be aware of emergent local socio-environmental and socio-environmental problems. As a result they might urge their local subsidiaries to respond to the socio-environmental demands of their host communities. Independent or semi-independent local subsystems, however, may decide not to respond to the apparent socio-environmental contingencies. This is because their deep structures follow an environmental management paradigm or a combination of paradigms, that are not only different to those of other subsystems, but may also be inconsistent with those of the global organization. The question arising from this is: why are organisational subsystems that are interdependently linked to global systemic structures, respond heterogeneously to local socio-environmental contingencies. The answer lies with the heterogeneity of subsystem deep structures. Global organisational deep structures are driven by strategic choices, histories and values that are fundamentally different to those that drive their local subsystem. Therefore, prior to the acquisition of local subsidiaries, and before integrating their subsystems into the global organisational structure, these local subsidiaries developed their own unique deep structures. These local deep structures are based on complex and long-standing political relationships, which they maintain with other local organisational structures and local regulatory agencies (Romanelli and Tushman, 1994).

Thus, it can be seen that local deep structures poignantly reflect the earlier argument that most global organizations are not unified systems of organization. Conversely, they are loosely coupled organisational structures of systems and sub-systems each with its
unique deep structure (Selznick 1996; Weick, 1976; Gross and Etzioni, 1985). Therefore, local subsystems might maintain either highly inertial or very progressive deep structures. This depends firstly, on the different subsystem histories and secondly, on the paradigms or combinations of paradigms to which their deep structures may subscribe. Consequently, both socio-environmental contingency responses and organisational change are destined to be heterogeneous. The main reason for this heterogeneity lies in the very nature of multiple and loosely coupled systemic structures, as well as their unique historical frameworks and their different paradigmatic backgrounds. Thus, global organisational structures that are driven by negotiated global/local authority and governed by multiple organisational and subsystem rationalities cannot be expected to introduce change simultaneously, evenly or to the same extent. Consequently, change will be heterogeneous, subsystem specific and local. Change is most likely to be driven by local subsystems, their unique deep structures and their earlier strategic choices that are grounded in subsystem-specific, local historical frameworks. Catton and Dunlap (1980) believe that their new ecological paradigm requires a re-appraisal of the traditional approach. They expect this paradigmatic rethink to force organisational structures to “conceptually retool”. This retooling process, however, is significantly more complex than it may appear particularly if organisational structures are analysed as loosely coupled systems. As previously argued, socio-environmental contingency responses, particularly in a global / local context, are heterogeneous because of different deep structures choices and unique local subsystem histories. The decision by global organisational structures to subscribe to one particular paradigm or to a combination of paradigms is equally heterogeneous for the same reason. It follows that the diverse phenomena that determine the paradigmatic choices of global organisational structures and its local subsystems are also influence the
process of conceptual retooling. Therefore, paradigmatic retooling is most likely to be heterogeneous, uneven and subsystem specific.

It could be argued, therefore, that socio-environmental contingency responses and organisational change are not driven by particular or overarching paradigms to which different deep structures may subscribe. Rather they are determined by the underlying histories and complex local relationships that are unique to each local subsystem deep structure. A thorough understanding of organisational value and belief systems, therefore, requires the study of local subsystem histories in which their deep structures and underlying paradigms developed. Managers within organisational deep structures, for example, readily point to corporate environmental statements, assuring their commitment to organisational policies. Consequently, the analyst learns little about deep structure inertia by questioning corporate representatives. It is the examination of previous and current organisational and subsystem contingency responses that provides a more reliable picture of either historical deep structure inertia or progressiveness. Thus, global organizations may be committed to their socio-environmental policy, however, local subsystems, captured by deep structure inertia, can significantly retard, redirect or prevent its implementation.

3.3.4 The Limits of Paradigmatic Dualism

Cotgrove (1982) offers a dyadic choice between a dominant social and an alternative environmental paradigm (Table 3.2).

Those who subscribe to the dominant paradigm are characterized as “cornucopian” whereas proponents of the alternative are named “catastrophists”. Cornucopians, promote the assumed merits of endless economic growth, whereas catastrophists
subscribe to non-material values, emphasizing the natural environment and its intrinsic worth. The fundamental problem confronting this paradigmatic dualism is that neither the world of organisational subsystems nor that of local communities is so neatly demarcated as this approach seems to assume.

**Table 3.2: Counter paradigms**

<table>
<thead>
<tr>
<th>Dominant Paradigm</th>
<th>Alternative Environmental Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core values</strong></td>
<td></td>
</tr>
<tr>
<td>Material (economic growth)</td>
<td>Non-material (self-actualization)</td>
</tr>
<tr>
<td>Natural environment valued as resource</td>
<td>Natural environment intrinsically valued</td>
</tr>
<tr>
<td>Domination over nature</td>
<td>Harmony with nature</td>
</tr>
<tr>
<td><strong>Economy</strong></td>
<td></td>
</tr>
<tr>
<td>Market forces</td>
<td>Public interest</td>
</tr>
<tr>
<td>Risk and reward</td>
<td>Safety</td>
</tr>
<tr>
<td>Rewards for achievement</td>
<td>Income related to need</td>
</tr>
<tr>
<td>Differentials</td>
<td>Egalitarian</td>
</tr>
<tr>
<td>Individual self-help</td>
<td>Collective/social provision</td>
</tr>
<tr>
<td><strong>Polity</strong></td>
<td></td>
</tr>
<tr>
<td>Authoritative structures (experts influential)</td>
<td>Participative structures (citizen/ worker involvement)</td>
</tr>
<tr>
<td>Hierarchical</td>
<td>Non-hierarchical</td>
</tr>
<tr>
<td>Law and order</td>
<td>Liberation</td>
</tr>
<tr>
<td><strong>Society</strong></td>
<td></td>
</tr>
<tr>
<td>Centralized</td>
<td>Decentralized</td>
</tr>
<tr>
<td>Large-scale</td>
<td>Small-scale</td>
</tr>
<tr>
<td>Associational</td>
<td>Communal</td>
</tr>
<tr>
<td>Ordered</td>
<td>Flexible</td>
</tr>
<tr>
<td><strong>Nature</strong></td>
<td></td>
</tr>
<tr>
<td>Ample reserves</td>
<td>Earth’s resources limited</td>
</tr>
<tr>
<td>Nature hostile/neutral</td>
<td>Nature benign</td>
</tr>
<tr>
<td>Environment controllable</td>
<td>Nature delicately balanced</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>Confidence in Science and technology</td>
<td>Limits to science</td>
</tr>
<tr>
<td>Rationality of means</td>
<td>Rationality of ends</td>
</tr>
<tr>
<td>Separation of fact/value, thought/feeling</td>
<td>Integration of fact/value, thought/feeling</td>
</tr>
</tbody>
</table>

Source: Cotgrove (1982)

Cotgrove's examines his two counter paradigms against six constituent elements (first column Table 3.2) and the work of Catton and Dunlap (1980), point to an ecological / human complex and its functional interdependencies. Both approaches, however, are fundamentally dyadic and thus limited if used to theoretically underpin global and local
deep structure analyses. As argued earlier, loosely coupled organisational subsystems and their multiple deep structures may subscribe to a particular paradigm or a combination of paradigms, depending on their deep structure histories. Some organisational subsystems subscribe to strategic choices that are driven by formerly dominant ideologies, whereas other subsystems of the same organisational structure may have been historically exposed to more progressive values and alternative paradigms. Consequently, any simultaneous or coordinated shift by multiple organisational deep structures from traditional to alternative paradigms seems highly unlikely. The primary reason for these heterogeneous paradigmatic responses lies with the organisational structure of global corporations. It was previously established that the typical large global organization is not a unified system, but a loosely coupled coalition of subsystems and sub-units.

The heterogeneous nature of organisational subsystems is particularly apparent if the socio-environmental variable of community participation and collaboration is added to global / local subsystem analyses. Subsystem deep structures and their unique histories, their vastly different strategic choices and their varying paradigmatic bases are highly consequential for collaborative and participatory processes. Thus, these diverse phenomena determine whether community participation in industrial developments is successfully introduced, symbolic, or refused altogether by local subsystems and their deep structures. This conceptual argument is further developed in Figure 3.1, which depicts an eco-superstructure in which all human activities occur. If its primary component, the natural environment, is unduly stressed by local industrial development, it not only forces the natural environment, but equally, the local socio-environmental and socio-political environments into disequilibrium. To regain equilibrium or to prevent disequilibrium from developing, local communities need to collaboratively
establish development strategies and participate in monitoring the industrial development that directly affects their lives.

The level of participation, however, depends on significantly different subsystem histories and their unique paradigmatic and ideological commitments. The consequences for community participation that derive from these subsystem specific phenomena are illustrated in Figure 3.1. Subsystem (a), for example, is driven by strategic choices that reflect exposure to a progressive socio-environmental history. Therefore, subsystem (a) supports industry/community interaction and thereby participation. Conversely, subsystem (b) based on a vastly different, conservative historical background, subscribes to traditional strategic choices that retard or even
prevent industry / community interaction. Consequently, genuine participation cannot
occur and the problems arising from social disequilibrium remain unresolved. Within
these historical frameworks, a myriad of subsystem specific strategies and paradigmatic
combinations develop that directly impact on participatory processes. It is here where
Cotgrove’s (1982) dyadic approach and to some extent Catton and Dunlop's (1980) new
ecological paradigm may need some qualification. This is primarily because strategic
subsystem and deep structure choices that are based on different histories, uniquely
structured paradigms and deep structure specific ideological commitments may not be
sufficiently explained by linear models or simpler types of paradigmatic dualism.

3.4 Adding Socio-environmental Variables to the Green Spectrum. A Proposal
for Deconstructing Ideological Dualism

To overcome this paradigmatic impasse it may be useful to extend the analysis to other
schemes that operate within, but move beyond, the framework of Cotgrove’s (1982) and
Catton and Dunlap’s (1980) paradigmatic models. Rather than offering neatly packaged
and mutually exclusive paradigms that provide a simple choice between
anthropocentrism or its ecocentric alternative, O’Riordan (1991) points to a process of
paradigmatic evolution (Table 3.3). Similarly, the spectrum of sustainability proposed
by Pearce's et al (1993) yields a map characterized by four paradigmatic quadrants and
two overarching ideological distinctions (Table 3.4). Although both authors offer
traditional explanations of environmentalism, environmental management and
ecological sustainable development, their work digresses sharply from rigidly organized
paradigmatic choices. O’Riordan's analysis, for example, suggests an evolutionary
learning process that is driven by the dynamics of environmentalism, social change and
changing attitudes towards environmental management. O’Riordan (1991:5) suggests
that during the evolutionary process "…we all experience to a greater or lesser extent
three levels of environmental commitment or “greenness”- dry, shallow and deep”. Although O’Riordan's typology of greenness appears to demarcate three possible levels of environmental commitments neither of these levels, however, is mutually exclusive nor are the paradigmatic boundaries impenetrable.

Table 3.3: The dynamics of environmentalism, social change and environmental management

<table>
<thead>
<tr>
<th>giving way to gia:</th>
<th>designing with nature:</th>
<th>science first:</th>
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<tbody>
<tr>
<td>management strategies</td>
<td>eco-auditing for</td>
<td>reliance on</td>
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<tr>
<td>geared to retaining</td>
<td>comprehensive accounting</td>
<td>scientific</td>
</tr>
<tr>
<td>global stability</td>
<td>and assessment</td>
<td>credibility</td>
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<th>Environmental Management strategies</th>
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<td>global stability</td>
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<thead>
<tr>
<th>Earth-centered or nurturing mode</th>
<th>Human centered or manipulative mode</th>
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<tbody>
<tr>
<td>‘deep green’</td>
<td>‘shallow green’</td>
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<tr>
<td>‘dry green’</td>
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<tr>
<th>Environmental philosophies</th>
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<tr>
<td>earth-centered or nurturing mode</td>
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<td>human centered or manipulative mode</td>
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<td>‘deep green’</td>
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<td>‘shallow green’</td>
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<td>‘dry green’</td>
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<th>Green labels</th>
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<td>‘shallow green’</td>
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<td>‘dry green’</td>
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<td>Green Movement characteristics</td>
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<th>Evolution of environmentalism</th>
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<td>fairness and redistribution</td>
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<td>self reliant communities</td>
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<td>connected to global environment sustaining programs</td>
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<th>Green Movement characteristics</th>
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<th>Political structures</th>
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<td>centralized national power with new international structures</td>
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<td>pacifism</td>
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<td>feminism</td>
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| Source: modified from O’Riordan (1991) |

3.34
For example, O.Riordan places the environmental management strategies that rely on scientific modeling and prediction at the “dry green” end of the environmental scale (Table 3.3). These scientific strategies, however, are not preventing industry and community experts to collaboratively develop scientific models. They are also not inconsistent with the “shallow green” concept which requires industry to design with and not against nature allowing eco-auditing in the process. As demonstrated later by establishing ecodemocratic participatory and collaborative structures some aspects of the “dry” and “shallow green” labels are interchangeable. If, however, participation moves beyond symbolism and includes a limited power transfer to the community even some concepts of the “deep” and “dry green” labels may be bridged.

Similar to O’Riordan’s “green labels” Pearce's et al (1993) four paradigmatic quadrants and the overarching "technocratic" and "ecocentric" ideologies are not mutually exclusive (Table 3.4). The introduction of the socio-environmental variable of ecodemocratic collaboration which includes a limited power transfer to local people affected by industrial development arches across the "communalist" (third column in Table 3.4) and the "cornucopian" (first column in Table 3.4) quadrant. It furthermore bridges the “technocratic” and ecocentric” divide. It will be shown later in this thesis that if industry relinquishes some control to external decision-makers “the interests of the collective takes precedence over those of the individual” (third quadrant). Is also overwrites the traditional claim which emphasizes “the right and interests of contemporary individuals” (first quadrant). Thus, neither Pearce’s et al two overarching ideologies nor the four paradigmatic quadrants are mutually exclusive, requiring the analyst to also revise the sustainability labels, thereby changing the “blueprint view” which determines the levels of sustainability (Table 3.4). It can be argued therefore that the social variable of ecodemocratic collaboration and participation bridges across
paradigmatic boundaries. Primarily because the concept of participation, if it includes a limited power transfer, entails direct and immediate controlling powers and is therefore consistent with the traditional managerial approach of risk management as well as with environmental ecocentrism (Hanna, 1995).

Table 3.4: The spectrum of sustainability and environmental ideologies

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<tr>
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<th>TECHNOCRATIC</th>
<th>ECOCENTRIC</th>
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<tr>
<td></td>
<td>Cornucopian</td>
<td>Accommodating</td>
</tr>
<tr>
<td>Green labels</td>
<td>Resource exploitative growth-orientated position</td>
<td>Resource conservationist and managerial position</td>
</tr>
<tr>
<td>Type of economy</td>
<td>Anti-green economy unfettered free market</td>
<td>Green economy, green markets guided by economic incentive instruments (eg pollution charges etc)</td>
</tr>
<tr>
<td>Management strategies</td>
<td>Primary economic policy objective, maximize economic growth (Gross National Product GNP)</td>
<td>Modified economic growth (adjusted green accounting to measure GNP)</td>
</tr>
<tr>
<td>Taken as axiomatic that unfettered free markets and technical progress will ensure infinite substitution possibilities capable of mitigating all 'scarcity / limits' constraints (environmental sources and sink)</td>
<td>Decoupling important but infinite substitution rejected. Sustainability rules: constant capital rule</td>
<td>Decoupling plus no increase in scale. 'Systems' perspective- 'health' of whole ecosystem very important; Gia hypothesis and implications</td>
</tr>
<tr>
<td>Support for traditional ethical reasoning: rights and interests of contemporary individual humans (i.e. of recognized value to humans) in nature</td>
<td>Extension of ethical reasoning: caring for others motive-intergenerational and Intergenerational equity (i.e. contemporary poor and future people); instrumental value in nature</td>
<td>Further extension of ethical reasoning: interests of collective take precedence over those of individual primary value of ecosystems and secondary value of component functions and services</td>
</tr>
</tbody>
</table>


Similarly, if the socio-environmental variable of community participation is added to Cotgrove's (1982) six constituent elements of core values, economy polity, society, nature and knowledge (Table 2.3), then the dominant social paradigm would assume a significant number of concepts from its alternative. Consequently, the possibility of
interchanging some important conceptual aspects across paradigmatic boundaries by simply adding the social variable of community participation raises three important questions. Firstly, is the wholesale adoption of an ecocentric paradigm a prerequisite for responsible environmental management? Is a complete shift from the dominant social paradigm to its ecocentric alternative unavoidable to assure sustainable development? Thirdly, are existing environmental paradigms flawed to such an extent that the need replacing? The answer to these questions is offered in the subsequent section of this Chapter.

3.5 Participation, Synergism and Social Trust

3.5.1 Beyond Participatory Symbolism: A Micro-Eccorporatist Approach

In recent years debate has emerged regarding the validity and applicability of an increasingly popular ecocentric worldview. The implications of this new Zeitgeist for the traditional environmental management paradigm are of particular interest for this analysis. A central focus in the literature debating these issues seems to be a paradigmatic dualism that suggests some kind of simple paradigm shift, from corporate organisational egocentrism to a greener, ecocentric alternative. Gladwin et al (1996), for example, view corporate practices as firmly embedded in a thoroughly egocentric paradigm. Thus, requesting a decisive shift away from corporate egocentrism toward a more ecologically moral conscience. Gladwin and his colleagues expect that this new ecological morality will more properly guide future organisational behaviour. Other authors, such as Shrivastava (1995, 1995) and Starik and Rands (1995), firmly reject the general notion that the business of business is business. Instead, they suggest the urgent revision of this intensely anthropocentric assumption. This, these authors believe, will
result in a paradigmatic reorientation, favouring ecocentric rather than egocentric views and behaviours.

There seems to be a consensus in the literature that the process of internalizing ecological concerns into business operations cannot be successful, unless corporations finally agree to shift from the egocentric paradigm to its ecocentric alternative (Irwin and Hooper, 1992; Shrivastava and Scott, 1992). The majority of the literature indicates that ecocentrism should serve as the basis for critically scrutinizing organisational anthropocentrism and corporate egocentrism thereby assuring fundamental paradigmatic change (Shrivastava 1996). Most researchers in this field develop and analyze strategies for the "greening" of industry, without considering the important social variable of community participation. Equally absent from their analyses is a complexity approach that considers the basic principles of loosely coupled organisational structures, multi level systems and their deep structures. Organizations are predominantly viewed instead as unified systems of organization. This significantly reduces understanding of the various paradigmatic frameworks in which subsystems and sub-units as well as their deep structures function. It further denies sufficient insight into the subsystem commitment levels that either support or reject participation. It appears that the literature provides a broad economic context for the understanding of the environment / business dialogue, but fails to develop useful participatory concepts that could be used in a community / subsystem setting.

Most ecological problems that affect people’s lives originate from industrial activities. This calls for genuine community participation in planning and decision-making. The corporate ecocentric or "green industry" paradigm as currently proposed, however, fails to provide new avenues for participation beyond participatory symbolism.
Consequently, a largely exclusive approach in industrial developments persists. Community participation is thus restricted to the symbolic representation of local residents, which is far removed from genuine collaborative planning and decision-making. This participatory scenario could be described as macro-ecocorporatism, referring to communities or collectives of potentially shared interests (Jänicke, 1997). Participatory structures in most industrial developments are usually arranged to include government agencies, technical experts, developers and interest groups. The local community, however, is usually forced to assume a symbolic role with insignificant participatory powers. The analysis of participatory power sharing in industrial developments is most appropriately carried out from a micro-ecocorporatist perspective. This seems to be the most promising starting point because in contrast to the macro-corporatist approach, micro-ecocorporatism emphasizes the importance of local actors. This suggests a direct ecodemocratic dialogue between local subsystems, the local citizenry, local interest groups and other local stakeholders.

There seems to be little doubt that in most industrial developments the local citizenry has no, or at best a very limited place in the macro-ecocorporatist structure. Community participation in a macro context, therefore, could be seen as not fully representative, because of an asymmetrical inclusion of business, technical experts, government agencies and environmental groups (O’Riordan, 1997; Lafferty and Meadowcroft, 1997). It is in this macro-corporatist setting that local citizens can only hope to be indirectly represented by external organisational and institutional interest, which can be expected to pursue the macro-corporatist political agenda. In contrast, ecodemocratic collaboration in a micro-ecocorporatist context, which includes limited power sharing, defines the local actors primarily as, local citizens or their elected representatives, local government, local green groups and other local interests and finally as the local
developer. This does not infer that external green and other interest groups, technical and environmental consultants or state and federal governmental agencies are excluded from ecodemocratic collaborative structures. However, external organisational and institutional powers have little choice but to follow the interest-agenda of their political masters. External interests are, therefore, grounded in their predominantly politically motivated deep structures most likely to contradict local interests (Jänicke, 1997). Consequently, these external agencies may only be introduced if required by law or if their inclusion is requested and agreed upon by the local actors and in particular the local citizens or their representatives.

3.5.2 Bridging Egocentrism and Ecocentrism: A Synergistic Approach

A micro-ecocorporatist structure, as outlined earlier, that emphasizes limited ecodemocratic power sharing as a basic participatory principle is not necessarily inconsistent with the traditional environmental management paradigm. Ecocentrism, in contrast, radically contradicts the worldview of most corporations and their managers (Hanna, 1995). Thus, sustained resistance rather than movement towards an exclusive deep green ecocentric paradigm can be expected. Community participation, therefore, if placed in a micro-ecocorporatist context, would not only be consistent with the managerial concept of risk management, it would also significantly undermine the paradigmatic boundaries between the two extremes of reckless egocentrism and utopian ecocentrism (Hanna, 1995). Therefore, the social variable of community participation provides not only a powerful counter to radical egocentric management decisions, but also adds an effective control mechanism to the traditional paradigm. This would firstly, significantly reduce the danger of irresponsible industrial developments, thereby preventing undesirable consequences for both, the natural as well as the socio-environmental environments. Secondly, the concept of ecodemocratic community
participation arches across paradigmatic boundaries, assuming a role that is neither inconsistent with the traditional or the alternative paradigm. A wholesale shift from the dominant to the greener alternative, it seems, is not necessarily the only option available to assure environmental and socio-environmental sustainability.

Similarly, Purser and Montouri (1995:1064, 1076) criticize “…simple thought theorizing and stereotypical polarizing between anthropocentrism and ecocentrism”. They suggest that ecocentrism is not necessarily a prerequisite for pro-environmental attitudes and behaviours. Instead, an ecocentric approach should seek to accommodate human and non-human needs. There is little doubt that “…humans must exploit nature in order to survive and live”, but to assure the fair use of natural resources, fundamental changes are required (Purser and Montouri 1996:611). These changes neither demand “…amazing metaphysical feats of neither empathy nor do they require to think like a cabbage to show responsible environmental behaviour” (Montouri and Purser, 1996:919). However, what is required is a reform in thinking, recognizing that there must be a balance between corporate egocentric views and ecocentrism. Subsystems and their deep structures must “…think ego and eco together”, particularly in environmentally sensitive industrial developments (Montouri and Purser, 1996:919). This approach does not require the establishment of a grand eco / ego synthesis. It suggests instead the integration of environmental and socio-environmental concerns with functional decision-making and ongoing business practices. This means the synergetic attainment of productivity whilst simultaneously reducing environmental and socio-environmental risks (Hanna, 1995).

It is in this context that changes in organisational and subsystem behaviour may best be achieved by utilizing the existing environmental management paradigm. There are two
main reasons for this decision. Firstly, neither the synergetic approach nor the micro
ecodemocratic participatory concept is inconsistent with the traditional or alternative
paradigm. Secondly, it is far more likely to gain support from subsystem managers,
“…replicating the successes of the traditional paradigm and simultaneously addressing
its failures” rather than insisting on a wholesale adoption of an alternative paradigm that
is inconsistent with the worldview of most subsystem managers (Hanna, 1996:915).

As a first step in successfully addressing past failures of the traditional management
approach, a social trust framework needs to be established, in which interpersonal trust
relationships can be developed and maintained. As discussed previously the most
promising context in which trust may be developed is an ecodemocratic participatory
structure at the interpersonal, micro-corporatist level. These micro-corporatist structures
must first and foremost include local community members or their elected
representatives directly affected by the industrial development. Subsequent research
shows that their ongoing inclusion into the decision-making and risk communication
processes is an unavoidable prerequisite for the development of successful interpersonal
and micro social trust relationships. The importance and the role of trust in developing
these relationships are highlighted in the next Chapter.

3.6 Summary

The literature analysed in this Chapter raises some important issues with regard to the
development of eco-democratic dialogue and community participation models.
Festinger’s (1957) and Schein's (1996) consistency theory as well as Hoffman’s (1993)
and Wiener’s (1982) concept of individual and organisational value congruency, both
point to the difficulties but also necessity to deal with different value and belief
dimensions. The importance of aligning different organisational and community values,
however, is traditionally ignored or at best misinterpreted by industry practitioners and government agencies. The resulting tensions between industry and local communities in eco-industrial developments are primarily based on the belief that environmental conflicts are driven by disputes over techno-economic, financial or ecological facts, rather than competing value positions (White, 1970; Schein, 1996). As suggested earlier, the natural environment is more than simply an objective fact, it is instead “experienced” and thereby given a social and cultural meaning (Cotgrove, 1982). Consistent with the earlier accounts of Krech et al (1962) and Fishbein (1963), Cotgrove’s observation provides a key to understand why people differ in their perception of environmental issues.

For example, according to Fishbein individual and community values, attitudes and beliefs are informed by socialization and socio-environmental constructs such as politics, economics, science and religion. Consequently, social action, whether the action involves political, social, cultural or economic activities, is directed by these individual or community values and belief systems (Krech et al (1992). This means that these values and beliefs determine the choices in behaviour and action towards industrial developments, thereby guiding social action for or against such a development. As introduced earlier in the Chapter the theoretical underpinning for this argument derives from various theories commonly known as “consistency theories”. Particularly the theory of “cognitive dissonance” suggests that there should be consistency between cognitive elements, whether they refer to values, attitudes or behaviour, because inconsistencies between them will give rise to cognitive dissonance. Subsequent research indicates that discrepancies between cognitive elements in the population of one case study led to the rejection of the proposed project. The primary reason for the rejection lies with the conflicting corporate and community value
positions, forcing locals to perceive and behave contrary to their value and belief systems. Consequently, the local community continuously attempts to re-establish a mental and emotional equilibrium between discrepant cognitive elements, thereby eliminating the dissonant state. This is usually achieved by simply rejecting the industrial development. Thus, to assure successful industry/community relationships in eco-industrial developments, organizations need to ascertain whether a local community is in a state of dissonance or equilibrium. If they are in a state of dissonance, industry and government experts must deal with the different community and organisational value positions, because their successful alignment decides over corporate success or failure (Wiener, 1988).

Other participatory issues arising from this Chapter refer to the legitimisation of different value positions and to communication deficiencies between industry experts and local communities. The process of legitimising community value positions is significantly influenced by socio-political and economic interpretations, which are generally designed to assure the validity claims of the dominant ideological norm (Habermas, 1976; Kekes, 1993). If, for example, past socio-political systems have committed themselves and future systems to techno-economic developments, which are of wider public interest, their ideological norms can be expected to be continuous. This means that future strategic choices by industrial organizations and government agencies are most likely to be guided by these previous dominant ideological norms. This forces the industrial developer, government agencies and the community to live with the legacy of earlier strategic choices and ideological norms. For example, to assure the successful exploitation of a natural resource the industrial developer may exploit the normative structures that originate from previous socio-political systems, while simultaneously extending the use of new technically exploitable insights. Merging
previous socio-political norms with new techno-economic knowledge and translating both into techno-economic language, systematically limits communication with local communities.

As argued earlier in this Chapter, the emerging communication deficiencies are grounded in an expert ideology that translates individual and community value questions into techno-economic language. This rift in communication, Naess (1986) suggests, is the result of two opposing language systems. One is an assumed “objective” language, commonly used by experts to emphasise information with technical underpinnings and utilitarian aims. The other is a “subjective” language, used by individuals and communities, ostensibly revealing their value and belief systems. It is in this context, that science and technology are the main sources of distorted communication that prevent socio-political consensus (Habermas, 1979).

Similarly, Brown (1987), suggests that although fact-value questions are intrinsically embedded in environmental questions they are nevertheless, systematically hidden and distorted by language systems of technical experts. For example, the adoption of a particular economic behaviour, prescribed by its economist, the global developer acts on prior value choices that might maximize utilitarian benefits globally, nationally or regionally. It may, however, reduce socio-environmental and socio-environmental utility locally. Therefore, the decision to proceed with the development has a factual-economic, but equally important a hidden local social and cultural value component. It is in this context that this Chapter draws some parallels to the exclusion of community value and belief systems in cost-benefit analyses. In one of the subsequent case studies the value positions held by the local community emphasised the rights of locals to be protected from the long term consequences of limestone quarrying. From a community
perspective their social and cultural value positions far out weigh the utility of such protection recognised by an efficiency driven market. Consequently, questions of value and belief cannot be explained, analysed or understood solely from an economic and market efficiency perspective.

As discussed earlier, value and ethical questions can also be hidden or distorted by risk assessments. If, for example, a translational manufacturer informs local communities about the risk of local emissions, while excluding its global emissions levels, the local risk assessments distort the actual emission levels and total impacts generated by the manufacturer. Any increase in local emissions may compromise the value positions of local interest groups if they believed that the global greenhouse contribution of the manufacturer would reach unacceptable levels by even the smallest additional emission locally. Subsequent research shows that the failure by industrial organizations to legitimize community values and to deal with community/industry value differences has a particularly limiting impact on local management in understanding socio-environmental complexities in relation to industrial developments.

This equally applies to industry and government engineers and development experts who deem social, cultural and value issues as well as socio-environmental research data as uncertain and empirically risky (Harding, 1998). Driven by these assumptions experts are particularly cautious to use and/or distribute data about socio-environmental and value and belief system issues amongst their peers. Latin (1992) observed that the reason for excluding socio-environmental and value issues from industrial development processes lies with the fear of industry and government engineers that their “hard science” credibility may be questioned. The research findings of this thesis support Latin’s observation and additionally point to the failure by engineers and technical
experts to legitimate community values, which significantly contributes to the ongoing socio-environmental conflict under investigation.

However, new emerging disciplines such as environmental engineering promise changed attitudes and approaches toward community value issues by engineers. Nevertheless, most techno-scientific inquiries, on which traditional business practices rely, are still predominantly reductionist. This means that socio-environmental problems are not approached holistically which would recognise the interconnectedness of technical and community values as an intrinsic element of socio-environmental problems (Knudtson and Suzuki, 1992). Therefore, utilising research data that emerges from socio-environmental value and belief systems which are largely underpinned by local knowledge frameworks would provide prior insights into local conditions. This would furthermore, complement existing techno-economic data, possibly direct further research, establish broader and more accurate baseline information and finally, assure socio-environmentally awareness in scientific inquiry. If organizational and institutional experts remain unprepared to deal with local value issues, industry and government agencies will be confined to techno-economic reasoning. Consequently, the development of socio-environmental solutions to socio-environmental problems is difficult to achieve. This is primarily the result of ineffective contingency responses, seeking techno-economic solutions to socio-environmental problems. The emerging problem for development experts is to assess whether individual or community values are based on the light green or dark green end of the environmental spectrum (Beder, 1992; O’Riordan, 1990). As discussed in this Chapter the distinguishing factors of socio-environmental and community value dimensions are to be found in the environmental ideologies and paradigms to which local communities and stakeholder may subscribe.
This Chapter introduces therefore a number of authors who advanced new ecological and alternative paradigms (Catton and Dunlap, 1978, 1980; Dunlap and Catton, 1979; Pearce et al, 1993; O’Riordan, 1991; Cotgrove, 1982). These paradigms and models are a reminder that industrial activities cannot be separated from socio-environmental structures, because they maintain local communities. Neither can economic activities be separated from ecosystems, because they support human and non-human life. The emerging question is whether industrial organizations, in pursuit of accommodating human and non-human needs, are required to undergo fundamental change namely, from corporate egocentrism to a greener, ecocentric alternative? Hanna (1992) argues that any wholesale shift by industrial organizations to an ecocentric paradigm radically contradicts the worldview of most corporations and their managers. Similarly, Purser and Montouri (1995:1064, 1076) criticise the “…stereotypical polarizing between anthropocentrism and ecocentrism”, which they believe “…equates with simple thought theorizing”. Nature, they argue further, must be exploited to assure our survival, but this needs a revision in thinking, guaranteeing the fair use of existing natural resources. This change in thinking, however, does not require a radical paradigmatic shift, but a balance between corporate egocentric views and ecocentrism. Purser and Montouri’s view concurs with Hanna’s (1995) argument, suggesting that ecocentrism is not necessarily a prerequisite for pro-environmental behaviour. What is required, however, is the integration of environmental and socio-environmental concerns with functional decision-making and ongoing business practices. This means that the successes of traditional managerial paradigms need to be replicated and its failures addresses, rather than insisting on deep green orthodoxies, which demand the wholesale adoption of ecocentric paradigms (Hanna, 1995).
To find a balance between corporate egocentrism and ecocentric worldviews participatory and collaborative structures need to be introduced. As subsequent research findings show, without a direct and eco-democratic involvement of local communities, neither the fair use of natural resources nor a balanced view, which is able to “…think ego and eco together”, can be successfully and sustainably achieved. These goals require a participatory framework in which stakeholders can engage in fair and open dialogue as well as freely define their collective preferences, interests and values. Such participatory approach is not only conducive to the development of trust, but it also improves the quality of participatory dialogue, thereby increasing the possibility of a working consensus. The analysis in the following Chapter 4, analyses the social function of trust as a primary medium in reducing complexity, in fostering ecodemocratic participation and collaborative risk communication. These three key dimensions of social trust are recognised as most important elements in developing a social climate, which allows community stakeholders to engage in continuous ecodemocratic dialogue at the micro as well as interpersonal level.
Chapter 4

Theoretical Framework (Part Three)

The Social Function of Trust in Relation to Public Participation

4.1 Introduction

Trust has been traditionally the most uncertain element in industry/community relationships particularly in relation to large and complex industrial developments. Frequent inconsistencies between the words and actions of influential industrial developers and powerful public institutions left local communities disillusioned. Consequently, local people commonly perceive industrial development as a threat to their accustomed way of life and local environment. It is not surprising, therefore, that communities engaged as stakeholders in industrial developments maintain a deep-seated distrust towards state agencies and industrial corporations. Consequently, community stakeholders judge any new or alternative proposal advanced by other stakeholders with heightened suspicion. This increasingly frustrates the industrial developer and government agencies, because it reduces the effectiveness of their contingency responses, which in turn increases public distrust. Ruckelshaus (1996:2) called this cycle of mutual distrust a “vicious and descending dread spiral”, which prevents the development of social trust relationships and lasting mutually beneficial agreements.

These are not novel observations about social trust or distrust. Instead, a sizable literature analyses these issues and offers a variety of theoretical perspectives and interpretations. It also points to a growing interest among social researchers in the various dimensions that underpin the successful development of social capital, with trust featuring most prominently in the social capital debate as one of its key dimensions.
Unlike other forms of capital, social capital comprises relationships of trust, reciprocity, rules, norms and sanctions, as well as connectedness and social networks that facilitate cooperation for mutual benefit (Putnam, 1995, 1993; Coleman, 1990, 1988; Bourdieu, 1986). This study recognizes trust relationships as the most appropriate and useful dimension in relation to its two case studies. Subsequent research, therefore, uses the concept of social trust relationships in relation to its social function. This is achieved by highlighting several features of the concept and by linking these to the various levels of public participation found in the two industrial developments under investigation. These key features are: the role of trust in reducing complexity, the role of trust in fostering collaboration and the role of trust in relation to the communication of risk.

4.2 Fundamental Dimensions of Social Trust Relationships

In much of the literature, trust is closely linked with participation and cooperation. For example, Zucker (1986) views trust as a social resource, which facilitates social interaction and cooperation. Others point to trust as a useful agent in reducing the need to monitor the actions and behaviour of others, which increases informal cooperation and reduces negotiation costs (Williams, 2001; Powell, 1990; Gambetta, 1988). Similarly, Bradbury et al (1999) and Focht (1996, 1995), suggest the use of “transformative” strategies to create trust among and between stakeholders and external agencies. These trust-based strategies are expected to enable stakeholders to negotiate value differences and address factual uncertainties thereby transforming conflict into consensus (Bradbury et al 1999). Trust, therefore, appears to be invaluable for the corporate developer particularly if controversial development issues such as techno-economic as well as socio-environmental contingency responses need to be communicated to local communities.
Most industrial organizations, however, subscribe to a greater or lesser extent to the neo-Hobbesian view, which rejects trust as a highly inappropriate and misleading concept in relation to economic activity (Williamson, 1985). Trust, it is claimed, is redundant because cost-effective safeguards have been devised assuring more efficient exchange and cooperation in economic activities. Subscribing to this view, Williamson (1993, 1985) points to the market as the most efficient remedy to correct possible lapses in cooperation while refusing to acknowledge trust as a key element for cooperation and participation in economic activities. This neo-classical approach, Korczynski (2000) argues, can only be maintained because of its limiting assumptions regarding human motivations. Subsequent research strongly supports Korczynski’s observation, indicating that the failure to acknowledge trust as a key basis for cooperation inevitably leads to increased distrust and consequently to higher negotiation costs. These incur as a result of delays, which are primarily caused by lengthy disputes and prolonged techno-economic disputations among experts. Most industrial organizations, however, fail to acknowledge that the absence of trust is one of the major causes of these problems, which can be expected to emerge at any time and all stages of their techno-economic activities.

Moreover, government and industrial managers seem to be unable or unwilling to recognize trust as an effective tool reducing socio-environmental complexities. This is demonstrated in subsequent research where the absence of an effective social trust relationship between the developer, government agencies and the local community led to a lengthy and costly dispute, resulting in a vicious cycle of technical claim and counter claim. Consequently, a descending spiral of distrust forced stakeholders to invest heavily in monitoring the promises, actions and behaviour of other participants in the dispute, which were perceived as being untrustworthy. This significantly increased
the complexity of the social relationship between industry, government agencies and the local community, further complicating the techno-economic and socio-environmental argumentation between experts and community groups. Social trust, in contrast, simplifies cooperation, reduces negotiation costs and creates mutual social obligations which participants in a trust relationship agree to honour. In this context trust may be seen as a medium for communication such as money or power which are used as media for reducing complexity in modern society (Luhmann, 1988; Bradbury et al, 1999). Expanding on this point, Early and Cvetkovich (1999) view trust as a simplifying strategy, which enables individuals to adapt to complex social environments, thereby benefiting from increased social opportunities. Therefore, to assure continuity in development processes and to benefit from a wider range of social opportunities, the concept of social trust needs to be acknowledged and legitimized particularly by those engaged in large and complex industrial developments.

To draw from increased social opportunities, researchers argue, requires industrial organizations and government agencies to recognize that trust operates on an interpersonal level as well as at a system level (Luhmann, 1980, 1988; Misztal, 1996; Earle and Cvetkovich, 1995). These authors agree that interpersonal and system level trusts are mutually inclusive, meaning that trust at the system level should provide the basis for a positive social climate in which social relationships at the interpersonal level can develop. The interpersonal level in turn generates trust and confidence in the larger system level, arising out of experiences made at the interpersonal level (Bradbury et al, 1999; Putnam, 1993). Positive social experiences, however, can only fully develop if participants in social relationships are willing to add trust and confidence to their expectation that others will act in a similar manner. Introducing social trust and confidence to social relationships, however, holds an element of risk, uncertainty and
possible disappointment for its participants. Social trust and confidence are particularly endangered if industrial organizations and government agencies uphold a narrow view on risk communication. The traditional view on risk communication narrowly relates to techno-economic risk, often neglecting issues such as compromising local community values, loss of quality of life, erosion of the sense of community, disrupted social relations, and stigma (Kasperson et al, 1992). A detailed analysis regarding effective risk communication is offered under the next sub-heading.

Social trust is widely identified with social interaction and derives its social importance from trust attributes such as the free flow of information, honest and open risk communication and cooperative behaviour. Based on these fundamental and overarching trust attributes social trust has been defined in several different ways:

- "The willingness of individuals to rely on the actions and behaviour of others in situations that involve the risk of opportunism" (Mayer et al 1995:387).

- "A generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied on" (Rotter, 1980:1).

- "The generalized expectancy that a message received is true and reliable and the communicator demonstrates competence and honesty by conveying accurate, objective and complete information" (Renn and Levine, 1991:181).

- "A set of expectations shared by all those involved in an exchange" (Zucker, 1986:54).
These definitions share some common general themes, suggesting an expectation among those engaged in a trust relationship that others will act in a similar manner. Such expectations, however, require individuals to accumulate evidence about the trustworthiness of the trusted, which, if acceptable and continuous, reinforces positive sentiments necessary for the establishment of social trust relationships. Trust, according to Lewis and Weigert (1985), should therefore be seen as a social, psychological and relational construct, which involves three fundamental dimensions of social relationships:

- Cognition
- Affect
- Behaviour

The cognitive dimension of trust development is described in the literature as an experimental process in which individuals learn about the trustworthiness of others by social interaction (Williams, 2001; Bradbury et al 1999; Jones and George, 1998; Mayer et al, 1995). Most of these researchers emphasize the importance of “continuous” social interaction, which they believe enables people to familiarize themselves with the object of trust and to update their information about the trustworthiness of others. However, since cognitive trust seems to require a certain degree of familiarity with situations which may lie between total understanding and total ignorance, some cognitive leap of faith may be required (Kasperson et al 1992; Luhmann, 1980). For example, some participants in social trust relationships might provide only limited or inaccurate information or may decide to withhold available knowledge about important facts altogether, making it difficult to discriminate among those perceived to be trustworthy or distrusted.
The literature offers various other cognitive dimensions of trust on which judgments about the trustworthiness of participants in a social trust relationship may be based. Some earlier interpretations empirically identify competence and responsibility with trustworthiness and legitimacy (Hollander, 1958; French and Raven, 1959). According to this tradition, social trust assumes a rational role, which is traditionally empirical, requiring evidence of competence and responsibility as prerequisite dimensions of trustworthiness. In their critique of this traditional view Earle and Cvetkovich (1999, 1995) agree with Luhmann (1980), suggesting that by overemphasising competence and responsibility as the primary legitimate attributes of trustworthiness, a cultural singularity is assumed (Earle and Cvetkovich, 1999). Rejecting this approach they claim that individuals base their social trust judgements on varying sets of cultural values rather than on a normative and rational cultural value singularity. This interpretation suggests that social trust is socially constructed as well as grounded in cultural pluralism. To support their claim, Earle and Cvetkovich devised a survey experiment, which demonstrates that participants based their social trust judgements on value similarities, which originated from a variety of different cultural values. This means that individuals in the experiment assessed and interpreted social trust from a multifaceted cultural value perspective. They did not base their social trust judgements about trustworthiness on a dualistic approach, thereby failing to identify competence and responsibility as the dominant trust dimensions.

However, additional trust dimensions have been identified by the literature on which assessments about trust and trustworthiness can be based. For example, Peters et al (1997) and Covello (1992) suggest the inclusion of knowledge and expertise into the list of trust dimensions whereas Renn and Levine (1991) and Kasper (1986) identify
objectivity, impartiality and neutrality as important attributes of trustworthiness. Furthermore, Bradbury et al (1994), analysing trust relationships in relation to the US Chemical Weapons Disposal Program, found that local residents affected by the program associated trust and distrust with openness and accountability. These trust dimensions are of particularly importance to stakeholders that are engaged in establishing the trustworthiness of others in industry/community disputes. Other trust dimensions, which are equally appropriate for judging trustworthiness in development controversies, are the willingness to honestly and forthrightly disclose appropriate information, thereby assuring procedural fairness throughout the dispute (Brockner, 2002; Bradbury et al, 1999; Webler, 1995; Cavello, 1992; Lind and Tyler, 1988).

The affective dimension of social trust refers to the emotional bond among and between participants in a social relationship, whereas affective responses such as disappointment or anger influence how people assess and evaluate their emotional bond with others (Williams, 2001; Bradbury et al, 1999). Any serious violation of these emotional investments significantly damages the emotional bonds between the participants in social trust relationships and prevents the development of deeper levels of trust. This means that more shallow types of trust will develop, similar to those, which can be expected to emerge from the limited rational approach. According to this approach, trust is gained only when organizations or institutions are judged to be reasonably competent in their actions, and only then is their trustworthiness legitimized by the participants in the trust relationship (Kasperson et al 1992).

Throughout their influential work Cvetkovich and Earle (1992)¹ argue that social trust cannot be limited to an empirically based rational process. Primarily because it reduces

¹ To gain a deeper insight into Early and Cvetkovich's work, refer to their 1999, 1995 and 1994 publications which are detailed in the bibliography of this thesis.
social trust to rational calculations about the competence and responsibility of organizations or institutions in meeting prescribed obligations while excluding social concerns such as caring or shared values. Social trust, therefore, must accommodate the cultural values to which participants in social trust relationships may subscribe. Without their inclusion trust and trust relationships are undermined by rational and cognitive considerations, which generates the functional equivalent of trust, social distrust (Earle and Cvetkovich, 1999). The inclusion of cultural values, therefore, which vary across people, contexts and time, is expected to encourage the establishment of emotional bonds between participants in trust relationship.

This process of emotional bonding is most likely to result in a deeper level of trust, which is based on the perception that there are important base values, which are shared among and between participants engaged in trust relationships (Williams, 2001; Bradbury et al, 1999). Studying the relationship between social trust and trust values, Earle and Cvetkovich found that respondents in their experiment, which was mentioned earlier, did tend to give higher levels of trust to organizations and institutions that shared their values (Earle and Cvetkovich, 1999:15). This result, they argue further, “…indicates that individuals have some means of comparing their shared values and may use the emerging information in making judgements about social trust”. Three fundamental questions emerge from these findings which will be answered later by linking them to the context of community/industry relationships in the two contested industrial developments researched for this thesis.

The first question points to the extent to which shared cultural values are acknowledged and legitimized by industrial organizations and government institutions particularly in relation to disputed industrial developments? Secondly, how reliable is the commitment
Finally, the *Behavioural* dimension of trust has been described by Kasperson et al (1992:168) as a "…behavioural enactment in social relationships, which can influence cognitive and emotional [affective] trust". This explanation implies a complex interactive process, which includes the cognitive, affective and behavioural dimensions of trust. It furthermore highlights the importance of the fiduciary responsibilities and moral obligations that individuals, organizations and institutions are expected to contribute to social trust relationships. Subsequent research demonstrates that the range and depth of trust depends largely on the performance and behaviour of institutions and organizations. Is also shows that equally important for the development of trust relationships is the social climate, structures and conditions under which institutions and organizations operate. For example, in a positive social climate Kasperson et al (1992) expect people to invest more trust in institutions if conditions allow for the early development of trust. Early trust development, they argue further, usually indicates a high level of commitment by institutions and organizations to their fiduciary responsibilities, which may lead people to be more forgiving should trust be misused. In a negative social climate, however, low commitment levels by institutions toward their fiduciary obligations prevents people from trusting any institution or organization and any violation of trust is not tolerated (Renn and Levine, 1991).
The challenge for industrial organizations and government institutions, particularly if engaged in industrial developments, is to establish a context in which participants in a social trust relationship are encouraged to develop and maintain an effective dialogue (Bradbury et al 1999). Essential for a favourable social climate among stakeholders are social trust and predictable trust related behaviour. Under the following sub-heading social trust dimensions are introduced, which play an important role in establishing as well as maintaining a positive social climate.

### 4.3 Conceptualizing Social Trust Dimensions

In a positive social climate it is expected that individuals or groups can rely on the actions and behaviour of others and that promises and statements either oral or written that are made in a trust relationship are being fulfilled by those who made them. (Mayer et al 1995; Rotter, 1980). In a negative social climate, industrial organizations, government institutions and individuals are most likely to act inimically, thereby not only leaving expectations unfulfilled, but also creating social distrust. Negative social climates are usually driven by a lack of commitment, technical and socio-environmental incompetence, an uncaring attitude towards dependent communities, and finally, by inconsistent and unpredictable behaviour in relation to community expectations. Kasperson et al (1992) identified four key social trust dimensions\(^2\), which they see as essential to capture the range and level of trust related behaviour, these include:

- Commitment
- Competence
- Caring
- Predictability

\(^2\) The four trust/behavior dimensions of Kasperson et al (1992) have been modified to suite the industrial development and participation analysis of this study.
Commitment. This trust dimension relies on community perceptions that organizations and government institutions fulfil their fiduciary obligations and other socio-environmental norms in response to local socio-environmental demands. These perceptions of commitment are primarily based on the belief that organizations and institutions engaged in contested industrial developments act objectively, fairly and openly with a commitment to assure the free flow of accurate information.

Competence. As participants in social relationships, local communities judge government institutions and industrial organizations in relation to their actions as well as technical and socio-environmental competency. If government agencies, industrial organizations or individuals within them are occasionally wrong, community expectations remain in tact and local communities are most likely to forgive such limited failings. If, however, consistent failures and inadequacies, particularly in social behaviour and socio-environmental competencies, dominate the social trust relationship the loss of trust can be expected. Risk managers as well as government institutions must show that they are technically but equally important socially and culturally competent.

Caring. Particularly important for the development of social trust relationships are perceptions of a caring attitude towards dependent individuals and communities. Organizations and institutions engaged in industrial developments must be seen by trusting individuals and local communities as showing concern for their expectations. A caring attitude and behaviour by industrial organizations and government agencies are important, primarily because their organisational structures exert control and authority over dependent individuals and communities, their well being and their way of life.
**Predictability.** The successful development of social trust relationships depends largely on the fulfillment of expectations. If industrial organizations and/or government institutions consistently violate expectations, distrust is most likely to follow. Predictability and consistency in organisational behaviour in fulfilling community expectations, however, must remain fluid. This state of flux is necessary to allow the inclusion of new insights and changed value orientations into decision-making processes. Any response by industrial organizations and government agencies to newly gained techno-economic or socio-environmental information, however, should be consistent with general societal value and belief systems.

This conceptualization of social trust suggests that trust relationships depend heavily on the reliability of its participants. It also implies a complex interaction of cognitive, affective and behavioural properties, which play an important role in the development of different types or levels of trust. Kasperson et al (1992) believe that trust operates simultaneously at the cognitive, affective, and behavioural levels. The fulfillment and maintenance of trust, they argue further, requires these dimensions be validated at all levels, because building trust on only one dimension will most likely lead to a corresponding loss of trust on another.

For example, attempting to prevent the further erosion of trust in a development dispute, the industrial developer may be committed to enter into a social relationship with the local community by establishing a community liaison group. With its inception public perceptions in relation to the trust dimension of commitment are most likely to improve. However, after entering the liaison group the developer might decide to withhold relevant facts and vital data from the local community. This restricts public insights into contested issues effectively changing the power structures of the social trust.
relationship. Consequently, negotiation processes and the control over ultimate decisions are significantly restructured, favouring the developer and government agencies sympathetic to the development. It is in this context that the establishment of the liaison group appears to initially validate the trust dimension of commitment. Withholding information, however, correspondingly decreases the level of community trust in relation to reliability and possibly competence.

The social trust dynamics just described inevitably lead to community frustration and social distrust over the apparent discrepancies between commitment and actual behaviour. The refusal to disclose relevant information, however, cannot be sustained indefinitely, because even the best guarded information usually finds its way to the other participants in the trust relationship (Sandman, 1985). Although the early release of relevant and important data may lead to difficulties and the erosion of trust, on balance however, …"damage associated with openness is easier to address than damage associated with concealment" (Kasperson et al, 1992:180). The free flow of information, therefore, particularly if introduced early, removes some pressure on social trust development. It furthermore provides participants in a trust relationship with the knowledge needed to constructively contribute to the decision-making process. The unhindered exchange of information also allows local communities to verify the claims of the developer and government agencies, which provides them with a sense of control and participation, thereby enhancing trust. This equally provides significant benefits for the developer and government agencies, because trust fosters collaboration, reduces complexity and minimizes negotiation costs (Bradbury et al 1999; Earle and Cvetkovich, 1999, 1995). To benefit from these social and economic opportunities a positive social climate has to be maintained. Positive social trust experiences, however, are frequently jeopardized by the narrow interpretation of technical risk assessments
that often neglect the full range of socio-environmental concerns mostly at the industrial developer's peril (Kasperson et al, 1992; Misztal, 1996). The remainder of this chapter, therefore, analyses the key elements of successful risk communication, highlighting the importance of including community stakeholders in the process of risk identification and treatment.

4.4 The Role of Social Trust in Facilitating Cooperation and Participation in Relation to Risk Communication

In situations of high social distrust, particularly in complex industrial developments, all or some dimensions of trust such as commitment, competence, caring and/or predictability are usually compromised. One of the primary reasons for this scenario is the narrow interpretation of risk which largely excludes the social and cultural concerns of local communities. Risk communication cannot be effective if restricted to techno-economic, environmental and/or health information. It is equally ineffective if reduced to a thinly veiled attempt to change people’s risk perceptions in favour of expert risk interpretation. The most likely outcome of these limited views on risk communication is increased community distrust. Scholars agree that risk communicators should instead seek broad public participation in defining "acceptable" risk (Bradbury et al 1999; Misztal, 1996; Earle and Cvetkovich, 1999, 1995; Kasperson et al, 1992). To arrive at a mutually agreed definition, however, is particularly difficult because people hold different views on what constitutes acceptable risk. These discrepancies in risk perceptions derive primarily from differing social and cultural values and underlying world-views to which local communities may subscribe (Harding, 1998). Thus, risk communicators should acquire an understanding of the socio-environmental structures of local communities, particularly if these are confronted with industrial development.
and its inherent socio-environmental risks. They furthermore should recognize that risk communication occurs in a context of multi-levelled social communication in which stakeholders make their own judgements about risk (Kasperson et al, 1988, 1992; Krimsky and Plough, 1988). This requires a two-way communication process between risk communicators and local communities. Although widely espoused but rarely achieved, an open and honest two-way exchange of information in purposeful risk communication is essential for the identification of consensus or key points of contention (Kasperson et al, 1992).

It is in this context that this study recognizes four primary advantages of transparent and inclusive risk communication. Firstly, it encourages the development of social trust, secondly, it generates social cooperation, thirdly, it reduces complexity and finally, it reduces negotiation costs. Conversely, the difficulties associated with collaborative risk communication are particularly prominent if linked to industrial developments that are of public interest. In this case risk communication is likely to exclude, and thereby disadvantage, small local communities and their socio-environmental and natural environments. Such exclusion is caused by the absence of an effective dialogue of risk, which primarily derives from the lack of mutually shared socio-environmental and socio-environmental values. This compounds the difficulties for industry and government decision-makers, developing and implementing risk strategies that are by nature highly controversial. For example, industry and government experts may perceive a development project as being technically and socially feasible. In the absence of community involvement and commonly held value positions, however, expert evidence and proposed risk strategies provided by industry and/or government agencies are frequently disputed by local communities. The literature deals with these problems by emphasizing the inclusion of local communities in the risk communication process.
Bradbury et al (1999), for example, suggest cooperation and stakeholder collaboration on matters of risk that surround large industrial developments. This means that risk issues, which are of intrinsic concern to local communities, should be dealt with collaboratively. The exclusion of local communities from cooperatively stipulating what constitutes risk, even though it has a direct impact on their lives, is most likely to result in the rejection of expert interpretations of risk. Moreover, effective risk communication not only requires stakeholder collaboration, but also adequate levels of trust as well as the lowering of distrust among stakeholders with differing perspectives. Similarly Misztal (1996), assigns two key roles to effective risk communication firstly, sustaining high levels of trust and secondly, reducing distrust among stakeholders. Earle and Cvetkovich (1999, 1995) add another dimension to effective risk communication. They call for a greater mutual appreciation of the multiple values that are held by the various participants in a social relationship. Moreover, they particularly recognize the need for transformational exchange, the collaborative interpretation of the emergent values and the consequent alignment of different socio-environmental perspectives.

The authors cited above seem to agree that a collaborative approach to risk issues and the inclusion of community values into risk assessment processes can be expected to lead to more effective risk communication. This approach moves beyond the traditional view which suggests techno-economic solutions to socio-environmental and socio-environmental risk issues. To successfully overcome the over reliance on exclusive techno-economic fixes, a participatory approach is needed with the aim to collaboratively establish the wider risk context as well as engage locals in the risk identification and risk treatment processes. Consequent research specifically investigates this approach and provides an insight into its successes and failures.
Viewing risk communication as discourse or dialogue has significant implications for the development of social trust, the reduction of community distrust and the establishment of participatory structures. Particularly in situations of high social distrust, the absence of community collaboration and the employment of a narrow conception of risk is destined to result in ineffective risk communication. As indicated earlier, risk communicators should seek broad public participation and include issues of public concern into their risk management strategies. This means that community concerns should be included that not necessarily relate narrowly to the traditional perceptions of risk. For example, issues such as losses in property value and quality of life, erosion of the sense of community, disrupted social relations and stigma are to be included into the risk equation (Kasperson et al 1992). Kasperson and his colleagues further suggest that social conflict over facilities and risk is often not a conflict over risk per se, but rather a political conflict over access to power and resources. Therefore, to reduce social distrust requires the sharing of power by including the community from the beginning and throughout the risk assessment process, presenting all plans and positions as provisional. Thus, community participation and power sharing throughout the risk identification, risk analysis and assessment as well as risk treatment processes can be expected to positively affect social trust along all its key dimensions.³ The importance of this goal is the more apparent by considering its alternative. The exclusion of the community from all negotiations or at best the symbolic inclusion of community stakeholders will generate conflict, anger, and additional distrust. Moreover, the presentation of positions as final or not negotiable removes from all stakeholders the freedom to manoeuvre and withdraws from the public the power over process and ultimate decision-making (Kasperson et al 1992). If, however, the local community remains informed at all times, a sense of control can be established by the public,

³ To review the key dimensions of trust: commitment, competence, caring, predicability see pp 108-110.
greatly enhancing a condition conducive to the development of social trust. Failure to disclose relevant data almost certainly results in prolonged periods of distrust.

Public participation can thus be viewed as a means of developing consensus among stakeholders particularly if engaged in complex industrial developments. The challenge for the industrial developer as well as government agencies, however, is to develop a context in which community stakeholders can establish and maintain effective dialogues (Bradbury et al 1999). Adding to this idea, Earle and Cvetkovich (1999) note that increased public participation per se does not necessarily assure success. It needs instead the necessary forums for communication and participation in which issues of public concerns about risk as well as issues of dependency and empowerment can be addressed. It is in this context that subsequent research investigates whether a favourable social climate was provided by the developer in which the establishment and maintenance of participatory structures was assured. In which furthermore, stakeholder of different socio-environmental persuasion were able to engage in a free and open dialogue, with the final goal to reach consensus. Furthermore, this study sets out to analyse whether public participation was actually viewed by the developer and the appropriate government agencies as discourse or dialogue. This will give some insight into the participatory opportunities provided for the local community to firstly, express their socio-environmental and equally important socio-environmental concerns; secondly, whether these concerns were actually included into risk contingency strategies; and finally, whether a means to realize critical awareness was provided to the local community by the developer and government agencies.
4.5 Summary


The insistence by some development experts to exclude these community concerns from risk strategies violates the social and cultural expectations of local communities. Distrust that arises from violating the expectations of community stakeholders can be expected to be very persistent. To re-establish community trust is particularly difficult and requires significant participatory and collaborative effort and concessions by the developer and government agencies before community trust can be regained (Bradbury et al 1999). To gain a better understanding of this problem a multidimensional analysis of trust has been proposed in this Chapter. The key aspects of trust identified in this analytical approach are cognition, affect and behaviour. These different types of trust reflect a person’s expectation that other individuals, organizations or institutions in a social relationship can be relied upon to act in ways that are competent, predictable and caring (Kaspersen et al 1992).

This characterization of trust indicates a complex interaction of cognitive, emotional and behavioural properties at the individual, group and system level.

These interactive processes require a social climate in which public participation is perceived by participating stakeholders as a communicative act. Within such a participatory framework emphasis should be placed on fair and open dialogue in which participants freely define their collective preferences, interests and values (Habermas, 1976; Webler, 1995). Such participatory approach is not only conducive to the development of trust, but it also improves the quality of participatory dialogue and the
possibility of a working consensus or in Habermas’s words, it re-introduces democracy. Bradbury and his colleagues (1999) view this pro-active participatory strategy as “effective intervention”. Based on this perspective they developed a number of key questions, designed to elucidate the relationship between trust and public participation. If participation is used as an intervention strategy the key research question thus becomes: What is its role of public participation in creating and maintaining a context in which effective dialogue can occur? If, they argue further, public participation is used as an intervention strategy several specific questions emerge. Firstly, what effect does initiating and implementing a fair and open exchange of information have on levels of trust, distrust, and cooperation and on the development of a working consensus among diverse participants, holding different value positions? Secondly, how can a context be created in which specific action can be taken to reduce a cycle of distrust that prevents effective dialogue? Thirdly, is the development of personal relationships critical to the establishment of interpersonal trust – and is interpersonal trust, in turn, critical to the establishment of system trust? And finally, how does the provision of mechanisms for accountability affect levels of trust and distrust? In Bradbury’s et al (1999:127) view, answering these questions would “…provide valuable information about the relationship between trust and public participation that could be used to achieve a working consensus on risk policy issues”. This study applies these questions to its two case studies, providing a detailed insight into the relationship between trust and public participation as sought by Bradbury and his colleagues. The methodological approach taken by this study to answer these and the other questions that emerge from the three-part theoretical framework presented by this thesis, is discussed in detail in the following Chapter 5.
Chapter 5
Research Methods and Strategies

5.1 Introduction

5.1.1 Theoretical Background

The previous Chapters 2 to 4 examine various theoretical responses by organisations to socio-environmental contingencies. As defined earlier in Chapter 1, the term socio-environmental refers not only to the natural environment but also includes social, cultural, economic and political environments. Socio-environmental contingencies usually emerge from local community demands, institutional regulatory requirements, and individual and organisational value incongruence as well as from difficulties in developing social trust relationships. This thesis studies global and local organisational responses to these socio-environmental contingencies, using case examples in a context of two large industrial developments. As explained previously, transnational organizational contingency responses are driven by global organisational deep structures as well as the deep structures of their local interdependent or semi-independent substructures. Consequently, this thesis explores the deep structures as well as the deep structure behaviour of a large global cement manufacturer and two of its local substructures.

In danger of losing access to one of their most important raw materials, limestone, the two local substructures under investigation faced the discontinuation of their techno-economic equilibrium. Similarly, the local host communities, suddenly confronted by the likelihood of large limestone quarry developments, found themselves exposed to  

1 This thesis uses primarily the theoretical term organisational “substructure” rather than “subsidiary”, to be more consistent with the theoretical framework developed in Chapters 2-4.
loosing their socio-environmental equilibrium. The punctuating events, which threatened to discontinue the equilibria of the stakeholders in either of the case examples, are related to natural resource availability and the consequential socio-environmental community demands. This means that the socio-environmental and techno-economic deep structure choices of the industrial organisation under investigation were challenged and thereby subjected to possible fundamental change.

Particularly if studied in a global/local context, organisational deep structure choices, strategies and activity patterns are expected to change with the introduction of new global socio-environmental policies. However, despite new global organisational strategies and revised socio-environmental policies local deep structure inertia at the semi-independent local substructure level, may prevent or retard change locally. Thus, as proposed in chapter 2, a spatial research approach is pursued in this study, which distinguishes between physical and theoretical spatiality. For example, by studying a global/local industrial organisation and its local development projects, physical spatiality refers to these developments in terms of their geographical location. Theoretical spatiality, on the other hand, identifies the socio-environmental sphere of the developments. Within and across these spatial spheres the socio-environmental demands of local communities and the techno-economic requirements of an industrial developer can be expected to be incongruent. If such incongruencies are accompanied by local substructure inertia, uniform global/local contingency responses to local community demands are almost impossible. Consequently, heterogenous contingency responses by the global organisational structure are most likely to occur. This leaves the semi-independent organisational local substructures and their inertial deep structures largely to their own devices.
Closely aligned to the difficulties that arise with heterogenous contingency responses is the problem of cognitive dissonance. As discussed in Chapter 3, cognitive dissonance in local communities is primarily caused by incongruent socio-environmental value positions between those held by local communities and those pursued by industrial developers. If the mutually recognition and legitimization of these different value positions is refused by stakeholders and the incongruity between organisational and community value and belief systems persist, local communities are most likely to enforce legal and political sanctions. Both, the complexities of discrepant value positions as well as heterogenous contingency response can be expected to impact negatively on social trust developments locally. As indicated in Chapter 4, this means that global organisations, which fail to firmly deal with these complexities at the local substructure level, are drawn into a spiral of local deep structure inertia. Consequently, the global organisational structure must expect to be identified by local communities with local deep structure inertia, which in turn leads the global structure to further distance itself from these local complexities. As a consequence, the inertial local substructures, left to their own devices, are incapable to develop a social climate of trust that encourages genuine community participation and an effective social trust relationship with the local community.

Social trust relationships and the involvement of local communities in planning and decision-making processes are of particular importance in relation to the cement industry and its limestone quarry developments. The need for participatory structures, community collaboration as well as community trust is particularly apparent if one considers the very large withdrawals of natural resources from the environment and the addition of significant amounts of CO₂ to the atmosphere by the cement industry. It is in this context that this study sets out to answer the research question: What are the
processes through which the cement industry relates to local communities in critical industrial developments? To deal with this research problem one of the largest global cement manufacturers, the Holcim Corporation (formerly Holderbank) and two of its limestone quarry developments have been selected for analysis. The reasons for studying two semi-independent organisational substructures of the Holcim Corporation are explained under the following sub-heading.

5.1.2 Rationale: Why selecting the Cement Industry for Analysis?

Two limestone quarry developments, the FEKLHAS quarry project in Untervaz, Switzerland and the East End Mine in Central Queensland, Australia have been chosen for analysis. The FEKLHAS development has an estimated mining capacity of about 45 years, whereas the East End Mine is estimated to hold a limestone deposit of more than 100 years. These sizable developments impact on the natural environment in two major ways. There is firstly, the withdrawal of large amounts of non-renewable resources from the environment and secondly, the addition of significant levels of CO$_2$ to the atmosphere. These withdrawals and additions reached such levels that any decisions made by the cement industry directly impact on both, local environments (resource depletion) and the global environment (CO$_2$ production). This means that the industry’s decisions extend well beyond the natural environment and equally effect local communities socially, culturally, economically and politically. Therefore, the following analysis of the actual resource requirements and CO$_2$ emissions by the global cement industry is thus presented to further justify the decision to investigate one of its leading cement manufactures, Holcim, and in particular two of its local substructures.
The manufacture of Portland Cements requires high levels of energy and consumes significant amounts of non-renewable resources. For example, the actual composition of commercially made Portland cement depends largely on the actual oxide compositions of the raw materials and the way the clinker is burned (Lea, 1970; Kosmatka et al., 1991). However, a typical range of oxide compositions required for the production of ordinary cements is shown in Table 5.1. The primary oxides are lime, silica, alumina, iron, magnesia, and sulphur trioxide (gypsum).

Table 5.1: Chemical composition of Portland cement

<table>
<thead>
<tr>
<th>Oxide</th>
<th>Range %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lime CaO</td>
<td>60 – 67</td>
</tr>
<tr>
<td>Silica SiO₂</td>
<td>18 – 25</td>
</tr>
<tr>
<td>Alumina Al₂O₃</td>
<td>3 – 8</td>
</tr>
<tr>
<td>Iron Fe₂O₃</td>
<td>1 – 6</td>
</tr>
<tr>
<td>Magnesia MgO</td>
<td>0 – 4</td>
</tr>
<tr>
<td>Gypsum CaSO₄ •2H₂O</td>
<td>1 - 3</td>
</tr>
</tbody>
</table>

Source: (Payne, 1982; Kosmatka et al., 1991)

From Table 5.1 two important points emerge; firstly, the oxide compositions indicate that limestone constitutes the most prominent ingredient for the manufacture of cement and secondly, cement production relies exclusively on non-renewable resources. The demand for these natural resources increased quite significantly in previous years. For example, in 1996 the global cement production reached 1.46 Bt increasing to 1.7 Bt in 2003 equivalent to an average annual growth of 0.034 Bt. To quantify the impact on these natural resources individually, the global production figure for the year 2003 of

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2 Different types of Portland Cement are manufactured to meet different normal, physical and chemical requirements for specific purposes. To avoid the excessive use of technical and chemical terms, CSA Standard A5, Type 10 – 50 Portland Cements will be referred to as ‘cement’. The Appendix section provides a detailed account of the origins of Portland Cement and the sequential steps for its manufacture.

1.7 Bt is used in the following Tables 5.3 and 5.4 as the categorical variable and the approximate raw material requirements for one metric tonne of cement as shown in Table 5.2 are used as quantitative variables.

Table 5.2: Material needs for one metric tonne of Portland cement

<table>
<thead>
<tr>
<th>One tonne of Portland Cement approximates</th>
<th>Raw material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totals</td>
<td></td>
</tr>
<tr>
<td>1500 kg Limestone</td>
<td></td>
</tr>
<tr>
<td>100 kg Sand</td>
<td></td>
</tr>
<tr>
<td>60 kg Clay</td>
<td></td>
</tr>
<tr>
<td>50 kg Gypsum</td>
<td></td>
</tr>
<tr>
<td>19 kg Ironstone</td>
<td></td>
</tr>
<tr>
<td>350 kg Coal</td>
<td></td>
</tr>
<tr>
<td>250 l Water</td>
<td></td>
</tr>
</tbody>
</table>

Source: QCL, 1994

Table 5.3: Natural Resource Requirements

<table>
<thead>
<tr>
<th>Global Cement Production, 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material</td>
</tr>
<tr>
<td>Limestone</td>
</tr>
<tr>
<td>Sand</td>
</tr>
<tr>
<td>Clay</td>
</tr>
<tr>
<td>Gypsum</td>
</tr>
<tr>
<td>Ironstone</td>
</tr>
<tr>
<td>Coal</td>
</tr>
<tr>
<td>Water</td>
</tr>
</tbody>
</table>

As indicated in the following Table 5.3, the 1.7 Bt of cement produced in 2003 required significant quantities of natural resources. Particularly noticeable are the withdrawals of
limestone, reaching 2.550 Bt and of water, totalling 2.125 Bl. The addition of carbon dioxide to the environment is also reaching significant levels. The Geopolymer Institute at the University of Picardy in France calculated that global cement production generates 7 per cent of world CO₂ emissions (New Scientist, 1997). According to the Institute, the creation of 7 per cent CO₂ annually represents the biggest manufacturing source of CO₂ globally surpassing any other industrial source. The institute estimated that rising global cement production could result in higher CO₂ outputs increasing from 7 per cent to 10 per cent of world emissions by the year 2005 (New Scientist, 1997).

The statistical estimates presented in Table 5.2, 5.3 and 5.4, confirm the earlier argument that world cement production significantly contributes to the withdrawal from and the addition to the socio-environmental and natural environments locally and globally. This equally applies to the energy requirements of the global cement industry. For example, Australia produces 198.2 billion kWhr annually (indexmundi, 2004), meaning that the 221 billion kWhr required by the global cement industry in 2003 exceed Australia’s yearly energy production by 11.5 per cent. The generation of 221 billion kWhr, shown in Table 5.4, not only demands significant quantities of fossil fuels, but also adds to the 7 per cent of CO₂ emitted by the global cement industry. Consequently, the direct and indirect withdrawals and emissions caused by cement production processes exert significant impacts not only on the world’s natural resources but also on local communities. The local impact of cement production is primarily linked to limestone deposits, which are usually found in local rural areas. Limestone quarries are particularly disruptive to the local socio-environmental as well as natural environments, meaning that local farming communities are very cautious in accepting proposal advanced by extractive industries such as the quarrying divisions of the cement

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4The Swiss cement industry has successfully pursued the reduction of CO₂ emissions. Particularly the CO₂ reducing processes employed by the Holcim subsidiary in Siggenthal are exemplary.
industry. These tensions between industry and local communities are increasingly fuelled by the rapidly growing globalization of economic activities on the one hand and the simultaneous emergence of localism on the other (Barnet and Cavanaugh, 1994).

Table 5.4: Summary of Resources used to produce 1.7 billion t of Cement

<table>
<thead>
<tr>
<th>Global Impact on Natural Resources</th>
<th>Total tonnes, (10^9)</th>
<th>Emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Production, 2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Renewable Resources*</td>
<td>3.507 kg</td>
<td></td>
</tr>
<tr>
<td>Water*</td>
<td>2.125 l</td>
<td></td>
</tr>
<tr>
<td>Energy Requirement</td>
<td>221 kWhr</td>
<td>7 %</td>
</tr>
<tr>
<td>130 kWhr per one metric tonne</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Totals from Table 5.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As established previously, the resource requirements by the cement industry impact quite significantly on global and specifically on local socio-environmental and natural environments. This means that local communities in particular bear the brunt of the socially as well as environmentally disruptive limestone quarries of the cement industry. Consequently, the exclusion of local communities from the planning and decision-making processes that relate to these quarries is most likely to encourage local communities and their allies to seriously challenge, frustrate or even prevent proposed developments. This means that project delays, public interest cases and litigation levelled against the proposed extractive developments of the cement industry consume...
not only significant amounts of time, effort and money, but might even result in economic failure.

The effects of cement production on the environment are well documented and risk, environment, and technical impact assessment models are highly developed in the cement industry. However, preliminary research shows an apparent lack of data and theory in the substantive areas of community participation and collaboration in the global/local cement industry. Consequently, this study attempts to fill this gap in current knowledge by studying and comparatively analysing the participatory approach of the two local organisational substructures of the global Holcim Corporation. It is in this comparative context and within the theoretical framework developed in Chapters 2 to 4 that this study seeks to provide a better understanding of the processes, which either prevent or encourage the development of collaborative and participatory structures in relation to two limestone quarry developments. The first case study investigates the Bündner Cement Untervaz (BCU) and its FEKLHAS limestone quarry development in Untervaz, Switzerland and the second case example examines the East End Mine quarry development near Mt. Larcom in Central Queensland Australia, which is operated by Cement Australia (CA), formerly Queensland Cement Limited. The research effort in both case examples focuses on five concepts related to community participation and collaboration:

The historical development of deep structure choices in relation to participatory strategies:

- The level of community involvement into the planning and decision-making process
• The effectiveness of participatory and collaborative structures
• The provision of a climate of social trust
• The level of social trust between community and industry stakeholders

To examine these five participatory concepts in relation to Holcim’s semi-independent and loosely coupled local substructures in Untervaz and East End/Mt Larcom, the grounded theory research method has been chosen. The primary reason for selecting this research method lies with the structure and size of the case populations and is explained in detail as this Chapter progresses. The following six methodological strategies underpin the grounded theory approach used by this study:

1. Theoretical Sampling
2. Transactional System Analysis
3. Data Accumulation Methods (interviewing, document analyses, observation)
4. Establishing Interpretative Validity
5. Multiple Triangulation
6. Open Coding

The method and strategies employed in this research are designed to assist in examining the socio-environmental realities of the two case examples. The central issue in this context is the relationship of structure to process. This means that although the deep structure choices of Holcim and its two substructures are assumed to be relatively fixed, new participatory processes may lead to new structural arrangements; while changes in structure may similarly lead to changes in process. To elucidate and articulate these research problems the attempt is made by this thesis to study the easily recognizable organisational deep structure mechanisms of the BCU and CA but equally important the
less visible ones as well as the negotiated participatory arrangements between these companies and their host communities.

5.2 Research Methods

5.2.1 Grounded Theory

In contrast to theory generated by logical deduction from a *priori* assumption this thesis attempts to discover and develop theory from data pertaining to the social context under study. Although the conceptual framework is constructed from the data rather than from previous studies, it is expected however, that previous studies will have an influence on the final outcome of this research. The systematic discovery of theory from data is not new. It is a sociological method developed by Glaser and Strauss (1977) in the mid 1960s coining this approach *Grounded Theory*. It is in this context that this thesis studies inductively as well as deductively the research phenomena of deep structure, community participation and social trust\(^5\) in relation to the FEKLHAS and East End Mine limestone quarry developments. The grounded theory approach is a research method that continuously and comparatively analyses data from the case examples rather than comparing totals of indices. It is for this reason that the grounded theory approach has also been called “…continuous comparative analysis” (Stern, 1994:119).

Consequently, theory is developed by continuously comparing and analysing data pertaining to the deep structure histories, strategies and behaviour of the Bündner Cement Untervaz (BCU) and Cement Australia (CA). This equally applies to data derived from documents and interviews obtained from industry, interest groups, local and state government agencies and the local communities of Untervaz and East End/Mt Larcom.

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\(^5\) The research phenomena emerged from the conceptualisation and categorisation process of the research data. How the research phenomena emerged and developed is explained in detail under sub-heading 5.2 (viii) Open Coding: The conceptualisation and Categorisation of the FEKLHAS and East End Mine Data.
Therefore, data collection, analysis, and theory are viewed by this study as intrinsically and reciprocally linked. Any theory emerging from this reciprocal relationship is tested for its applicability to the research phenomena of deep structure, community participation and social trust. This study recognises four central criteria\(^6\) as the basic requirement to test the applicability of the grounded theory approach to the FEKLHAS and East End Mine case examples:

- Fit
- Understanding
- General
- Control

Firstly, if the developing theory fits the socio-environmental reality of the FEKLHAS development and/or the East End Mine project it is considered to possess the characteristics of an adequately grounded theory. Secondly, the theory, which emerges from the socio-environmental reality of both case examples, must be understandable not only to the experts of the BCU, CA and government agencies but equally to the laymen and women involved in the development processes. The intellectual accessibility of the theory to all stakeholders is particularly important, because grounded theory is not describing the units under study, but attempts to discover dominant processes by utilizing the knowledge and experiences of the stakeholders associated with the FEKLHAS and East End quarry developments. Thirdly, the emerging theory must be sufficiently general to be applicable to multiple situations within the case examples and not just to a specific type of situation. Fourthly, organisations or their experts that apply the developed theory, which emerged from the FEKLHAS and East End Mine study to

\(^6\) Derived from Glaser & Strauss (1967) and Strauss and Corbin (1990).
other projects, must be able to understand and analyse the ongoing socio-environmental realities of the future cases to produce and predict change within them. As changes occur, the theory must allow these practitioners to be flexible in revising and controlling their tactics and if necessary revise the theory itself. The crux of controllability as emphasised in this study is the production and control of change through “controllable” variables. This means that the controls are of a more benign nature, referring to those in which organisational experts already engage, as for example, controlling the planning and decision-making processes in industrial developments.

The brief introduction to the four central criteria of fit, understanding, general and control, first introduced by Glaser & Strauss (1967) and Strauss and Corbin (1990), illustrates, that theory developed by this thesis can be used in practice. The development of grounded sociological theory relies exclusively on the continuous development of theory. Consequently, this thesis does not propose a theory and then prove it, but instead investigates an area of study from which theory is allowed to emerge (Stern, 1994; Charmaz, 1994; Strauss and Corbin, 1990; Strauss and Glaser 1977). This means that this study aims to generate theoretical constructs that are expected to explain and verify the research phenomena of deep structure, community participation and social trust in relation to the socio-environmental contexts of the FEKLHAS and East End Mine developments. It is important, however, that the emerging theory is not limited to the techno-economic realities of the FEKLHAS and East End Mine developments. Instead, it should and does encompass the socio-environmental experiences and local knowledge of the local communities confronted with the complexities of these two developments. Consequently, by emphasising theoretical relevance and purpose of a constantly changing theory, rather than being doctrinally committed to one preconceived theory, serves two purposes. Firstly, it maintains theoretical sensitivity and secondly, it provides
greater access to theory by people living in a world of industrial development. The importance of understanding the nature of experiences and knowledge that shape the immediate world of people who suddenly become stakeholders in large industrial developments is of particular concern to this research. This is because conceptual categories developed from stakeholder experiences may reveal the existence or non-existence of an attitudinal flexibility that is necessary to develop participatory and collaborative structures. This study, therefore, conceptualizes knowledge and experiences of stakeholders, thereby discovering and developing theory.

It is in this context that stakeholders are selected by theoretical or purposive sampling to assure the examination of the most relevant experiences. Similarly, case examples are chosen based on their theoretical relevance in relation to their impact on socio-environmental and natural environments as well as in relation to the research phenomena of deep structure, community participation and social trust. As a consequence of using a theoretical sampling method an explanatory theory can be developed that reflects the realities it presents. Development sites, stakeholders, interest groups, corporate and community representative as well as local, state and federal agencies are therefore selected by theoretical or purposive sampling. This sampling process is explained in detail under the appropriate sub-heading later in this Chapter.

5.2.2 Identification of the Case Examples

There are a number of reasons why this thesis uses case studies to examine the processes through which the cement industry relates to local communities in critical industrial developments. Firstly, as a form of research case studies are likely to be epistemologically in harmony with the stakeholder’s experiences and thus a natural
basis for generalization (Stake, 1978). Secondly, this thesis considers case examples to be the most effective means to add to current knowledge, primarily because they accommodate the present understanding and natural experiences of stakeholders about their socio-environmental situation\(^7\). Thirdly, as established in Chapters 2 to 4, the experiences and knowledge of stakeholders, acquired through personal involvement or exclusion in industrial development cases, can be expected to:

1. Reflect and explain the reasons for the deep structure choices and strategies of stakeholders.

2. Indicate whether the industrial developer encourages genuine community participation and collaboration.

3. Show the level of social trust between the participating stakeholders.

These theoretical reasons as well as the significant global and local impacts of limestone quarrying\(^8\) informed the decision to select two case studies. Firstly, the FEKLHAS quarry developments in Untervaz, Switzerland, and secondly, the East End Mine project in East End/Mt Larcom, Central Queensland, Australia. As indicated earlier, these limestone quarry projects are estimated to have a mining capacity of 45 and 100 years respectively. Primarily because of seize and the associated socio-environmental and environmental impacts these developments provide a solid and realistic base of inquiry, physically as well as theoretically. They furthermore present concrete examples for understanding applied principles and concepts. This means that to better understand the concepts of deep structure, participation and social trust requires the theoretical

\(^7\) Derived from Miles and Huberman, (1994)

\(^8\) See Table 5.1 to 5.4 in this Chapter
application of these concepts to actual cases, which in turn depends largely on choosing the most appropriate cases (Stake, 1994; Miles and Huberman, 1994).

Table 5.5: Case Examples and Method of Inquiry

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Main Propositions</th>
<th>Method of Study</th>
<th>Case Examples</th>
</tr>
</thead>
</table>
| What are the processes through which the cement industry relates to local communities in critical industrial developments? | 1) If minimum regulatory compliance is the starting point in industrial developments public participation will be symbolic. Legal processes are most likely employed to resolve conflict.  
2) If community participation and consultation is the starting point in industrial developments conflict is most likely resolved collaboratively. | Data Collection  
Semi-structured and open-ended interviews  
Document Analysis  
Direct Observation  
Data -Triangulation  
Comparative analysis of data from each method and case  
Methodological – Triangulation  
Across-method analysis  
Across-case analysis | FEKLHAS limestone quarry developments at Untervaz, Switzerland  
East End Mine quarry development  
Central Queensland |

As implied earlier, the FEKLKHAS development of the BCU and the East End Mine project of CA appear to satisfy these criteria, firstly, because of their significant size and secondly, because of their inherent socio-environmental and environmental impacts locally as well as globally. Moreover, the appropriateness of the chosen cases is also reflected in the global/local structure of the industrial developer. For example, the two chosen substructures, the Bündner Cement Untervaz and Cement Australia are semi-independent organisational substructures of the transnational Holcim Corporation and
are thereby subject to the same global socio-environmental policies. As established in Chapters 3 and 4 the main theoretical as well as strategic problems that emerge from these global/local organisational structures is the local implementation of new global socio-environmental policies. This means that the deep structure choices of Holcim’s local semi-independent substructures, which could be either inertial or progressive, may adopt, reject or distort global policies locally. It is important, therefore, to understand the origins and processes of local deep structure choices and strategies, which not only drive the socio-environmental contingency responses of the BCU and CA, but also determined the adoption or rejection of changes in global socio-environmental policies.

Since the BCU as well as CA preside over large and socio-environmentally impacting limestone quarry developments, their socio-environmental contingency responses need to be comparatively analysed. This analytical approach is expected to provide a deeper insight into the different historical origins of BCU’s and CA’s deep structure choices, their actual deep structure behaviour, and the outcomes of such behaviour and finally their participatory and social trust commitments. Consequently, the research phenomena of deep structure, participation and social trust are applied to each case example and comparatively analysed in relation to BCU’s and CA’s actual participatory and social trust commitments and their deep structure behaviours. This comparative examination is carried out within the framework of the two case examples introduced in Table 5.5 whereas the cases are presented in Chapters 6 and 8 and analysed in Chapters 7 and 9.

As established in the theoretical section of this study it is expected that each organisational substructure is driven by their unique deep structures, which usually operate in different case specific socio-environmental and environmental contexts. Consequently, a holistic research approach is applied, which encompasses the social,
cultural, economic, and political value and belief systems of local communities and equally important, includes the techno-economic values of industry and government stakeholders in each of the cases examples.

5.2.3 Theoretical Sampling\textsuperscript{9}

This thesis focuses on two specific limestone quarry developments (Table 5.5) that are analysed in terms of their specific and generic properties. It is in this context that the research phenomena of deep structure, participation and social trust can be applied to the FEKLHAS and East End Mine case generally. However, it can be expected that the research phenomena are particular and unique to each case, requiring either a multi-focus or single-focus process of inquiry. It is for these reasons that the grounded theory method suggests a theoretical or purposive, and not random, sampling model. Consequently, a theoretical sampling approach is used, which purposely selects specific industrial developments, organisational structures, local and state government agencies as well as community and interest group representatives. These stakeholders, however, must not only be engaged in the earlier selected quarry developments of FEKLHAS and East End but equally important must be directly impacted upon by these large industrial developments. This means that stakeholders from each case population are strategically selected in relation to their direct involvement in the FEKLHAS and East End Mine developments and in relation to their primary exposure to the socio-environmental and techno-economic impacts exerted by these quarry projects. These strategically selected stakeholders, through their direct involvement and experiences, are expected to posses an epistemological understanding of most, if not all instances and processes associated with the FEKLHAS and East End Mine developments.

\textsuperscript{9} The Theoretical Sampling method, although modified, derived from Glaser & Strauss (1977)
It is important to note that theoretical sampling may not be practical for larger populations. In the FEKLHAS and East End Mine developments, however, the number of relevant stakeholders involved and impacted upon by the developments is relatively small. Consequently, direct interviewing, making the theoretical sampling method appropriate and feasible in both case examples, covered 68 units of the sample population, which includes 16 senior decision-makers from industry and government authorities. This represents 57.5 per cent of the total units identified. The following Table 5.6 shows how many and what type of interview was completed for each category of stakeholder.

<table>
<thead>
<tr>
<th>Stakeholder Category</th>
<th>Type of Interview</th>
<th>Number of Sample Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>FEKLHAS</td>
</tr>
<tr>
<td>Industry Managers</td>
<td>Semi-Structured</td>
<td>Senior decision-makers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Kantonal / State Government Authorities</td>
<td>Semi-Structured</td>
<td>Senior public servants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Members of Kantonal / State Government</td>
<td>Semi-Structured</td>
<td>1</td>
</tr>
<tr>
<td>Local Council Authorities</td>
<td>Semi-Structured</td>
<td>Civic Councillors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Community Representatives</td>
<td>Semi Structured</td>
<td>Community Representatives, representing Village of Untervaz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Community Members</td>
<td>Group Interviews</td>
<td>27 Community Members</td>
</tr>
<tr>
<td></td>
<td>Open ended</td>
<td></td>
</tr>
<tr>
<td>Members of Community Advisory Board</td>
<td>Semi-Structured</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Group Interviews</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open ended</td>
<td></td>
</tr>
<tr>
<td>Interest Group Executives</td>
<td>Semi-Structured</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Interviews</td>
<td></td>
<td>Total Interviews</td>
</tr>
<tr>
<td></td>
<td></td>
<td>68</td>
</tr>
</tbody>
</table>

It is important to note that each sample unit detailed in the foregoing table was directly affected and/or involved in either the FEKLHAS or East End development.
As discussed earlier, this study uses a spatial analytical approach, meaning that the research phenomena of deep structure, participation and social trust are comparatively examined across the global/local divide. Theoretical sampling in these circumstances requires the specification of relevant geographical settings and the continuous selection of groups or individuals on the basis of their theoretical relevance to the research phenomena (Strauss and Corbin, 1990). This means that theoretical sampling requires theoretical purpose and relevance. Theoretical relevance is deemed to be proven or significant if a concept or incident is either repeatedly present or notably absent (Strauss and Corbin, 1990). It is in this context that preliminary research indicates a repeatedly present social trust development and continuous improvement of participatory structures in the FEKLHAS case and the notably absence of these participatory research phenomena in the East End Mine development.

Moreover, the statistical estimates established in Tables 5.2, 5.3 and 5.4 point to the constant incident of significant withdrawals from and additions to the natural environment. Directly linked to these withdrawals and additions is the continuous presence of socio-environmental impacts on the global, but particularly local communities confronted with large quarry developments. Therefore, the repeatedly present incident of global cement production, its perpetual impact on the natural and socio-environmental environments and the repeatedly present and/or absence of participatory research phenomena in the FEKLHAS and East End cases serves as the point zero for this study. Moreover, to even further assure theoretical relevance and significance two local organisational substructures of one of the largest transnational cement producers, the Holcim Corporation, which has a manufacturing capacity of 4.38 per cent\(^{10}\) of global cement production have been chosen for analysis. Preliminary

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\(^{10}\) Derived from the International Cement Review (1998)
interviews and document analysis in Switzerland point to a group of senior decision-makers directly involved in the FEKLHAS quarry development in Untervaz. The management of the Bündner Cement Untervaz and its FEKLHAS quarry development serve as the starting point of data collection. The preliminary data shows particular theoretical relevance since, in contrast to the East End Mine situation, a new participatory approach has been developed and applied which repeatedly and continuously engages the research phenomena of participation and social trust as a matter of routine.

However, theoretical sampling is cumulative, meaning that categories and concepts, which are developed by the continuous interaction of data collection and analysis, are also accumulative (Strauss and Corbin, 1990). For example, concepts such as deep structure, participation and social trust that emerged from the data\textsuperscript{11} and their relationships to each other and to the FEKLHAS project itself also accumulate through the interplay of data collection and analysis. Therefore, the preliminary data collection eg. interviews with BCU’s decision-makers, document analyses and direct observations provide an initial guideline only.

The theoretical sampling process as described above requires the specification of relevant geographical settings and the continuous selection of groups or individuals on the basis of their theoretical relevance to the research phenomena. This implies that there cannot be a definite, prescribed or pre-planned number of groups, actors or stakeholders selected for comparison and analysis. This selection method, however, raises two strategic questions. Firstly, what should be the final number of groups for each case example and secondly, to what extent should data be collected from these

\textsuperscript{11} Grounded theory is treating literature as data. Therefore, the concepts mentioned emerged from the “data” / literature
groups? Traditional research based on verification and description predetermines the number of units sampled. In contrast, the grounded theory approach, based on theoretical sampling, continuously engages a multiplicity of groups as well as incidences and situations from which data is collected and comparatively analysed. Theoretical sampling from these groups must continue until theoretical saturation occurs (Strauss and Corbin, 1990; Glaser and Strauss, 1977). This point of saturation is reached as soon as no additional data can be found from which concepts, categories and propositions could be developed (Strauss and Corbin, 1990). Before saturation is reached, however, a major source of data for this study is expected to emerge from the interrelationships of case specific groups and stakeholders and their strategies and interaction in relation to the research phenomena.

5.2.4 Transactional system analysis

If analysed in the contexts of the FEKLHAS and East End Mine case examples the research phenomena of deep structure, participation and social trust become part of a complex construct of interrelated stakeholder interactions. For example, driven by various case specific conditions, the actual stakeholder deep structures as well as participatory and social trust actions in both case studies may either be conditioned by global corporate or local substructure decision-making or both. The global cement manufacturer Holcim, for instance, might encourage its local substructures to engage in community participation and social trust development. However, if Holcim’s local organisational substructures maintain a firmly entrenched conservative deep structure they are most likely to prevent any participatory approach or social trust building. Local substructure management may insist that it is bound by local government regulations.

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12 Derived from Strauss & Corbin (1990), *Transactional Systems* and *Conditional Matrix*. Strauss & Corbin’s work has been modified to suit the case analyses of this thesis.
with which it is in full compliance and which do not require community/industry power sharing in decision-making. This stance may be indirectly sanctioned by the global corporation, by granting enough independence to its local substructures, thereby allowing the development of a less progressive, local participatory approach. This scenario similarly applies to the national/local, state/local or organisational and institutional internal deep structures of local communities, interest groups as well as state and local government authorities. This means that the research phenomena remain in a conditional relationship with the deep structures of the actors shown in Figure 5.2. Consequently, this research not only analyses the relevance of stakeholders to the phenomena, but also examines the interactions between them and the actual deep structure as well as participatory and social trust actions deriving from these interactional processes.

![Figure 5.1: Transactional System Analysis](image)

As a consequence of studying these interactions between stakeholders and the socio-environmental contexts in which they occur, the conditions that either encourage or prevent actual stakeholder action are also included in the analysis. Moreover, parallel to examining the actual outcomes of stakeholder actions that may follow the interactions
between the stakeholders shown in Figure 5.2, this research analyses the conditions that may constrain their interactional strategies and choices in relation to the phenomena. This means that social, cultural, economic and political as well as time and space conditions, which can be assumed to impact at various degrees on the interactional processes, are included into the examination. It is important therefore to study the interactional strategies of stakeholders in terms of possible conditional constraints which they apply during the course of their interaction with fellow stakeholders. The linking of the interactional strategies and actual behaviour of stakeholders within the interactional process as well as their responses to possible conditional constraints to the larger contexts of the two case examples has two distinct advantages. Firstly, it elucidates stakeholder decision-making processes, secondly, it provides some insights into the nature of stakeholder deep structures and thirdly, it allows a more accurate prediction of the possible outcomes of stakeholder interactions. Finally, these insights contribute to the further accumulation of data and their continuous and comparative analysis thereby advancing the development of theory.

5.2.5 Data accumulation methods

Central for understanding the case specific conditions that impact on the research phenomena is the collection of appropriate data. Consequently, as Table 5.3 shows three primary data collection methods have been chosen, interviewing, document analyses and direct observation. To acquire the most appropriate information observational units or stakeholders are purposively selected, which are directly involved and/or impacted upon by the FEKLHAS and East End Mine developments. The corporate observational units are drawn from Holcim’s global corporate structure as well as from its local organisational substructures. The company external stakeholders to whom the data
collection methods are applied are representatives from the local community, interest groups, and State or Kantonal agencies as well as from local government authorities. Within this data accumulation framework interviews and participant observation are the source of primary data, whereas public, organisational and company documents provide the secondary data for this research.

**Interviews** may be divided into three main categories.\(^{13}\) Firstly, *structured interviewing*, this approach refers to an interview situation that is forcing a choice between rigidly formulated alternative answers attached to a series of pre-established questions. Secondly, *unstructured interviewing*, this method requires a flexible strategy of discovery, designed to elicit answers from questions that the interviewee considers to be important and relative to the given topic. Thirdly, *semi-structured interviewing*, this strategy, although unstructured to some degree, is a more formal and focused method of

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\(^{13}\) The three types of interview are discussed in Fontana and Frey, 1994; Lofland, 1971; Stacey, 1970.
interviewing where a list of questions and topics, pertaining to the research phenomena, guide the interviewer.

The object of the grounded theory approach used by this study is the construction of theory from developing data rather than to determine, identify and validate the frequency of predetermined behaviour and contingency responses of the stakeholders involved in the FEKLHAS and East End Mine development. By imposing predetermined questions on the interviewee and by assuming pre-knowledge of what the primary questions are, the structured interview approach, as a logical consequence, must also assume a detailed knowledge of the respondent’s life and the social reality of the case under study (Fontana and Frey, 1994). In contrast, grounded theory does neither assume prior knowledge of what the important questions are, nor does it emphasize statistical precision as its primary goal. Instead it recognizes the exploration of the experiences, sentiments, reasons and motives, operating in chosen case examples, as its central focus of inquiry. To capture and understand the complex behaviour of stakeholders without imposing any priori categorization, which may limit responses and/or the area of inquiry, unstructured interviewing is likely to present the most effective qualitative research approach (Fontana and Frey, 1994; Lofland, 1971).

Although unstructured interviewing provides a greater breadth than other types of interview, particularly if one considers its qualitative nature, the unstructured approach is, nevertheless, not without its problems. For example, inherently linked to unstructured interviewing is the development of a close rapport with respondents, which may result in the loss of distance and objectivity as the researcher may become a spokesperson for the group studied (Fontana and Frey, 1994). Additionally, unstructured interviews are less likely to be comparable from one respondent to another.
(Stacey, 1970). One way to overcome these problems is semi-structured interviewing where several topics and questions are developed, but only used as interview guides. To ensure optimum communication with lay interviewees and to assure greater access to the emerging data by all stakeholders, this study presents local issues and formulates questions in a straightforward and commonsensical manner rather than using sophisticated sociological formulations. The primary reason for using this approach is to prevent the alienation of most stakeholders and to avoid possible limits in their interview responses, thereby increasing the depth and accuracy of the data collected.

Although the author of this research is well acquainted with the area of study through the personal involvement in the concrete and cement industry, the interview guides have nevertheless been designed with a series of probes attached to particular questions to more clearly elicit the interviewee’s general accounts. Additionally, since this research relies to a significant extent on cross-cultural analysis another problem emerges. Interview data may become vulnerable to an added layer of meanings, cultural biases, interpretations and misunderstandings through “back translation” (Deutscher, 1978). However, Deutscher’s concerns apply only if the original instruments of interviewing namely, questions and topics, are translated into the local language, in order to be translated back into the original together with the responses. The original and translated version is then to be compared in order to clarify possible discrepancies. In the FEKLHAS case example linguistic and semantic errors in translation are kept to a minimum for three reasons. Firstly, the cross cultural analysis of this study does not attempt to compare Australian with third world quarry operations, which are driven by very different social, political, cultural and economic dynamics. Instead, this research comparatively analyses two countries with equally developed western cultures and similar social, political and economic systems. Secondly, technical terms are identical in
both the Swiss and Australian case and additionally fall into the area of expertise of the author. Thirdly, interviews are not subject to back translation because they are conducted in the original, meaning that interview and other texts are translated only once, from the German into English. Moreover, most interview respondents in the FEKLHAS case possess an exceptional command of the English language and are, like the interviewer, bilingual. Although some interviews might require some back translation it is important to note that the interviewer and most interviewees share the same technical and/or cultural background. For these reasons the potential for semantic breakdowns or linguistic misunderstandings is expected to not exceed the problems usually experienced in an exclusively English-speaking interviewer-interviewee setting.

**Document analyses** based on written materials from local councils, state/Kantonal government agencies, green and other local interest groups, technical consultants as well as from Holcim and its local substructures are used by this research to supplement interviews and observations. The primary sources of these documents include institutional and organisational environmental policies, technical projections, techno-economic and geo-hydrological reports, government regulations, court documents, minutes, community publications, state and commonwealth Hansard reports as well as corporate and governmental environmental, technical and risk assessments. Most documents are available to researchers, whereas others may be obtained via freedom of information procedures. Moreover, memoranda and minutes recording meetings between company representatives, community leaders and interest groups are analysed together with local council, state as well as federal correspondence and examined for similarities and differences in relation to the FEKLHAS and East End Mine developments.
To be consistent with the grounded theory approach it is important to distinguish between the two literary types of written material that are used by this study. As discussed earlier, grounded theory requires viewing theoretical literature as data, which in combination with the accumulated field data, is expected to produce new theory. Consequently, this study defines the first literary type as the theoretical type, whereas the documents from various stakeholder sources, which supplement the research methods of interviewing and observation, are defined as the procedural literary type.

For example, stakeholder action and interaction processes as well as case specific contingency responses by institutional, organisational and community stakeholders are most likely better explained by the application of the procedural literature. This means that the procedural literature can be expected to provide a deeper insight into the structure and function of local organizations and stakeholder alliances, their deep structures, attitudes towards participation and the levels of social trust development in both the FEKLHAS and East End Mine cases. Furthermore, the procedural literature provides the proverbial paper trial, showing progressively the historical development of different stakeholder deep structures, which determine local socio-environmental contingency responses.

In contrast the theoretical literature type assists in identifying previously developed theoretical and conceptual frameworks, thereby guiding this research in several ways. This means, that theoretical or disciplinary literature, as introduced in Chapters 2 to 4, is used to stimulate theoretical sensitivity by providing concepts and relationships that are examined against the actual data collected from FEKLHAS and East End stakeholders. Moreover, existing theories and concepts relevant to this research are used to assist in interpreting data and possibly stimulate additional questions if significant discrepancies
develop between the findings of this research and the discoveries reported in the
disciplinary literature. Finally, the theoretical literature may serve as a supplementary
validation tool; referenced in the appropriate context it will validate the accuracy of the
research findings presented by this study.¹⁴

**Observation**, the third core method used by this study, falls into two main groups,
participant and non-participant. It will be difficult, however, to draw a distinct line
between the two groups, because both are used to a greater or lesser degree
simultaneously. There seems to be agreement among authors that the chief criticism
levelled against observational research is to be found in the area of validity (Adler and
Adler, 1994; Denzin, 1989). Firstly, it is argued that if observers rely exclusively on
their own perceptions, the more they will be susceptible to bias from their subjective
interpretations (Lazarsfeld, 1959). The second shortcoming is an assumed lack of
reliability caused by the absence of statistical analysis, which prevents the researcher to
confirm whether his or her findings are real and not merely the effects of chance

To overcome these problems this research has taken three counter measures that will
lend greater credence and validity to its observational presentations.¹⁵ Firstly, this study
is using multiple observers with diverse cultural and professional backgrounds. This
allows the cross-analysis of their findings, thereby eliminating possible inaccuracies in
interpretations. Secondly, to assure a more grounded and universal base for the
observational part of this research, two vastly different types of participatory structures
are observed and comparatively examined.

¹⁴ For a more detailed account on the uses of different types of literature see Strauss and Corbin (1990)
¹⁵ These counter measures suggested by Adler and Adler (1994), Atkinson (1990), Denzin (1989),
Phillips (1985) and Schatzman & Strauss (1973) have been modified to fit the Collaborative Structure
Analysis approach.
The first is a progressive participatory approach with a well established and effective participatory structure, whereas the second observational case examines a failed participatory approach that resulted in deep seated community distrust. The third counter measure requires correctness and clarity when presenting observational findings, primarily to enable stakeholders to recognize their own social reality. Consequently, when observational accounts are summarized by this study, a style of writing is used, which provides the stakeholders of the FEKLHAS and East End Mine development with an easy access to the observational findings.

In this context factual and realistic texts are developed, reflective of the experiences and social realities of the stakeholders in each of the case examples. This approach is expected to create a sense of authenticity and plausibility which is easily recognizable by the observed. Finally, to ensure the widest range of consistency and enhanced generalization and legitimization of the observational presentations, findings are not gathered in accordance to personal patterns. Observations will not only be conducted considering varying conditions as outlined earlier, but additionally they are carried out systematically and repeatedly until theoretical saturation is achieved (Denzin, 1989; Glaser and Strauss, 1977).

5.2.6 Establishing Interpretative Validity

The data accumulation strategies of interviewing, document analysis and direct observation, used by this study, are consistent with the primary requirements of the grounded theory approach. Equally consistent is the continuous and comparative data analysis, methods of multiple triangulation and the within and across-case analyses of
the data collected from the FEKLHAS and East End Mine cases. The multiple triangulation strategies, selected to enhance the adequacy and validity of the methodological approach pursued by this study, are discussed later in this Chapter. However, the more traditional methodological research approach employed by some sociologists uses predominantly techniques that produce numerical data, which is widely held to reflect true measures of objective categories. This positivist approach adopted from the physical sciences seeks to explain social realities by universal laws. These perspectives include the assertion that reliability or stability of methods is an indicator of “validity” or of the accuracy and truthfulness of research findings (Altheide and Johnson, 1994). The main criticism levelled against a grounded research approach on the other hand is an assumed lack of universal law, resulting in a lack of validity. There are some authors, however, suggesting that validity should be abandoned as a viable concept or alternatively, radically qualified. (Atkinson, 1992; Hammersley, 1990; Atkinson, 1990).

However, the research phenomena of this study, exists not only in the abstract but equally in the objective world. It is expected therefore that this research will discover stable relationships among its research phenomena and possibly between the phenomena and case specific conditions, possessing attributes not dissimilar to universal laws. It is from the “…sequences and the regularities that link research phenomena together that this study derives universality as well as constructs that account for individual and social life within each case example” (Huberman and Miles, 1994:429)\textsuperscript{16}. Based on grounded theory, this study attempts to develop a definition of the situation which requires the establishment of explanatory conditions that are not restricted to those with an immediate effect on the research phenomena. Instead, the

\textsuperscript{16} Emphasis added.
analysis includes cultural values, social movements, cultural, and economic conditions as well as political contexts related to the phenomena.

However, as introduced in Figure 5.3, this study examines the phenomena of deep structure, participation and social trust using three different methodological strategies. Measures have been taken to produce the most neutral interpretations of the findings that derive from these research methods of interviewing, document analysis and observations, each method nevertheless possesses an inherent element of symbolic reality. Each method used by this research implies a different line of action, because of the unique interpretation, definition and personal reality assigned to the methodologies by the author of this study.

Therefore, there cannot be unqualified consensus on bias, only a negotiated reality verifying each method and its explanations. There are four reasons why a consensus on bias is almost impossible to reach. Firstly, different methods imply different activities towards reality; hence each method reveals different aspects of reality. Secondly, consensus is difficult to complete because each methodological interpretation can be expected to be unique. Thirdly, agreement is extremely difficult to achieve since previous experiences, unique perspectives and the idiosyncrasies of the author influence definitions. Fourthly, the reality to which methods are applied is in a state of constant flux, which renders observations made at a particular point in time different from any other observation (Denzin, 1978). It is for these reasons that this study selected multiple data accumulation methods and their triangulation to significantly minimize the deficiencies that usually originate from Denzin’s concerns.

17 The four reasons for the lack of consensus integrated into this study have been developed by Denzin (1978). For more detailed information on consensus, negotiated reality and triangulation methods the reader may refer to Denzin (1978) particularly chapter 4.
5.2.7 Strategies of Multiple Triangulation

This research applies two triangulation strategies, methodological and data triangulation. Methodological triangulation, as used by this study, is analysing and comparatively examining data from the chosen data-collecting methods of interviewing, document analysis and observation. This also includes the comparative examination of multiple variants deriving from each data-collecting method (Denzin, 1978). This means that data from dissimilar methods are used to comparatively examine the same research phenomena in relation to the case specific socials, cultural, economic, political and techno-economic conditions found in the FEKLHAS and East End Mine development. It is expected that from this approach a variety of data combinations emerge which are then subject to a triangulation analysis.

(a) Methodological Triangulation

Methodological triangulation requires a complex process of multiplying independent measures and sources of the same research phenomena. The use of multiple sources and modes of evidence, however, is most likely to generate unforeseen and unpredictable constellations. The multiplicity of methods, sources and measures therefore, requires a flexible research approach adaptable to the peculiarities of the FEKLHAS and East End Mine case conditions. Moreover, this approach is expected to possess the ability to change its methods and if necessary reconceptualize the research problems at hand (Denzin, 1978). Consequently, by using a flexible research approach, this study constantly re-evaluates the appropriateness of the different data collection methods in relation to the phenomena, thereby assuring that the most effective method is used to fit the emerging case specific conditions.
For example, the research methods selected for the FEKLHAS quarry development in Switzerland are interviewing and document analysis. To fit the case, the observation method had to be abandoned for two reasons. Firstly, the development events at the FEKLHAS project were concluded before the commencement of this study. Secondly, the geographical location made direct or participant observation unfeasible because of cost and time restraints. Moreover, the survey method, suitable for the study of more stable patterns of interaction could not be used, because interactive stability, if not completely absent in the Swiss situation, was nevertheless found to be somewhat sporadic. Consequently, semi-structured interviews have been designed to elicit information from local stakeholders about the events, which could not be observed by the author. Therefore, the main data collection method of interviewing is supported by the analysis of corporate and public documents. This means that the interview reports and the emerging data from the document analysis is comparatively examined and used to measure the correctness of the interview accounts given by the respondents. This approach is expected to reciprocally validate the evidence gathered from both the interview as well as the archival document analysis. The Swiss constellation of research methods, however, is unique to the FEKLHAS case and cannot be used in the Australian, East End Mine situation which has different case specific conditions.

Consequently, for the East End Mine case example semi-structured interviewing, document analyses and direct observation are assumed to be the most appropriate research methods. In the East End Mine case the primary data collecting method is expected to focus on semi-structured interviewing. Stakeholders directly engaged and/or impacted upon by the East End Mine development are the primary target group and are most likely to include management representatives from Cement Australia (CA), local community leaders, and representatives from the local farming community, various
government agencies as well as appropriate political leaders. This methodological approach of semi-structured interviewing is assisted by the comparative analysis of corporate, government, interest group and other public documents related to environmental and socio-environmental decision-making. The examination of these documents is particularly focused on the actual outcomes and impacts of these decisions on the local community, the company, government agencies, and the socio-environmental as well as the natural environment. The emerging data from the document analysis and the interview reports are comparatively analysed to discover possible discrepancies between accounts given by interview respondents, and the data gathered from the various document sources as well as from direct observation. Consequently, the methods of semi-structured interviewing, document analysis and observation are presumed to be the most appropriate for the East End Mine case study.

In sum, the guiding principle of methodological triangulation as shown in Figure 5.4 is the continuous evaluation of methods, the flexibility to change methods and the ability to constantly assess data for its theoretical relevance in relation to the phenomenon. Consequently, methodological triangulation involves a complex process of playing each method against the other thereby “… maximizing the validity of the research efforts” (Denzin, 1978:304). It is in this context that the methodological triangulation approach woven into this research is consistent with the fundamental principles of the grounded theory approach, which requires the continuous and comparative analysis of incoming data for its theoretical relevance.
(a) Methodological Triangulation

(b) Data Triangulation

C1 Corporate Representatives  G1 Government Agencies
C2 Community Representatives  IG Green & Other Interest Groups
                     G2 Local Government

Figure 5.3 Multiple Triangulation Strategies

(b) Data Triangulation

Data triangulation shown in Figure 5.4 differs from methodological triangulation in the sense that the former refers to sources of data per se, whereas the latter describes methods that generate data as such. Similar to the process of theoretical sampling where as many different observational units as possible are selected data triangulation requires the search for as many different sources of data as possible pertaining to the events under study. The deliberate use of different methods for testing the same phenomena by methodological triangulation might be described as a process of deliberate variation (Trout, 1998). This bias-correcting technique which has as it primary goal the achievement of convergent validity is effectively enhanced by the use of multiple data
sources. In contrast to triangulate by methodology, triangulation by data sources deliberately takes the methods of semi-structured interviewing, document analysis and observation to as many different sources as possible. For example, although the research phenomena remain unchanged, the application of any one method to data source C1, G2 or IG (see Figure 5.4) is expected to produce significantly different data from each source. Naturally, this applies to all the data sources shown in Figure 5.4 as well as to sources still to emerge. The comparative analysis of data emerging from these various sources is not only reducing threats to validity, but more importantly, will most likely generate additional questions and thereby lead to the discovery of additional data sources (Trout, 1998).

By comparing data emerging from the different settings of the FEKLHAS and East End Mine developments, one can expect to discover similar or vastly different deep structure strategies and thereby different socio-environmental behaviour patterns across settings. To triangulate methodologies as well as data sources across settings could be interpreted as cross-case analysis. However, there are a number of strategies for cross-case examinations, suggesting different ways to proceed with the data from multiple cases. For example, to avoid misrepresentations and superficiality, which might arise from aggregating or averaging results across cases, this study refrains from reconciling the uniqueness of an individual case with the need to understand the generic processes working across cases. (Noblit and Hare, 1988; Yin, 1984). Instead, a case-orientated or replication strategy is employed to investigate the FEKLHAS case, searching for deep structure, participation and social trust trends or patterns in order to see whether new or similar patterns emerge from the East End Mine case possibly matching or diverting from those found in the FEKLHAS case (Yin, 1984). Additionally, this study
continuously and inductively tests and refines its conceptual and category framework across cases with recourse to the multiple comparison groups, shown in Figure 5.4 (b). This means that the across-case analysis used by this study compares deep structure, participatory and social trust patterns and configurations that emerge in the FEKLHAS case to see whether they fall into the same categories as those found in the East End Mine case.

Thus, in studying the research phenomena in relation to the FEKLHAS and East End Mine developments, triangulation is used to clarify meaning, verifying the repeatability of an observation and/or interpretation (Stake, 1994). However, one has to acknowledge the impossibility of a perfectly repeatable observation or interpretation. Consequently, triangulation by method and by data is used to clarify meaning by identifying the different ways the research phenomena are perceived by stakeholders confronted within the very different settings of the FEKLHAS and East End Mine developments.

5.2.8 Open Coding: The Conceptualisation and Categorisation of the FEKLHAS and East End Mine Data

Although significantly modified to suit the FEKLHAS and East End Mine case analyses, particular care has been taken to assure that Strauss and Corbin’s (1990) open coding approach remains consistent with the grounded theory approach. Open coding is used by this study as a process of analysing, naming and categorising themes and events that pertain to the research phenomena of deep structure, participation and social trust. Themes and events that emerged from the data are assessed in view of their frequency.

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18 The concept and category framework is presented in Figure 5.1 under sub-heading 5.2 (iv) ‘Conceptualization and categorization of data’
19 The open coding approach derived from Strauss & Corbin’s Basics of Qualitative Research and has been modified to suit this analysis.
or absence. The data from each research method is then broken down into parts, closely examined and compared for similarities and differences. Through this process questions can be asked about the research phenomena as reflected in the themes and events, which emerged from the FEKLHAS and East End Mine case.

The breaking down and conceptualisation of data from the research methods means the taking apart of a sentence or paragraph from interview transcripts and/or documents or from an observation, and giving each incident, event or theme, a name, something that stand for, represents or can be linked to one, some or all of the research phenomena (Strauss and Corbin, 1990). As shown in Table 5.6 twelve re-occurring themes or areas of concerns that pertain to the research phenomena emerged from the data, collected from semi-structured interviews, document analyses and direct observation. To reduce the vast number of conceptual labels that developed during the course of this research to a manageable level, these concepts had to be grouped and reduced to a primary concept.

For example, one of the most frequent themes that emerged from the research methods could directly and/or indirectly be linked to trust issues. Additionally, because of its exceptionally frequent appearance in the data, social trust has been chosen as one of the primary research phenomena. To arrive at the conceptual label of Social Trust, as shown in Table 5.6, the different social trust dimensions found in the data were listed, grouped, evaluated and reduced to the central concept of Social Trust. There are fourteen reoccurring wider trust issues raised by interviewees in the FEKLHAS but particularly in the East End case:
Table 5.7: Categorising and coding of data

<table>
<thead>
<tr>
<th>Conceptual Labels</th>
<th>Code</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder histories and Origins of Deep Structures</td>
<td>H</td>
<td>History</td>
</tr>
<tr>
<td></td>
<td>IH</td>
<td>Individual Histories</td>
</tr>
<tr>
<td>Socioeconomic</td>
<td>SE</td>
<td>Sustainable/unsustainable socioeconomic impacts on farmers</td>
</tr>
<tr>
<td>Deep Structures, Values &amp; Attitudes</td>
<td>V^I</td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td>V^F</td>
<td>Farmers</td>
</tr>
<tr>
<td></td>
<td>V^GA</td>
<td>Government Agencies</td>
</tr>
<tr>
<td></td>
<td>V^LG</td>
<td>Local Government</td>
</tr>
<tr>
<td>Social Trust Participation</td>
<td>SoT</td>
<td>Participatory structures, collaboration, the empowerment of locals through participation</td>
</tr>
<tr>
<td>Striving</td>
<td>St</td>
<td>Current efforts and ambitions of stakeholders</td>
</tr>
<tr>
<td>Strategy</td>
<td>S^I</td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td>S^F</td>
<td>Farmers</td>
</tr>
<tr>
<td></td>
<td>S^GA</td>
<td>Government Agencies</td>
</tr>
<tr>
<td></td>
<td>S^LG</td>
<td>Local Government</td>
</tr>
<tr>
<td>Change</td>
<td>Ch</td>
<td>Changes of strategies or direction. Major steps leading to substantial change</td>
</tr>
<tr>
<td>Paradigm shifts</td>
<td>Ps</td>
<td>Paradigm shifts after substantial change</td>
</tr>
<tr>
<td>Goals</td>
<td>G</td>
<td>Description of stakeholder goals</td>
</tr>
<tr>
<td>Evaluation</td>
<td>E</td>
<td>Evaluation of progress or failure</td>
</tr>
<tr>
<td>Relationships between: Farmers and local and state government agencies Farmers and BCU/AC Gov. agencies &amp; BCU/AC</td>
<td>R^I</td>
<td>Industry</td>
</tr>
<tr>
<td></td>
<td>R^F</td>
<td>Farmers</td>
</tr>
<tr>
<td></td>
<td>R^GA</td>
<td>Gov. Agencies</td>
</tr>
<tr>
<td></td>
<td>R^LG</td>
<td>Local Government</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td>(External stakeholders)</td>
<td>Attitudes towards each of the other stakeholders directly affected by the development</td>
</tr>
</tbody>
</table>

1. The advantages of social trust in relation to industrial developments
2. Trust as an individual and group benefit
3. Social trust in relation to risk perceptions

5.41
4. Is trust important in the management of risk
5. Is trust necessary to deal with risk controversies
6. The long-term implications of distrusting information
7. Community judgements about trust and distrust
8. Community participation and social trust relationships
9. The social value and virtues of trust
10. The logic of trust from a community, industry and government perspective
11. The limits of trust as seen from different stakeholder perspectives
12. The trust and/or distrust of industry, community and government leaders
13. Trust and local cultural values
14. Community and industry trust and regulatory processes

From these social trust dimensions, which re-emerged repeatedly in one form or the other in the FEKLHAS and East End Mine interviews the overarching concept of Social trust developed. Once conceptually labelled and identified as one of the main research phenomena other concepts such as participatory structures, collaboration and the empowerment of locals through participation could be added.

Moreover, as inductively analysed earlier the statistical estimates presented in Tables 5.2, 5.3 and 5.4, show the impacts of global cement production, which imply three fundamental concepts namely, production, sustainability and unsustainability. These concepts derive from the economic logic of industrial production, the ecological principle of sustainability and the socio-environmental concerns of the wider community about unsustainability. They can be directly linked to the reduction of natural resources, the emission of carbon dioxide and in particular to the significant impact on local communities. By specifying these concepts and their relation to

5.42
environmental impacts, it seems reasonable to assume a natural progression from techno-economic requirements of the industrial developer to wider ecological and finally to social, political and cultural community concerns. All of these are informed and maintained by the value and belief systems of the industrial developer, supporting government agencies and those of the local community. What has emerged is a conceptual construct that now includes the social, cultural, economic and political sphere of local communities. One logical consequence of assuring that the industrial developer considers these local socio-environmental community concerns is the direct inclusion of local communities into the planning and decision-making process. Based on this inclusive approach a provisional conceptual framework is developed in Figure 5.4 showing how the concepts of production, sustainability and unsustainability, pertaining to the central research phenomena of deep structure, participation and social trust are categorized and analysed.

Having identified the core research phenomena and three basic concepts of production, sustainability and unsustainability in the data it is now possible to group additional concepts around it. The existing literature, selectively sampled in view of its theoretical relevance to the research phenomena provides these additional concepts. Used as data, the literature is woven into the matrix of data, category and conceptualization (Stern, 1994). This means that concepts derived from the literature are treated and compared as data. For example, if concepts such as stakeholder value and belief systems, collaboration, conflict and consensus, which are intrinsically linked to industrial developments, are added to the research phenomena of deep structure, participation and social trust, they would fit comfortably with the emerging theory. By adding concepts such as concessions, collaboration and negotiated consensus shown in Figure 5.4, to the research phenomena, categories and sub-categories develop. A distinct analytical
procedure emerges, supporting the examination of the relationships between the causal condition of cement production, the research phenomena, the case examples and the action / interaction strategies of stakeholders. This analytical model provides a useful guide particularly for the systematic collection of data. To develop a tightly integrated analysis, however, it is important to examine the interactive nature of the research phenomena in relation to stakeholders and the various categories within and across each case example. As a consequence the conceptual framework will change continuously until all interactive and transactional possibilities are examined and the appropriate data sources are exhausted. It is expected that a final theoretical construct will emerge serving as the basis for a collaborative and participatory model that may be used in future developments of the cement industry.

Figure 5.4: Conceptual Framework and Categories
5.3 Ethical Considerations

The research approach used by this thesis conforms to accepted ethical standards and adheres strictly to the ethical principles, policies and procedures developed by Griffith University. Consequently, this thesis conforms to the ethical principles of:

- Justice
- Veracity
- Respect for people and their privacy; and
- The avoidance of harm

Based on these principles this thesis assured the validity and accuracy in the collection and reporting of its data by observing the highest standard of intellectual honesty as requested by Griffith University. For example, prior to individual or group interviews potential respondents were contacted by letter, in which the researcher and the purpose of the research were officially introduced. When an agreement in principle to participate was obtained a follow up visit assured a detailed understanding of the project by the respondent. Prior to the actual interview the respondent was presented with a letter confirming the identity and authority of the researcher as well as the purpose of the project. The respondent was made aware that he or she would be under no obligation to answer any question if so desired. Permission was sought from the respondent to audiotape the interview and copies of the tape and the transcript were offered. Transcripts were also available to the interview respondents for final approval.

Documents from government agencies were obtained via direct request or by following the prescribed procedures required under the “Freedom of Information Act”. Company, community and private documentations as well as geo-hydrological reports were collected only if released by the appropriate stakeholders or by permission of its
authors. Stakeholders from which data was collected were assured of confidentiality. Some data have not been released for commercial-in-confidence reasons.

Electronic, audio and written research material are held in confidence and only accessible if requested in accordance of the confidentiality and secrecy agreements prescribed by Griffith University policy. Other commercial-in-confidence or in confidence data are not available. Finally, to further assure confidentiality, no interview respondent, collaborator or author of any research material are revealed by name in this thesis.

5.4 Summary

In Chapters 2 to 4, various possible socio-environmental contingency responses by industrial organisation as well as government institutions are introduced. The closer examination of these responses revealed that they are driven by deeply inertial organisational and institutional deep structure choices and strategies. As it emerged from the analysis in Chapters 2 and 3, organisational deep structures are changed only if forced by the punctuation of existing equilibria, as for example, the discontinuation of resource availability. Furthermore, theoretical evidence, particularly in Chapter 3, points to possible discrepancies between the deep structure choices of global organisations and their local semi-independent substructures. It is expected that these differences in deep structure choices are not restricted to the global/local level, but are equally apparent at the local/local level. In the context of this research this means that the deep structure choices of Cement Australia (CA), for example, may be completely or to some extent consistent with those of the global Holcim Corporation or utterly inconsistent with those held by Holcim’s local substructure the Bündner Cement Untervaz (BCU).
To test these theoretical assumptions the Holcim Corporation and two of its local substructures, the BCU in Switzerland and CA in Queensland, Australia, are selected for analysis. The justification for this selection is based on five primary considerations. Firstly, the global/local organisational structures of the Holcim Corporation fit the theoretical structures and examples introduced and analysed in the theoretical section of this study. Secondly, threats to resource availability experienced in either, the FEKLHAS as well as the East End Mine case, invite the examination of local substructure responses to their punctuated techno-economic equilibria. This implies a promising comparative analysis of industry and government responses to the loss of local socio-environmental equilibria, which is intrinsically linked to large techno-economic developments such as FEKLHAS and East End. Thirdly, the impact of the FEKLHAS and the East End Mine development on local communities presents itself to comparatively study local substructure responses to community demands, particularly in relation to participation and social trust development. Fourthly, the comparative examination of the socio-environmental contingency responses by Holcim, BCU and CA, provides deeper insights into the origins of their individual deep structure choices and strategies. This analysis is of particular importance since organisational contingency responses are informed and guided by deep structure choices. Finally, it can be expected that the distinct type of Holcim’s global organisational structure offer the opportunity for studying heterogeneous global/local and local/local socio-environmental contingency responses. This may also shed some light on questions that emerge from these heterogeneous responses. For example, are inertial deep structure choices powerful enough to override global policy or is global policy persisting across the global/local deep structure divide? Is global corporate policy, which is exceptionally tightly controlled in relation to financial matters, more flexible in matters of local socio-environmental contingencies?
To deal with these research problems six methodological strategies have been introduced in this Chapter and are used by this research. This includes the inherent question of re-establishing lost socio-environmental equilibria through community participation and social trust development. These strategies are employed to underpin the grounded theory approach selected because of its suitability for studying two relatively small research populations as found in the FEKLHAS and East End Mine case examples. It is within this research framework that the following Chapter 6 introduces the FEKLHAS quarry development, its techno-economic, environmental and socio-environmental backgrounds as well as the history of the FEKLHAS project and its developer and operator, the Bündner Cement Untervaz. Chapter 7 then analyses the historical development of BCU’s deep structure, the company’s actual socio-environmental contingency responses and its commitment to community participation and social trust development.

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20 1) Theoretical Sampling, 2) Transactional System Analysis, 3) Data Accumulation Methods (interviewing, document analyses, observation), 4) Establishing Interpretative Validity, 4) Multiple Triangulation and 6) Open Coding
Chapter 6

Case Study A

The “FEKLHAS” Project

Industry Responses to Socio-Environmental and Participatory Contingencies

6.1 Introduction

The "Fenza-Kopf" limestone deposit in Untervaz, Switzerland, has been quarried by the “Bündner Cement AG Untervaz” (BCU) since 1957. In the mid-1980s, however, the BCU realized that the future availability of the most important raw material for its cement production facility, limestone, was no longer assured. Engineers estimated that the limestone reserves at the Fenza would reach their extractable limit in 20 to 25 years. Consequently, the search for new limestone deposits commenced in 1984. At first glance, two decades would seem to provide a comfortable buffer for BCU engineers in which to locate and secure sufficient quantities of high-grade limestone that would assure BCU’s economic future. Locating and establishing a new quarry operation in the socio-environmentally and environmentally sensitive area of Untervaz, however, proved to be particularly complex. Planners and development engineers estimated that the exploration, planning, projection and government approval processes could require ten to fifteen years.

Driven by these time constraints and socio-environmental complexities the BCU decided not to limit its project team to the usual clarification of technical and environmental problems. Instead, socio-environmental issues were added to their terms
of reference to prevent social disharmony, perceived by BCU as a potential threat to the overall development process. Consequently, the concept of community participation was integrated into BCU’s decision-making structure, thereby directly involving the community and other external stakeholders into the planning and projection process. This does not mean that BCU’s participatory approach was as an act of simple corporate benevolence, instead, it was a commercial decision, which however, was supported by a unique deep structure history that favoured community engagement and collaboration. Subsequent chapters offer a more detailed analysis of this participatory phenomenon. However, this inclusive participatory approach allowed the community to identify with the project, which consequently resulted in a speedy planning and approval process. The significance of this participatory and collaborative effort is particularly evident considering the socio-environmental and technical dimensions of the FEKLHAS project. The extractive capacity of the existing but now extended FEenza quarry and the newly added limestone reserves of the Kleine Fenza and HASelboden, hence the project name FELKHAS, are estimated to reach at least 20 million cubic meters. This in the local and Kantonal\(^1\) context very large extractive development was expected to substantially impact on the natural as well as on the socio-environmental and socio-political environments. Considering its enormous size, local green groups, municipal and Kantonal agencies as well as some community representatives feared that the FEKLHAS project might punctuate the local social and environmental equilibrium.

The efforts of the *Calanda Commission*, primarily concerned with the planning and projection of the FEKLHAS project, however, overcame these fears. Consisting of BCU management, consultative experts and various Kantonal and local agencies, the *Commission* also included environmental groups and three publicly elected community representatives.

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\(^1\)Kanton = State
representatives from the village of Untervaz. The inclusion of the latter into the overall
decision-making structure not only led to a transparent development process, but
equally important, resulted in an atmosphere of openness and social trust. Consequently,
in spite of significant socio-political as well as the socio-environmental difficulties, the
FEKLHAS project passed through the prescribed government approval processes in
record time. As a result of this participatory and collaborative approach the FEKLHAS
project was heralded by the local and regional media as “extraordinary, exemplary and
pioneering” (Bündner Tagblatt, 1999; Fidolin, 1999; Bündner Zeitung, 1999). These
media comments are echoed by community leaders, Kantonal officials and green
groups, describing BCU’s participatory approach as, “just about exceptional, really
exemplary and as a good example for other projects” (interview data, SoT, 1IG, 2LG,
5GA, 1999).

This case study critically examines the validity of these claims, starting its analysis with
the commencement of BCU’s exploration efforts in 1984 and ends with the final
approval of the FEKLHAS project in 1998. A final update, which includes the actual
operation of the FEKLHAS quarries, is offered in the Appendix.

6.2 Setting the Scene

6.2.1 The Municipality of Untervaz

The village of Untervaz is located in the Kanton Graubünden\(^2\), which forms the
geographical south east of Switzerland (Figure 5.1). Situated between the Rhine River
and the Calanda mountain range, Untervaz is surrounded by lush meadows, farmland

\(^2\) *Kanton* = State, *Kanton Graubünden* = State of Graubünden
and forest. The Kantonal capital of Chur lies a short, 6 km drive to the south and the city of Zürich 118 km to the north.

Figure 6.1: Location of Untervaz and the Kanton Graubünden

The historical Untervaz first mentioned 831AD in the Reichsurbar (historical annals), was owned by the Cloister of Pfäfers, which shared jurisdiction with the Bishops of Chur and the Herren von Neuenberg. In 1567, however, the people of Untervaz were able to buy their freedom from the Cloister of Pfäfers and in 1577 from the Bishopric of Chur. Today’s highest political authority in Untervaz is the Gemeindeversammlung (municipal assembly) presiding over a population of some 2000 and a total land area of 2761 hectares. Most of the land is allotted to forestry, covering 1305ha, followed by 1200ha, which is utilized for agricultural production. The remaining 256ha accommodate local industry 34ha, new developments 36ha, with 186ha being considered unproductive (Gemeinde Untervaz, 1995).

Apart from these commercially utilized lands locals as well as holidaymakers have traditionally regarded the forested area of the Calanda mountain range, featuring most prominently in the FEKLHAS mining proposal, as socio-environmentally and socio-
environmentally significant. The environmental significance of the area was confirmed by ecologists pointing particularly to a special type of dry-grass vegetation in the proposed mining area. This site-specific flora, together with protected mountain and forest conifers, is forming an ecological microcosm that is unique to the rocky and mountainous terrain of the FEKLHAS sites. This led ecologists to assign three levels of environmental importance to the project area, very high, valuable and less valuable (Colombi Schmutz Dorthe, Zumbühl, Grünefelder, 1996).

However, not only conservation values and environmental sensitivities engaged the attention of locals, environmentalists and Kantonal authorities. Also the geographical location and size of the proposed excavation sites caused some concern. Primarily because a particularly large industrial development such as the FEKLHAS project would significantly impact on the relatively limited expanse of the Bündner Rhine Valley. The physical proximity of the Rhine Valley, particularly in the Untervaz area, accentuates the intrusive character of any large development. Situated at the gateway to some of Europe’s most popular holiday destinations the FEKLHAS project would affect tourists as well as locals. The local community in particular would be continuously exposed to the side effects of limestone mining such as dust, noise and visual pollution. Visitors may well return to their homes with mixed feelings about the natural beauty of the Bündner Rhine Valley and its value as a holiday destination. These potentially negative socio-environmental and socio-economic impacts on Untervaz and the Rhine Valley, as well as the environmental sensitivities of the future quarry sites, decisively influenced the overall approach to participation and socio-environmental decision-making. Consequently, most stakeholders agreed that a traditional quarrying operation with its intrusive transportation links to BCU’s cement production facility could not be realized without significant qualifications.
Others, opposing the FEKLHAS development argued that in spite of its enormous impact on Untervaz and the Bündner Rhine Valley, the BCU quarry expansion would have been very difficult to stop. Firstly, “no one could afford to endanger a major company and its future regional investments and secondly, no one had the desire to jeopardize a development that promises long-term employment for the Chur, Rhine Valley and Untervaz region” (interview data, H,6GA, 1999). Some company managers agree, suggesting that “smaller local communities are generally receptive to these developments because they provide income and employment for the local community” (interview data, Si,9I, 1999). However, local and Kantonal authorities as well as NGO's and community representatives are quite adamant that Employment and economic development issues will support the argument only to a certain point. Beyond that, neither the BCU nor the authorities can afford to take the path of least resistance or be content with a “green facade”, they must go beyond that or get shipwrecked through objections. There is most certainly no carte blanche for any developer” (interview data, H, 1G, E, 5GA, 1999).

These statements suggest that BCU management could neither set its hopes on political or economic interests that promote regional investment and development nor pursue a policy of mere compliance to government regulation. Such a minimalist approach would not have sustained the speedy approval process as experienced in the Untervaz case. A more detailed account showing how the BCU was able to collaboratively streamline the planning and projection process without experiencing major delays and deep seated social disharmony is offered under subsequent headings of this chapter.

6.6
6.2.2 The FEKLIHAS Quarries

The first shipment of cement left the newly build factory of the Bündner Cement AG Untervaz (BCU) in March 1958. The Fenza quarry located in the immediate proximity of the factory (Figure 5.2) served as the exclusive source of high-grade, as well as impure limestone (marl) until the late 1970s (Bündner Cement AG Untervaz, 1996).

Since 1978, however, quality inconsistencies required the BCU to supplement the Fenza material with corrective high-grade limestone from external sources. Therefore, to maintain quality standards, limestone from the Haldenstein, Unterterzen and Felsberg deposits was added to the Fenza material. The unexpected discontinuation of supply from the Felsberg quarry, however, significantly increased the strain on the remaining...
Fenza reserves. Engineers estimated that without the Felsberg material the Fenza would reach its extractable limit in five to eight years. Beyond this timeframe, they argued, about 10 to 14 million tonnes of extractable marl will remain without the necessary corrective limestone (csd, 1996a).

To assure its supply of high-grade limestone, the BCU committed substantial investments and extended the existing Fenza operation. As a result 3.2 million SFr were invested in the exploration process, 1.1 million in environmental assessments, reports and technical analyses and construction costs are expected to reach 13-15 million SFr (Bündner Cement AG Untervaz, 1996). To assure the amortization of these large investments, high-grade limestone deposits with an extractive capacity of at least 30 to 40 years were needed. During this period the annual production of cement is expected to reach an average of 700’000 t/year. To sustain these production levels, about 850’000 t/year of marl and 190’000 t/year of high-grad limestone is required. Based on these averages a total of at least 26 million tonnes of marl and clay as well as 5.7 million tonnes of high-grade limestone is required to assure regional cement supplies to the year 2030 (csd, 1996b).

To satisfy the demand of the building and construction industry within its quite sizeable local and regional market (Figure 5.3), the BCU is required to produce particular types and qualities of cement. The manufacture of cement must contain appropriate proportions of lime, iron, silica, and alumina components. The selected raw materials are crushed, milled, and proportioned in such a way that the resulting raw material mix has the desired chemical composition. If particular components in some raw materials cannot meet these chemical requirements, corrective material is added to assure the most accurate chemical composition in the raw material mix. In the Untervaz case, the
chemical heterogeneity of the impure limestone component (marl) required the addition of corrective high-grade limestone, which itself was to some extent inconsistent in its geo-chemical composition. Consequently, raw materials were needed that conformed to specific geological and chemical requirements, which significantly restricted the scope of BCU’s exploration efforts. Driven by these geo-chemical limitations engineers were forced to explore areas for future mining that were traditionally considered as socio-environmentally and environmentally sensitive. Equally limited was the search for environmentally and economically feasible transport links. The transportation issue was of particular importance because moving vast amounts of raw materials over a period of 30 to 35 years between the new quarry sites and BCU's production facility was expected to significantly impact on the local socio-environmental and natural environments. Consequently, only sites were selected most likely to meet the required geological, chemical, technical, economic, and environmental criteria.

Source: csd, 1996c

Figure 6.3: BCU Service and Distribution Area
6.2.3 Sequential Overview of BCU’s Geological Explorations

The Bündner Cement AG Untervaz began to explore the Calanda mountain range for new limestone deposits in 1984. The selection criteria for future quarry sites evolved from a wide range of techno-economic, environmental and regulatory requirements, from which four basic determinants emerged as the most appropriate framework for site selection. Within this framework, planners, geologists and mining experts assured that:

- the geo-chemical composition of the new material is highly suitable for the production of cement,
- the transportation links between the limestone deposits and the factory are socio-environmentally and economically feasible,
- the excavation sites as well as all quarrying activities are not excessively visible from the Rhine Valley and Chur/Zürich highway (Figure 5.4), and finally, that
- ownership and operating licenses are guaranteed to at least the year 2030.

Guided by these core determinants geologists and mining experts examined various sites across the Calanda range. Some selected areas not only promised to hold substantial quantities of suitable high-grade limestone, but equally important were expected to meet the wider techno-economic, environmental and regulatory requirements. However, although suitable deposits were found, only a proportioned blend of different materials, sourced from various deposits, could reach the geo-chemical standard required by the BCU. The following Figure 5.4 provides an overview of the areas from which experts expected to select the most suitable raw material combination for development.
Figure 6.4: Areas Considered for Future Mining

Areas of Exploration:  1 Kleine Fenza  4 Calanda 2/3
                      2 Valdrugs    5 Fenza
                      3 Calanda 1   6 Haselboden

From these six potential deposits geologists and mining experts selected three sites, holding sufficient quantities of marl and high-grade limestone from which a suitable proportioned blend of raw material could be produced. These deposits were furthermore found to be economically and socio-environmentally the most feasible in the area. The BCU based its decision to mine these deposits on the following exploration results (Table 5.1).
Table 6.1: Overview of Exploration Results

<table>
<thead>
<tr>
<th>Area of Exploration</th>
<th>Year</th>
<th>Exploration Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kleine Fenza</td>
<td>1984-1993</td>
<td>Material suitable for cement production, but large quantities of corrective limestone are needed from separate quarry.</td>
</tr>
<tr>
<td>Eichhölzlikopf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Valdrugs</td>
<td>1989-1990</td>
<td>Material suitable for cement production, but large quantities of corrective limestone needed from external quarry. Positioned at 1000m above sea level, Valdrugs site is highly visible. Concealed mining not possible. If mined, massive environmental impacts are unavoidable.</td>
</tr>
<tr>
<td>3. Calanda 1</td>
<td>1989-1990</td>
<td>Deposit may or may not hold sufficient quantities. If sufficient, relatively large quantities of corrective material necessary to arrive at satisfactory composition. Northern part highly visible, southern part concealed mining possible. Site development requires significant investment and difficult legal negotiations with regard to ownership status.</td>
</tr>
<tr>
<td>Laterkopf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gürstig / Gurtenätscherkopf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fenza tief</td>
<td>1991-1993</td>
<td>Large Quantities of corrective material needed. Seismic tests and core-drillings revealed possible links between the lower levels of the future quarry pit and the Valley groundwater level. These hydraulic links pose a significant and incalculable risk to this option.</td>
</tr>
<tr>
<td>Extension of existing quarry to sub-terrain levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Haselboden</td>
<td>1994</td>
<td>Relatively large deposit of high-grade limestone. The Haselboden limestone is the ideal corrective material for supplementing the Fenza and Kleine Fenza materials.</td>
</tr>
</tbody>
</table>

Source: csd, 1996e

In addition to the six main options shown in Table 5.1 other site variations and material combinations from different deposits were considered. However, they either could not provide the ideal geo-chemical composition of raw materials or posed such
unacceptable socio-environmental risks that their development was no further pursued. The extensive geological exploration of various limestone deposits and the search for suitable geo-chemical site and material combinations, however, led finally to more definite prospective locations. In the final analysis the *Fenza, Kleine Fenza* and *Haselboden* (FEKLHAS) combination was expected to hold the most suitable raw material deposits (Figure 5.5).

![Figure 6.5: The FEKLHAS Quarries](source: csd, 1996f)

### 6.3 Commissions and Interest Groups

The extensive exploration of the Calanda mountain range allowed the BCU to make increasingly accurate assessments about the size, nature and possible location of its future quarry development. Consequently, at a public council meeting in October 1992 the BCU informed the local community about its intention to extend the existing Fenza
quarry. In response the council assembly decided to establish the official *Calanda Commission*, whose local membership was to be publicly elected. The overall function of this commission was to evaluate, advise and control the planning and decision-making process of the BCU quarry development. Deriving its legal basis from a special contract, the *Konzessionsvertrag*, the first responsibility of the commission was to protect the interests of the Untervaz community. This contractual agreement between the BCU and the council of Untervaz not only confirmed the commission’s elected representatives, but also assured its participatory role in BCU’s project-planning and decision-making structure.

The council assembly and the citizenry attending the October meeting, however, requested that prior to electing the commission strict procedural guidelines were to be established. These were expected to include an outline of the terms of reference as well as a listing of the obligations and responsibilities to which the contractual signatories were to be committed. The council assembly and the 140 citizen in attendance voted 62 to 44 that these guidelines be recorded in a “booklet of obligations”, the *Pflichtenheft*, which was to be approved at the next council meeting (Gemeinde Untervaz, 1992; CEMROC, 1992; Bündner Tagblatt, 1992).

In the following council meeting on the 20th November 1992 the council and attending citizenry approved the *Pflichtenheft* and elected three councilors to represent the community of Untervaz in the *Calanda Commission*. The primary task assigned to the commission was to collaboratively decide with BCU management, consultants, Kantonal representatives and other authorities on the most suitable quarry and mining

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3 The *Konzessionsvertrag* is an agreement/contract between the Calanda Commission (Untervaz Council) and the BCU assuring a collaborative approach in planning and developing the project proposal. The contract ends with the final government approval and the commencement of the quarry operation.
method. Within this collaborative framework the commissioners were also asked to plan and prepare the overall development proposal in compliance with the government approval processes. This process was expected to take at least five to eight years. Rapidly diminishing limestone reserves and the prospect of an extensive approval process, however, forced the BCU to act with some urgency. Consequently, the BCU established a project team in July 1992 and appointed a coordination team in December 1992, which also included Calanda-commissioners (Figure 6.6).

Figure 6.6 shows the different project teams, their responsibilities and participatory roles in the overall project-planning and decision-making process. The publicly elected community representatives, experts from various Kantonal agencies, the director of the BCU and some of his senior managers, equally shared the responsibilities of the coordination team. Other authorities such as external consultants and experts were invited at the team’s discretion or if required by law. The primary function of the coordination team was to collaboratively evaluate and examine all project decisions made by project management and the project team. The aim of this examination process was not only to balance community interests with those of the BCU, but also to find the most suitable socio-environmental solution for the development. Equally important was the assessment of regulatory compliance. Here the coordination team was asked to examine whether project-decisions were in compliance with Kantonal requirements as well as with the government approval process. Particularly in relation to the latter the assistance of the Kantonal experts at the coordination team was especially valuable. Primarily because any emerging deviation from regulatory requirements was corrected long before it could develop into a costly socio-economic or socio-environmental problem. In other words, the Kantonal experts at BCU’s coordination team actively and
effectively participated in developing the project proposal, which finally had to be approved by their respective departments.

Similarly, the locally elected community representatives at the coordination team maintained a close contact with their constituency. They continuously informed the Untervaz council assembly and the local community about the latest developments in
the project planning process. The BCU, also in close communication with the community and local media, held regular public information meetings supported by the council of Untervaz thereby assuring a free flow of information between their project teams and the local community. Participants of these meetings seem to agree that “any new information was open for public input and discussion and was consequently referred back to BCU’s project teams” for consideration (interview data, S,2LG, S,1IG, 1999). This participatory approach maintained by the BCU was extended in February 1996 when five environmental groups, among them the Swiss section of the WWF, were invited to actively participate in the development of the project. This collaborative strategy enabled the BCU, its experts and in particular the coordination team to produce a well designed and prepared project proposal which was submitted for approval in autumn 1997. As part of the government prescribed approval process, however, the community of Untervaz had to decide in a plebiscite whether to permit BCU’s land rezoning application, which was an intrinsic precondition for any further development of the FEKLHAS project proposal. With the public vote in favour of the project the proposal process could proceed with the final approval granted on the 26th of November 1998.

### 6.4 Collaborative Planning and Development Strategies

When in January 1995 experts finally agreed that the most suitable raw material combination was to be sourced from the FEKLHAS quarries, neither of the stakeholders expected a four-year proposal and approval process. Most participants involved in the process agreed that “the speedy development of the project proposal and its fast approval was largely a result of BCU’s consultative and participatory strategy” (interview data, Si, 2LG, Si, 1IG, Si, 5GA, 1999). It was particularly helpful, a
local official said, “that stakeholders collaboratively co-authored the project proposal under the umbrella of the coordination team” (interview data, Si, 2LG, 1999). That is, local community representatives, Kantonal and local agencies, environmentalists as well as BCU experts co-jointly developed the project proposal solving problems as they emerged.

During the project planning process the coordination team dealt with a myriad of different legal, socio-environmental, socio-political, socio-environmental as well as construction and operational proposals. Three of these emerged as the most complex and economically impacting for the BCU. Firstly, the construction of socio-environmentally acceptable transportation links between the quarries and the factory, secondly, a concealed quarrying method and thirdly, the rehabilitation of the quarries during and after the mining process. For example, the Haselboden deposit, providing most of the high-grade limestone in the overall FEKLHAS project, is located about 1 km south of BCU’s production facility. A proposed factory road, linking the Haselboden deposit with the factory would have caused a significant impact on the natural as well as on the socio-environmental environment. The road would have disturbed an existing forest path widely used by locals and tourists for outings and excursions to the upper regions of the Lat, Prameisters and Valdrugs area. It would have also passed the historical ruins of the Neuenburg, recognized by locals and holidaymakers as an attractive destination. Finally, a hiking path below the Haselboden, leading to popular picnic grounds at the banks of the river Rhine where the remnants of a medieval river crossing are still visible, would have been adversely effected by the development. In view of these socio-environmental impacts and the unavoidable negative effects on the flora and fauna of the Haselboden, the proposed road between the Haselboden site and the factory was rejected.
Consequently, within the framework of the coordination team, community representatives, Kantonal and local authorities, environmentalists and experts from the BCU collaboratively assessed various alternatives to the proposed factory road. Sixteen alternative routes were considered from which six emerged as the most viable variants. In the final analysis, however, the BCU more closely examined the viability of constructing a 1.2km tunnel, linking the Haselboden with BCU’s production facility. With a diameter of 3.5m the tunnel was to house a conveyor belt, transporting the limestone from the excavation site to the factory. Although more costly than the other proposals the BCU adopted the tunnel option as the most desirable solution, a decision widely supported by the community, the coordination team and the Untervaz council (Figure 5.7).

Figure 6.7: Tunnel link Haselboden / BCU Factory

The socio-environmental sensitivities of the Kleine Fenza and Haselboden area did not permit the development and operation of a traditional open-cut quarry. The local
community, environmentalists, Kantonal and Untervaz authorities, therefore, requested that the quarries and excavation activities be kept from sight. Additionally, the rehabilitation and re-vegetation of the quarry sites during and after excavation was an essential prerequisite for government and community approval. Consequently, after an underground mining proposal was rejected as unfeasible, BCU experts proposed a concealed mining method as shown in Figure 5.8. In the framework of this proposal the rehabilitation of the quarries required the removal of the organic topsoil prior to the commencement of mining. The soil than had to be stored and returned to the new mountain slopes as well as the new valley floor before re-vegetation or re-forestation could commence. The BCU was also required to establish sanctuaries for the displaced flora and fauna. Located in the immediate proximity outside the mining perimeter, these sanctuaries were to be used as flight-zone for local wildlife and as deposit for pioneer shrubs, trees and protected flora. From these protected areas the displaced flora and fauna was expected to re-inhabit the former quarry sites. The overall re-cultivation process, however, also included the strategic re-forestation of the area in conformance with federal, regional and local government demands.
**Initial Phase**
The cross section indicates a top down approach. The quarry pit is driven into the mountain (Q) leaving the side of the mountain and vegetation undisturbed (S). From a working terrace rehabilitation (R) of the quarry is already in progress.

**Operational Phase**
The concealed quarry operation (Q) has progressed. The forested side of the mountain (S) is hiding the operation from view and also serves as noise barrier. The quarry will not be visible from the valley while operating. The rehabilitation of the new mountain slope (R) continuously follows the upper quarry level. The mountain side (S1) is reduced progressively, but remains 30-50m above lower pit level at all times (∨).

**Final Phase**
The excavation of limestone has ceased. The rehabilitation of the new mountain side is completed (R). The newly created valley floor (V) still has to be re-cultivated.

Source: csd, 1996i

**Figure 6.8: Sequential Mining and Rehabilitation Process**

The proposed re-forestation and rehabilitation of the FEKLHAS sites as well as the concealed mining and transportation methods were finally ratified by the BCU and the coordination team and included in the project proposal. With the submission of the
FEKLHAS proposal and its final approval by the Untervaz community and by Kantonal and federal authorities, the *Konzessionsvertrag*\(^4\) between the BCU and the Calanda Commission ended. A non-negotiable prerequisite for the approval, however, was the election of a new commission. The succeeding commission was expected to monitor the mining operation from its commencement to its closure and assure the full implementation of all preconditions prescribed in the project proposal and the community and government approval.

6.5 **The FEKLHAS Begleitkommission**\(^5\)

In March 1997, the environmental group Pro Natura and the Swiss section of the WWF raised objections to some aspects of the proposed deforestation and rehabilitation plan for the FEKLHAS sites. Consequently, the issues raised by the environmentalists were discussed with the BCU as well as Kantonal and local council representatives in an attempt to further define and specify the concerns of Pro Natura and the WWF. Four primary issues emerged which were later emphasized in the final deforestation approval by the Federal Department for the Environment, Forestry and Land (BUWAL)\(^6\). The final approval document shows the following environmental measures requested by the environmentalists:

(a) The establishment of flight-zones for local wildlife and vegetation in the immediate proximity of the mining perimeter, to be supervised by forestry experts and an external ecologist;

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\(^4\) *Konzessionsvertrag* = Contract committing signatories to work collaboratively throughout the proposal phase of the project.

\(^5\) *Begleitkommission* = Official FEKLHAS Commission, appointed to oversee the implementation of project approval requirements. Referred to in the text as FEKLHAS Commission or the Commission.

\(^6\) *BUWAL* = German acronym for: Bundesamt für Umwelt, Wald und Landschaft (Federal Department for the Environment, Forestry and Land)
(b) The newly created and extended valley floor, as shown earlier in Figure 5.8 (V), was to be cultivated with preference given to the local natural environment rather than to commercial timber production;

(c) The final re-cultivation of the FEKLHAS quarry sites was to reflect as closely as possible the former ecological composition of the area. The local flora was therefore to be catalogued and indexed and re-introduced in similar proportions and ecological arrangements as found before mining commenced; and finally,

(d) A nature reserve was to be established between the Rhine River and the Haselboden mining perimeter (BUWAL 1998).

Although largely covered in BCU’s technical report as well as in the environmental impact assessment, the further clarification of these points in negotiation with the environmentalists led to an agreement on these issues. The establishment of a nature reserve below the Haselboden, however, exceeded the terms of reference for the FEKLHAS project and was therefore rejected by the federal agency.

In an attempt to effectively deal with future problems and disagreements the institution of a *Begleitkommission*, the FEKLHAS Project Commission, was seen by the BUWAL as an important precondition for its final deforestation approval.

Consequently, the organisational structure of the Commission was designed and instituted under the auspice of the Untervaz council, reflecting a broad spectrum of public interests. Its core membership includes representatives from the local community, appointees from Kantonal agencies, delegates from the regional and local
forestry authorities, the BCU and an ecologist. Other specialists and experts were to be engaged by the Commission if required. The local community of Untervaz is represented in the FEKLHAS Commission by publicly elected councilors. During their official term of office, these councilors can be re-elected or replaced by public vote in local council elections, but are required by law to vacate their mandate after their official period of office expires. According to one council representative the recurring succession of newly elected community representatives,

Not only pre-empts the formation of long-term fractional alliances within the Commission, but also assures transparency and the development of trust. This applies similarly to the Kantonal representatives who are frequently replaced or rotated which also contributes greatly to the independence and integrity of the Commission (interview data SoT, 2LG, 1999).

In January 1999 Kantonal and local authorities, community representatives and environmentalists were invited by the Untervaz council to comment on the official constitution for the FEKLHAS Commission, the Reglement and Pflichtenheft, in which terms of reference, obligations and duties were to be specified. In March 1999 the Untervaz council executive officially approved and instituted the Reglement and Pflichtenheft, requiring the FEKLHAS Commission to:

1. Monitor, supervise and control the implementation of the FEKLHAS project in compliance with Federal, Kantonal as well as local council and community requirements.

2. Appoint an independent ecologist to advise the Commission throughout the FEKLKHAS project.
3. Instruct the appointed ecological expert to develop a detailed program of ecological measures, which are to guide the deforestation, mining and rehabilitation phases of the project.

4. Before approving the next project phase, examine whether the preceding phase has been concluded within the construction and deforestation guidelines and present the examination results to the Untervaz council executive for approval.

5. Assure the attendance of at least one Commission member representing the interests of the Untervaz community at the annual FEKLHAS project inspections.

6. Develop appropriate rehabilitation measures and contingency plans, which are to be implemented in the event of the premature closure of the FEKLHAS quarries.

7. Assure the modification of the FEKLHAS concept in response to changing circumstances and new insights, as long as such adjustments are ecologically sensible and technically and economically possible.

8. Officially report to the Untervaz council executive at least once a year.

   (Gemeinde Untervaz, 1999a)

The underlying tenor of these obligations appears to extend beyond the assurance of regulatory compliance. The obligations constituted in the FEKLHAS Commission’s constitution as well as the structural composition of the Commission itself point to a strategy of direct and early involvement of decision-makers and stakeholders.
Furthermore, the duties and obligation specified in the *Reglement* and *Pflichtenheft* empower the Commission to deal with socio-environmental and techno-operational problems and disagreements long before they dissent into community discontent and social disharmony. In this light the strategy of the FEKLHAS Commission appears to be focused on recognizing and balancing the interests of the local community, the Untervaz council and the Kantonal and Federal regulators with those of the BCU. To assure that throughout the deforestation, operational and rehabilitation phases not only regulatory demands but also local community concerns are appropriately recognized and considered a firm legal base was needed. The Commission, therefore, based its authority on the following officially recognized technical reports, environmental impact assessments, on contractual agreements with the BCU as well as on official government approvals and documentations:

(a) The BCU technical report (csd, 1996) and environmental impact assessment both from the 30th of September 1996, (csd, 1996).

(b) The general development plan and site rehabilitation plan from the 27th of October 1997, approved by the Kanton Graubünden in June 1998 (Gemeinde Untervaz, 1997).

(c) The new the *Konzessionsvertrag*, a contract assuring the collaboration between the BCU and the FEKLHAS Commission throughout the deforestation, operational and rehabilitation phase of the project. Signed on the 8th of January 1998 and ratified by the signatories on the 30th of June 1999 (Gemeinde Untervaz 1999b).
(d) The deforestation approval document from the BUWAL dated the 21st of August 1998 (BUWAL, 1998a); and finally,

(e) The BAB\textsuperscript{7} construction approval from the 26th of November 1998 (Dept.IV, 1998)

Supported by a strong legal base, which is grounded in these wide ranging terms of reference the Commission and its experts meet at least once a year. The annual meeting includes the physical inspection of the quarry sites and an assessment of the operational phase in progress. The Commission’s findings are recorded in an official protocol, which is submitted to the Untervaz council executive for assessment and approval. Emerging disagreements or apparent problems are solved by the Commission in negotiation with the appropriate stakeholders. If, however, agreement cannot be reached a majority vote decides the contentious issues. Nevertheless, as constituted in the Commission’s Reglement, ballots and their results will not remove the right of the parties to seek redress by legal means. Appeals against the decisions made by the Commission are to be directed to the appropriate Kantonal authorities. The following Table 5.2 shows the various bodies and individuals represented at the FEKLHAS Commission and their respective voting power.

\textsuperscript{7} BAB = German acronym for Prüfverfahren für Bauten und Anlagen ausserhalb der Bauzonen. The BAB is an approval process for building and construction developments outside areas designated for industrial development. In the Untervaz case the construction of a quarry in rural and forested areas.
Table 6.2: Organization of the Begleitkommission,
The FEKLHAS Project Commission

<table>
<thead>
<tr>
<th>Represented At the Commission</th>
<th>Member</th>
<th>Chair</th>
<th>Secretary</th>
<th>Advisory Vote</th>
<th>Quorum Resolutions Vote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untervaz Council Executive, Untervaz</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Dept. of Land Care and Nature Protection, Graubünden</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Forestry Inspectorate, Graubünden</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Local Forester, Untervaz</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>External Ecologist, Chur</td>
<td>X</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BCU, Untervaz</td>
<td>X</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Project Engineer</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCU, Untervaz</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Others (To be engaged if required)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Gemeinde Untervaz, 1999a

6.6 The Stakeholders

At the time of the case study the main stakeholders and decision-makers in the FEKLHAS project included:

**Bündner Cement AG Untervaz (BCU)** – To assure its long-term economic future the BCU proposed the extension of the existing Fenza limestone quarry near Untervaz. Socio-environmental and socio-environmental complexities linked to the proposed development, however, required a new and innovative approach. The BCU leadership appears to have responded by adopting a strategy of openness, participation and collaboration. Represented at the FEKLHAS Project Commission the BCU holds two formal and one advisory vote.
**Untervaz Municipal Council (Gemeinde Untervaz)** – Further to its administrative and legal obligations in relation to the FEKLHAS proposal, the council had a significant role in balancing the interest of the local community with those of the BCU. This was primarily assured by providing publicly elected councilors for the Calanda Commission, the Coordination Team and the FEKLHAS Project Commission. Regular council elections and the relatively frequent succession of new councilors at the various project commissions seems to have minimized the possibility of capture by the BCU. The Untervaz Council Executive is representing the local community at the FEKLHAS Project Commission through the publicly elected council representatives, holding one formal vote.

**Local Community** – Within the framework of the Swiss political system, the community of Untervaz decided in a plebiscite on BCU’s request to change the local land utilization plan, the *Nutzungsplan*. This for the BCU vital issue was in the final analysis solely a matter for the local community to decide and could have easily resulted in the abandonment of the project. Federal authorities, however, have the power to overruled local decisions in matters of national interest, which did not apply in the FEKLHAS case. This political approach of direct democracy as well as the representation of the local community by publicly elected representatives genuinely empowered the local community to effectively influence the planning and decision-making process in relation to the FEKLHAS project.

**Non-Government Organizations (NGO’s)** – Interest groups as well as individual citizen were entitled to raise objections in response to BCU’s environmental impact analysis. NGO’s, therefore, were invited by the BCU to actively participate in developing the FEKLHAS project proposal in an attempt to pre-empt future socio-environmental
disagreements. These NGO’s represented various community and environmental interests:

World Wildlife Fund Switzerland, Section Graubünden
Pro-Natura, Graubünden
Swiss Ornithological Society, Section Graubünden
Swiss Homeland Protection, Section Graubünden
Swiss League for Nature Protection
Swiss Alpine Club, Regional Office, Graubünden

These groups either attended BCU and Commission meetings themselves or were represented by the delegate from the environmental group Pro-Natura. Through their representatives environmentalists had a direct influence on deforestation, some operational and rehabilitation issues. Consequently, their concerns were considered and included into the FEKLHAS concept.

*Employees of the Bündner Cement AG Untervaz* – Between sixty and seventy percent of BCU’s 125 strong workforce are from the village of Untervaz and nearby communities. Some of these employees were elected councilors from the Untervaz council. To avoid any conflict of interest, however, these council members removed themselves from the voting process when matters in relation to the FEKLHAS project were decided.

*Department for Regional Planning, Graubünden* – The control over the prescribed approval process for the FEKLHAS project was shared by a number of different Kantonal and Federal authorities. One of these is the Department of Regional Planning. In its role as principal coordinator the department catalogued the regulatory and
procedural requirements for the FEKLHAS quarry development. Some approval requirements, however, proceed in different sequential order, move within varying time frames or are subject to parallel assessments by various agencies. The department, therefore, developed a procedural framework, which was accepted by Kantonal, local and federal authorities as well as by the BCU. Following this procedural guideline the appropriate stakeholders implemented the regulatory requirements as prescribed by the various departments. In addition to its departmental obligations the Department of Regional Planning provided representatives for BCU’s Coordination Team, assisting in developing BCU’s project proposal.

**Department of Environmental Protection, Graubünden** – The primary function of the department was to consider and balance regional and local environmental interests with those promoting the utility of the FEKLHAS project. To decide on the BCU project proposal the department assumed an advisory and coordinating role. Its experts assisted in developing the *Pflichtenheft*, which specified the regulatory requirements that had to be considered in BCU’s environmental impact analysis. The department also offered assistance and advice during the development of the required preliminary environmental impact assessment and suggested the necessary changes to this interim report. It assessed the revised impact analysis and decided on the final version of environmental impact analysis. Represented at the Coordination Team during the project proposal phase, the department is now engaged by the FEKLHAS Commission only if required. Similar to other external experts, the department is assured one advisory vote at the Commission if called upon.

**Department of Land Care and Nature Protection, Graubünden** – Approached by the BCU at a very early stage the department was asked to assess whether the proposed
quarry extensions infringe on the Nature and Land Care Legislation. If BCU’s proposed mining operation had been incompatible with the legislation, the department would have advised the BCU to abandon the project. The department worked closely with other Kantonal agencies, the Untervaz council and the BCU to produce a significantly modified mining proposal, assuring compliance with the current legislation. The Department of Land Care and Nature Protection is also a member of the FEKLHAS Project Commission and has one formal vote to its disposal.

**Federal Department for the Environment, Forestry and Land (BUWAL)** – As the only federal agency involved in the FEKLHAS project the BUWAL could have exercise its power of veto not only with a view to stop the BCU project, but also to overrule Kantonal and local decisions. Consequently, Kantonal and local agencies as well as the BCU followed regional and local regulations but also federal regulatory guidelines particularly with reference to the deforestation and rehabilitation process of the FEKLHAS quarry sites. The BUWAL is monitoring the implementation of its regulatory requirements, but is not a member of the project commissions.

**Forestry Inspectorate, Kanton Graubünden and Local Forester, Untervaz** – The local forester as well as the Graubünden Inspectorate are represented at the FEKLHAS Commission, holding one formal vote each. The Graubünden and local forestry agency have a controlling and advisory function with particular reference to the deforestation and rehabilitation process of the FEKLHAS sites, assuring BCU’s compliance with BUWAL and local requirements.

**Atragene Fachgemeinschaft für Standortkunde und Ökologie** – The ecological consulting firm Atragene provided the ecological expert for the FEKLHAS
Commission. The firm and in particular its representative was suggested by the environmental group Pro Natura. This nomination was later confirmed by the Untervaz council and the FEKLHAS Commission. In his role as independent ecologist, Atragene’s consultant advises the commission throughout the deforestation, operation and rehabilitation phase of the FEKLHAS project and holds one formal vote in the Commission.

These firms, government agencies, NGO’s, individuals as well as local community representatives denote the primary stakeholder group for this case study. These stakeholders are of particular interest for two important reasons. Firstly, they were directly involved in the early planning and decision-making process, collaboratively developing the project proposal. Secondly, these stakeholders will remain an integral part of BCU’s planning and decision-making structure throughout the duration of the FEKLHAS project, either through their representatives or their full membership in the FEKLHAS Project Commission. Their involvement in the Commission not only assures the recognition and consideration of the socio-environmental interests of the local community. More importantly, in their respective role at the FEKLHAS Commission these stakeholders are empowered to deal with emerging disagreements at a very early stage. This means that socio-environmental problems are solved before they evolve into community discontent and social disharmony. These problems, if left unanswered over long periods of time, are traditionally difficult to resolve.

6.7 Summary

Uncertain resource conditions forced the local cement manufacturer, Bündner Cement AG, to search for new limestone deposits to assure its economic survival. Locating the ideal geo-chemical composition of raw material, however, proved to be particularly
difficult. From six potential deposits only three sites provided sufficient quantities of marl and high-grade limestone from which a suitable proportioned blend of raw material could be produced. The challenge for the BCU was that these deposits were found in a socio-environmental and socio-environmental sensitive area of the Bündner Rhine valley. The enormous size of the newly established FEKLHAS project posed a particular threat to the natural, social, and political environments of the village of Untervaz and the nearby Calanda mountain range.

At the center of the FEKLHAS challenge, however, was not the usual clarification of techno-economic issues or the solving of problems usually associated with environmental risk. Instead, BCU management recognized the underlying socio-environmental and socio-environmental difficulties as a potential threat to the overall development of the FEKLHAS project. It is this recognition of socio-environmental issues and the legitimization of the underlying value positions of the local community that distinguishes the FEKLHAS project from other industrial developments. The decisive difference of the Untervaz case is to be found in BCU’s participatory approach, which moves significantly beyond traditional concepts of community involvement. The primary reason for BCU’s success clearly points to the very early inclusion of stakeholders into its existing planning and decision-making structure.

The Calanda Commission, for example, with its publicly elected community representatives co-authored the FEKLHAS project proposal and collaboratively decided with BCU management, consultants, Kantonal representatives and other authorities on the most suitable quarry and mining method. The most tangible outcomes of this collaboration were the construction of the tunnel link between the Haselboden quarry site and the factory and a concealed mining method. In support of the Calanda
Commission, the Coordination Team, established as an initiative of the BCU, collaboratively evaluated and examined all project decisions made by project management and the project team. Publicly elected community representatives again supported this collaborative effort of the Coordination Team. Finally, the FEKLHAS Project Commission, succeeding the earlier collaborative arrangements, not only assures regulatory compliance, but also balances the interest of the local community, local and Kantonal agencies and environmentalists with those of the BCU. The constitutions of the Project Commission empowers its members to deal with socio-environmental and techno-operational problems and disagreement long before they descent into community discontent and social disharmony.

There is a vast literature concerned with various approaches to community participation and collaboration in critical industrial developments. Adding to the significant number of publications are the participatory guides and management instructions prepared by and for industrial organizations. They shed little light, however, on the underlying factors that actually drive participatory structures. The Untervaz case study provides the opportunity to study the key forces behind community participation and collaboration. In the subsequent Chapter 7 these key factors are investigated by analysing four primary themes which emerged from the FEKLHAS development, pointing to a holistic approach in project management.
Chapter 7

Case Study A

The “FEKLHAS” Project Analysis:

The “FEKLHAS” Concept and the Emergent Themes

7.1 Introduction

Four primary themes emerged from the FEKLHAS investigation and have been identified as the most critical determinants in BCU’s participatory approach. These are:

a) the mutual legitimization of stakeholder value and belief systems; b) the organisational deep structure history of the BCU; c) BCU’s strategic and deep structure choices in relation to socio-environmental demands; and finally, d) the development of social trust as a result of competent risk communication. The FEKLHAS data suggest that a deep understanding of these key determinants by BCU’s senior management proved to be vital for the successful communication of socio-environmental risk and effective long-term stakeholder involvement.

The following analysis of the FEKLHAS data elucidates the four key determinants that underpin BCU’s successes and failures in establishing and maintaining a participatory environment of openness, trust and stakeholder confidence. Moreover, to arrive at a better understanding of BCU’s civic engagement, the subsequent analysis focuses on:

- The importance of mutual value legitimization
- The historical backgrounds of the BCU and its management deep structure
• How these uniquely local historical backgrounds affect deep structure strategies, behavioural choices and participatory contingency responses

• How BCU’s deep structure strategies engaged external stakeholders in participatory dialogue, thereby including them into the FEKLHAS planning and decision-making structure

• The actual outcomes of early community involvement and participatory dialogue and finally,

• How early and long-term community involvement translates into social trust, genuine stakeholder dialogue and into a limited power transfer

7.2 Underlying Value Commitments: The Mutual legitimization and Alignment of Different Stakeholder Value Positions

It was argued in Chapter 3, that the primary reason for tensions in environmental planning and decision-making is the incongruity between community value positions and those of industry practitioners (Schein, 1996; Hoffman, 1993). This incongruity derives from the widely held belief by industry managers, particularly at the substructure and sub-unit level, that socio-environmental problems are driven by disputes over techno-economic, financial and ecological facts, rather than competing socio-environmental value positions (White, 1970). Without consistency between cognitive elements, as for example, industrial development and the socio-environmental values and belief systems of the local community, cognitive dissonance would be the consequence. If incongruity between organization and community values persists, local
communities affected by industrial development are most likely to enforce socio-political and legal sanctions in an attempt to eliminate the dissonant state (Schein, 1996; Hoffman, 1993, Posner and Schmidt, 1992). It is therefore of vital importance for organizations to know whether local communities are in a state of dissonance or equilibrium, because knowledge about the level of cognitive dissonance determines the appropriateness of socio-environmental contingency responses. Consequently, most authors agree, that the alignment of community and organisational value and belief systems is intrinsically linked to corporate success (Schein, 1996; Hoffman, 1993; Posner and Schmidt, 1992).

At the heart of the FEKLHAS project was the realization that problems associated with the development required techno-economic, but equally important, socio-environmental and socio-environmental solutions. At first glance this problem seems to reflect one of the realities of eco-industrial developments. This scenario, however, is significantly more complex than it appears, because it requires the alignment of two opposing cognitive elements. Inherently linked to this problem is the possibility that the state of incongruity between the cognitive elements and their underlying value positions to which the company and the local community subscribe continue to persist. Consequently, cognitive dissonance and ineffective socio-environmental contingency responses are most likely to follow.

In an attempt to assure public approval for its development, the BCU decided to invite all affected stakeholders to collaboratively plan and develop the FEKLHAS project proposal. To this end the official *Calanda Commission* and the BCU *Coordination Team* were established, providing appropriate forums in which stakeholders collaboratively developed the proposal. In this process locals and environmentalists
raised socio-environmental and socio-environmental concerns, whereas techno-economic, socio-political and regulatory issues appear to have dominated the agenda of government agencies and the developer. These concerns were later recognized to a greater or lesser extent in official environmental reports, contractual agreements and official local, Kantonal and Federal government approvals. The process of considering stakeholder concerns in official reports and government approvals is rather common and by no means unusual. The decisive difference in relation to the FEKLHAS case, however, is that the project proposal which precedes the government prescribed approval process, was collaboratively co-authored by all stakeholders. The inclusion of stakeholders into the project proposal planning process indicates the alignment of different value and belief systems and thereby their mutual legitimization. If translated into the realities of BCU decision-making the acceptance of costly alternatives such as the tunnel between the Haselboden site and the factory emerges as one of the tangible results of this alignment and legitimization process.

In this light, the collaborative development of the FEKLHAS proposal can be seen as a successful attempt to avoid cognitive dissonance, by aligning different cognitive elements as well as merging differing stakeholder value positions. Within this collaborative framework stakeholders generally adopted one of three basic responses to the environmental challenge of the FEKLHAS project. The selection of these responses, however, depended largely on the ideologies and underlying value positions to which the stakeholders subscribed. O’Riordan and Ryner (1991) offer three response strategies, which are reflected in subsequent research data. Firstly, environmental adaptation, which perceives nature as strong and resilient, secondly, the strategy of sustainable development and thirdly, that of prevention or strict conservation. These strategies imply a broad spectrum of underlying socio-environmental, socio-economic
and techno-economic value and belief systems. These value positions of stakeholders affected by the FEKLHAS challenge and their chosen response strategies are reflected in the following respective comments made by local hunters, forest owners and forestry authorities, environmentalists, and BCU managers. The Bündner hunters, for example, rejected the proposed above ground conveyor belt, which was designed to transport the limestone from the quarry to the production facility. Their opposition to this transportation method was underpinned by the argument that the conveyor belt “…would act as a barrier, preventing wildlife coming down from the mountain range to drink from the Rhine” (interview data, Si, 3i, 1999). The hunter’s response indicates two response strategies showing an interest in wildlife protection while assuring the continuation of recreational hunting. Similarly, a forestry official who also owns some of the local forest observed

The forest owners are very much in favour of preserving the forest but they are also in favour of timber production. The nature conservation people are also very strongly in favour of preserving the forest but firmly reject [timber] production (interview data, Si, 2LG, 1999).

In contrast to the dyadic response strategies chosen by the forest owners and environmentalists, some company managers and local council official opted for strategies that derived from a very different value framework. The first comment made by a council official suggests underlying value positions that favour the benefits of regional development.

I know it was difficult for the forestry people and the [forest] owners to accept, but they [BCU] couldn’t get the material from another location. It really was a technical necessity to get it from the Haselboden because it was the best option. And we also had to think about the people who draw their living from it but it is probably 300 or 400 people who directly live from this company or are directly financially dependent on this company. (interview data, Si, 2LG, 1999)
In contrast, traditional techno-economic values that promote the importance of feasibility can be gauged from the answer given by a company manager, emphasizing that there are limits to the company’s flexibility in its response to community demands.

We had to tell them that from an economic point of view some options are possible and others are beyond our reach. If some people would make extraordinary claims or demands we insist that they must be commercially justifiable (interview data, Si, 3i, 1999).

Most of these value positions concur with O’Riordan and Ryner’s environmental response strategies. However, the proposed strategies are not as neatly demarcated as their proponents seem to assume, because some of the following value frameworks appear to be informed by more than one strategy. The forestry authorities and forest owners, for example, although subscribing to very strong environmental values, favour the commercial utilization of the forest. Environmentalists on the other hand, also in favour of preserving the Untervaz forest, rejected its commercial utilization. In contrast to the environmentalists who followed a strict prevention strategy, forest owners maintained a hybrid adaptation / sustainability strategy. This strategy is largely confirmed by the following statement made by a BCU manager who believes that,

The forest owners voted against our proposed forest license agreement because the compensation offered for their timber was supposedly insufficient. We believe that their vote against the license had very little to do with us clearing some of their forest, because their business is growing and selling timber (interview data, Si, 3i, 1999).

These responses to the FEKLHAS challenge are based on a variety of different value and ethical considerations that move beyond basic environmental norms and contemporary community attitudes. They are clearly directed towards project specific issues, rendering some aspects of the FEKLHAS development beneficial and others harmful. This explicit categorization which derives from significantly different value frameworks will lead some to support industrial development and others to oppose it. In the Untervaz case therefore, value and belief systems directly impacted on the
FEKLHAS development and the project planning and decision-making structure. These value frameworks, however, were expected to change during the different phases of the development. Consequently, to assure the continuous recognition of the changing value positions, the Project Commission’s constitution required the introduction of an adaptive management strategy, assuring the “continuous alignment of the FEKLHAS concept to changing circumstances and new insights throughout the project” (Gemeinde Untervaz, 1999a). This long-term inclusion of underlying and changing value frameworks into the Commission’s constitution effectively legitimized the socio-environmental and socio-environmental values to which stakeholders subscribed or may subscribe in the future.

The legitimization of stakeholder values, achieved by including them into the planning and decision-making process provided the BCU with distinct advantages. Firstly, it lead to deeper insights into the counter positions to which the community and other external interest groups subscribed, secondly, it prevented disagreements from developing into insurmountable problems and thirdly, it produced effective socio-environmental contingency responses which prevented costly delays, lengthy legal battles and damaging community sanctions. Failure to legitimize and align the different stakeholder value positions would have significantly reduced BCU’s chances to successfully complete the project. The research findings generally concur with this assessment, pointing to possible legal and socio-political sanctions against the BCU if an inclusive strategy and therewith the legitimization of different stakeholder values would not have occurred. Some community and interest group leaders were very clear about the consequences for the BCU and the FEKLHAS project as a whole, suggesting that

They [BCU] had to include the people and us otherwise it would have been very difficult for them to get their proposal through. They [the people] might have stopped the project from going ahead or they could have delayed the approval
process by constantly objecting. I know of cases in other Kantons where this went on for years (interview data, E, 1IG, 1999).

On the other hand the same respondents also recognized an underlying culture of socio-environmental concern within the BCU management structure which effectively formed the basis for mutual value legitimization. One community leader, representing a number of local and national interests groups observed that,

BCU’s representatives went to a great deal of trouble to create an atmosphere of openness. I always had the feeling I was speaking on the same level and they actually understood the way we think. Often people don’t understand our way of thinking, our philosophies and values and therefore do not understand why we are against or in favour of a project (interview data, E, 1IG, 1999).

This statement indicates that without familiarizing themselves with local socio-environmental community value and belief frameworks, industry practitioners cannot expect to fully grasp the underlying socio-environmental reasons for community support or rejection of industrial projects. Consequently, most of their socio-environmental and socio-environmental contingency responses can be expected to be limited in their effectiveness. This argument is consistent with Kasperson et al (1992), Early and Cvetkovich (1999) as well as Bradbury and his colleagues (1999), proposing broad public participation and the inclusion of community values into risk strategies to assure effective risk communication.

As defined in Chapter one, socio-environmental community values as used in this thesis include socio-environmental, socio-economic and socio-political environments. They are not limited to environmental value and belief systems that relate exclusively to the natural environment. Although not narrowly relating to the traditional perception of risk, socio-environmental values should nevertheless be included into risk strategies. Subsequent research relating to the second case study of this thesis strongly supports this view, also confirming the argument of the scholars cited above. They argue that the
exclusion of socio-environmental, socio-economic and socio-political value positions can be directly linked to a) the erosion of the sense of community; b) disrupted social relations; c) losses in property value and finally d) stigma, which is usually associated with socio-environmentally dysfunctional local communities.

In contrast to BCU’s senior management, some BCU external experts and some managers within the Holderbank structure seem to disagree with the level of influence these community value and belief systems exert on the FEKLHAS development. It appears that these practitioners maintain a traditional view on risk which is limited to techno-economic, environmental and/or health risk issues, effectively excluding community values and socio-environmental concerns. One manager, for example, not directly linked to the FEKLHAS project, said, “Community values in the wider context of the FEKLHAS project were of little or no concern” (interview data, V\(^C\), 7C, 1999).

This view is shared by one of BCU’s external consultants asserting that

> In the context of setting environmental norms such as the acceptable levels of noise or dust emissions, the value positions of people play an important role yes. But in the context of the project, no, I don't believe their values had any influence on our decisions (interview data \(V^C\), 7CoZ, 1999).

This statement indicates a traditional perception of risk which recognises basic environmental, techno-economic and health risk issues with little or no understanding of the importance and role of socio-environmental value and belief systems in industrial developments. Another technical expert and some managers from outside BCU’s management structure acknowledged broader community values and norms as having some indirect influence on BCU’s industrial developments. They fail, however, to fully recognize the intrinsic link between the FEKLHAS project and the long-term impact of community socio-environmental values on industrial developments such as the FEKLHAS project.
In projects like ours community values have no direct or immediate impact; they rather impact indirectly through the norms based on the environmental value positions of the wider community (interview data, V^C, 9i, 1999).

It is interesting to note that particularly managers and consultants, who are not part of BCU’s deep structure, equally misinterpret the importance and function of socio-environmental community values in the FEKLHAS development. This is in sharp contrast to BCU practitioners. They clearly recognized the significant advantages of broad public participation and the direct impact of local socio-environmental value issues on the FEKLHAS development process. This insight is reflected in the account of a BCU senior manager who said:

Everybody was involved in its development [FEKLHAS project proposal]. Everybody’s ideas and views were considered. We did not simply submit our own work and ideas to the authorities for approval. They were all involved in developing the project proposal and their concerns and ideas are actually part of the proposal (interview data, St. 3i, 1999).

Intrinsically linked to such a high level of collaboration is the inclusion of socio-environmental and socio-political values. Any exclusion of these socio-environmental community concerns from this process or the adherence to traditional risk perceptions, which are limited to environmental, techno-economic and health risk issues, would have significantly delayed or even prevented the FEKLHAS development. The future challenge for the company is to convince managers and development experts who either misunderstand or misinterpret the importance of socio-environmental and socio-environmental complexes that these are major determinants for the long-term success of industrial developments. Otherwise, as indicated earlier, costly delays throughout the development process or even the closure of the development may occur. However, in the Untervaz case the successful and speedy conclusion of the FEKLHAS approval process and the continuous close relationship between the local community of Untervaz and the BCU management may safely be assigned to the mutual legitimization of their
respective value positions. The FEKHLHAS data clearly indicates significant support for this proposition. One BCU manager said

> I invited the greens and the locals to work on the project with me and plan with me. And because they could see that attention was paid to their dearly held beliefs I expected in return that they are fair to us and I must say they really were (interview data, Si, 3i, 1999).

This assessment is mirrored in the response of another manager who mentioned that

> The coordination team actually incorporated these people’s environmental positions into our planning process and that led ultimately to our decision to build the tunnel (interview data, Si, 3i, 1999).

Local council representatives also agree that the mutual legitimization of different socio-environmental positions to which the local community and BCU management subscribed contributed to the successful conclusion of the project.

> At all times of the project we were equal partners and that is why the project went through the council general meeting practically without any problems. We felt we were partners with equal rights. We did not agree with all of BCU’s ideas but we accepted that they were trying to save their business, but they too accepted our concerns and the problems we had with the project. We are after all a local authority with very ordinary social, economic and political interests and the BCU accepted that (interview data SoT, LG/C & 2LG, 1999).

This statement not only shows the inclusion of wider socio-environmental community concerns into the FEKHLHAS development process, but it also indicates a climate of trust and dialogue. It is in this context of positive local *Real Politik* that the BCU and local community representatives successfully aligned different values and socio-environmental perspectives of various stakeholders. Another local councillor largely confirming this view points to how the BCU deals with its civic responsibility.

> We are only a small community but people here value their way of life and the quality of life they find here. These are the interest we have to defend as local authority and the BCU understands that. But I must say that they were always helpful in maintaining our way of life, supporting local clubs and community events and so on. I think most of my fellow councillors agree with me that the BCU takes its civic responsibilities very seriously (interview data 2LG, 1999)
In view of this response it can be confidently argued that socio-environmental community concerns and the inherent community value positions that support them played a significant and fundamental role in the overall FEKLHAS development process. Finally, a statement from a local interest group representative highlights BCU’s strategy to include and ultimately align different value positions within the overall development framework of the FEKLHAS project.

They [BCU] really had some problems with our philosophy and our ideas and I really appreciate that they didn’t just dismiss them no, they actually integrated them into the proposal [FEKLHAS project proposal] and all I can do is recommend that other companies act likewise. With FEKLHAS I think we reached a solution that is just about optimal (interview data SoT, IG1, 1999).

This process of value alignment and legitimization is shown in Figure 7.1. The punctuating event for this process occurred when the resource availability for BCU’s key raw material, limestone, was no longer assured. As demonstrated in the following diagram, different stakeholder interests were claimed, whereby the BCU’s remained primarily techno-economic. However, its pro socio-environmental and participatory deep structure led to the establishment of the Calanda Commission, BCU’s Coordination Team and the FEKLHAS Project Commission. Within these participatory forums dialogue between the community, BCU’s management, interest groups and government stakeholders assured the mutual recognition and alignment of diverse interests and values. This synergistic strategy produced significant collaborative and participatory outcomes. Firstly, it prevented cognitive dissonance. Secondly, it resulted in the co-authorship of the FEKLHAS project proposal with its primary authors drawn from BCU’s management and its external experts, the local community as well as from selected government experts. Thirdly, it led to increased social trust and a commitment by the BCU to continuous civic engagement. Finally, BCU’s synergistic strategy and the participatory and collaborative structure provided and maintained by the BCU assured a value alignment and legitimization process in which a high level of value
congruity was achieved. As indicated in the diagram below and as examined in the subsequent analysis, the deep structure history of the BCU played a particularly important role in the evolutionary process of value legitimization.

![Diagram of Key Forces Affecting the Evolution of Value Legitimization](image)

**Figure 7.1: Key Forces Affecting the Evolution of Value Legitimization**

### 7.3 Deep Structure History

In the preceding analysis the mutual legitimization of stakeholder value positions has been identified as one of the most important preconditions for the continuous close relationship between the Bündner Cement AG, Untervaz and its host community. Value
and belief system legitimization, however, raises important questions about the underlying factors and strategies that drive these value alignment processes. The logical starting point for examining the evolution of organisational strategies that underlie the legitimization process is the inception of a new firm or the planning of a new industrial development project. During the origination phase of organisational structures, for example, basic strategic orientations are adopted by senior managers that create a propensity for managerial and technical staff to have similar cognitive frameworks and mental models (Walsh, 1995; Tushman and Romanelli, 1985).

In the Untervaz case these models and cognitive frameworks derived primarily from the initial strategic orientations of BCU’s founder but also from the supporting management structure which subscribed to similar cognitive frameworks. This provided the early management structure with a blueprint that determined how emerging socio-environmental contingencies were interpreted which consequently decided the level of effectiveness and success of BCU’s contingency responses. In other words, once the establishing phase of the BCU had begun managerial and technical staff identified with values and perceptions of its founder, resulting in the evolution of similar mental models and strategic orientations which, as expected by Walsh (1995), were then passed on to the next generation of managers. These early experiences of key managers and technical employees directly influenced the creation of BCU’s deep structure.

As discussed in Chapter 2 and 3, deep structure is a set of fundamental, interdependent choices of the basic organisational configuration into which its sub-systems are organized (Gersick, 1991). This, Gersick suggests, includes the choices a system has made of the strategic orientation and basic activity patterns that maintain the systemic configuration and the system’s resource exchange with its environment. These deep
structures are highly stable, because initial strategic deep structure choices exclude many contingency options and include only those that are mutually agreed upon and are consistent with the early deep structure choices. This assessment of the tenacious nature of initial deep structure choices concurs with organisational research, suggesting that early strategic orientations become components of a system’s deep structure and thereby part of the organisational decision-making structure itself (Eisenhardt and Schoonhoven, 1990; Eisenhardt, 1989; Gersick 1988). In the context of BCU’s newly established decision-making structure this means that the initial organisational deep structure choices of its founding management team were the most fateful, consistently guiding BCU’s next generation strategies and socio-environmental contingency responses. In a relatively long period of stability BCU’s deep structured system determined how the company obtained its resources from the natural and equally important social environment. This lasting equilibrium was punctuated not by disruptions to BCU’s internal structure but by external environmental changes, which threatened resource availability.

The punctuation paradigm suggests that in periods of stability persistent underlying deep structures permit only incremental adjustments to internal and external perturbations, without changing the system’s deep structure (Gersick, 1991; Wake, Roth and Wake, 1983). In periods of radical reorientation, however, these deep structures as well as its core values, which govern deep structure decision premises, are altered (Tushman and Romanelli, 1985). In contrast to the latter, such alterations to BCU’s deep structure or value system did not occur in spite of the punctuating event of uncertain resource conditions. The primary reason for the absence of such changes is grounded in BCU’s unique deep structure history. The FEKLHAS data indicates that BCU managers, although faced with the discontinuation of reliable resource availability,
maintained the initial strategic choices of the founding management team. These early deep structure choices were not only sympathetic to the social and environmental concerns of the local community, but also initiated a continuous value alignment process, balancing BCU and local community interests and value positions. This process is maintained by an adaptive management approach, which evolved from BCU’s early pro socio-environmental deep structure. In spite of its early inception, BCU’s pro socio-environmental deep structure as well as the initial strategic choices continue to significantly exceed today’s participatory demands and standards. Consequently, the progressive nature of BCU’s socio-environmental deep structure precludes, at least at this stage, any fundamental changes. This assessment is supported by the responses of stakeholders who point to BCU’s pro socio-environmental choices as the primary reason for the special and unique relationship between the BCU and the local community.

Prior to its full integration into the Swiss Holderbank Group, the Technical Group of Holderbank provided advice and technical know-how for the BCU, which in turn paid royalties and offered a minority shareholding to the Holderbank Group. In spite of these interdependencies, the BCU continued to be managed by its founder as a private holding primarily because of its financial independence. Members of the founding management team as well as other staff members remembered this special relationship by stating,

The BCU was not the usual Holderbank company. Until its full integration into the Holderbank structure, the BCU had a special status within the group and was managed in a manner typical of a privately owned company. The reason for this was BCU’s independence particularly from a financial point of view (interview data, H, 4I, 1998).

This assessment concerning the special status of the BCU is also reflected in the next statement suggesting that BCU’s founder as well as his son maintained a close
relationship with their staff, local authorities and Kantonal agencies. One staff member recalled,

Staff directly discussed their concerns with the big chief and of course relationships were quite personal and these personal relationships also extended to the local community (interview data, H, 4I, 1998).

This view is consistent with responses from locals and council representatives, referring to the special relationship between the community and the BCU. One community representative said,

The company is highly regarded in the village. Not every company can simply come and get on with a project. That is a matter of long years of good relationships. Cultural clubs, sporting clubs or our school, they could always knock at BCU’s door and were not turned away. People were employed because they were from the village they were not turned away, they were not turned onto the street (interview data, 2LG, 1999).

A council representative confirmed the foregoing statement by pointing to BCU’s social commitment,

They [BCU] employed people from the village because they were from here. Again and again people approached them with this or that and were not turned away, it was a social service for the population. That is what is probably most highly regarded about this company (interview data, 2LG, 1999).

The foregoing statements are a small excerpt from a significant number of interview responses, reflecting a widely held perception about BCU’s reactions to socio-environmental as well as socio-environmental contingencies. In addition to these responses made by staff members, community and local council representatives, Kantonal authorities also point to a unique relationship between the BCU and locals. One Kantonal public servant observed,

The BCU was very open, very conciliatory and fulfilled many additional wishes when people said ‘it would be good if you check variants and other options with regard to mining or transportation’ for example. And quite a number of options were actually re-considered (interview data, 6GA, 1999).
Similarly, a representative from another Kantonal agencies remarked,

It is not at all the case that all Bündner firms engage the community in their projects, inform them and asks them for their input. They [BCU] actually asked the locals whether there is anything the company might have overlooked. I think the BCU in this way played the role of a forerunner for large projects in Graubünden (interview data, 6GA(i), 1999).

This re-occurring theme of a unique and special relationship between the BCU and the local community can be found throughout the FEKLHAS data. It is important to note, however, that BCU’s close ties with the local community as well as local and Kantonal authorities were established and maintained independently from the Holderbank management deep structure. A manager engaged in BCU’s business affairs from a very early stage was quite adamant, suggesting that:

We always got the technical support from the technical centre of Holderbank, but the negotiations with the community and the local and Kantonal authorities were always directly conducted from here. The ability to independently decide did have a significant influence on how our contacts with the local community and authorities developed (interview data, H. 4I, 1998).

This independence in decision-making assured the continuation of the initial deep structure choices of BCU’s founding team, which are at the core of the special relationship between the BCU and the local community. Since this unique relationship proved to be decisive for the success or failure of the FEKLHAS project, the next generation of managers maintained and further enhanced BCU’s initially chosen deep structure behaviour patterns. This confirms Gersick’s (1991) as well as Tushman and Romanelli’s (1985) argument, asserting that local independent or semi-independent sub-system deep structures can be expected to vigorously protect and maintain their long established deep structure relationships with local communities and institutions. This mutual feedback loop further strengthened BCU’s deep structure as well as the organisational structure as a whole which in turn continued to support the company’s pro socio-environmental contingency responses. One of the primary outcomes of BCU’s
unique deep structure history was a prolonged period of equilibrium in which complex social and political constellations developed. These were supported by increasingly elaborate socio-environmental interdependencies, which proved to be particularly stable. To deal with these enduring interdependent relationships, BCU’s management pursued an adaptive management approach consistent with its deep structure history and initial strategic choices. This management style of incremental adaptation concurs with organisational research which suggest that in longer periods of stability a congealment of social and environmental complexities occurs, allowing only incremental rather than discontinuous change (Tushman and Romanelli, 1985). Translated into the FEKLHAS context this means that the solidification of the social and environmental interdependencies emerged as a catalyst for BCU managers to maintain and reinforce external relationships with the local community.

The expected social and environmental impacts of the FEKLHAS development left BCU managers with little doubt that to be successful the project needed particularly well developed community relations. Within the framework of BCU’s deep structure history, a senior manager responsible for the success of the FEKLHAS project decided to stand as a candidate in Kantonal elections. The decision to enter the Kantonal parliament derived from the realization that without knowing, informing and including the wider community in the planning and decision-making process of the FEKLHAS project, the development would have had little change to be realized. This manager remembered,

After I realized that it is very important to foster and enhance our good relationships with the community, I entered politics and got myself elected as a member of the Kantonal parliament. In this way I got to know all the authorities, the people and the whole government. In our Kantonal parliament there are 120 representatives from the whole Kanton including the representatives from all green groups. I got to know all these people very well and was able to develop very good relationships with all these people (interview data, I, 3I, 1999).
In his role as parliamentarian the senior manager actively and successfully discussed BCU’s plans and strategies with various interest groups and community representatives beyond the municipal boundaries of Untervaz, which is reflected in his following statement,

I discussed our project with interest groups and community leaders from our district here, explaining the project and our philosophy. I invited these groups and I openly discussed all the issues and in this way they understood our plans and what were doing. Being so well informed they never let themselves be used to stop the project or to make the project impossible or to delay it. Because they could see that attention was paid to their concerns and the environment (interview data, S, 3I, 1999).

It is important to note that this communicative approach sharply contrasts the expert language distortion problems discussed under subheading 3.2(ii). Instead of generating communication deficiencies by supporting the well known expert ideology, which translates individual and community value questions into techno-economic language, BCU’s management translated and communicated techno-economic company insight to lay people. These efforts reinforced BCU’s already strong relationship with the local community and were not restricted to interest groups and the community, but included local and Kantonal agencies. The extensive FEKLHAS data does not indicate, however, any use of excessive pressure by BCU to win support for the FEKLHAS project, ‘capturing’ the local or Kantonal authorities. The following responses extracted from interviews with different Kantonal departments and local authorities are consistent with the stringently transparent and very detailed government prescribed approval process, which makes it very difficult for industry to unduly influence Swiss authorities. A senior public servant from one Kantonal authority said,

The BCU did not pressure us but rather put their cards on the table quite openly and said ‘for us this is at stake and if we cannot carry out this expansion we might have to move elsewhere’. However, although we are interested in regional development that did not have any direct influence on our assessment of the project, because we have to follow our legislation (interview data S, SG6, 1999).
Regional development and possible job losses played an important role in relation to the FEKLHAS project. These issues were obviously discussed between Kantonal authorities and BCU management as confirmed by a senior Kantonal official,

Yes, the BCU did point to the economic and political advantage of the project to the region and that is quite legal. I mean economic development is a component of regional planning, of our regional plan and we took that into account. But we told them that we would rather have seen underground mining, that did not eventuate but changes had to be made and were made to the method of mining (interview data, S, 6GA, 1999).

The economic advantages of BCU’s project to the region, although very important and therefore seriously considered by various Kantonal departments, were not the all-decisive issue in the FEKLHAS project proposal. Within this framework, the BCU was forced to make significant concessions and changes to its plans in compliance with Kantonal requirements. One Kantonal representative said,

Our forestry legislation had a very strong part to play. There were certainly disagreements and discussions and our first assessments were certainly not happily received. We rejected some of their plans and insisted that the project had to be improved and further developed. And that was sort of ongoing until the mining operation was to a large extent compatible with the environment, including transportation from the site via tunnels rather than by road and trucks (interview data, S, 6GA, 1999).

These statements made by officials from different Kantonal authorities are largely consistent with responses from local authorities, similarly suggesting that diplomacy and not pressure on local authorities or the community was driving force in negotiations. For example, through their publicly elected representatives local people were able to influence the FEKLHAS development process at all times as pointed out by a local councillor,

The people in the village always had a procedure at their disposal to remedy the situation. They were at all times able to use the information meetings to discuss issues and they were able to incorporate their concerns into the process. This was certainly not merely symbolic and we certainly not just listened symbolically, based on the way we organized it, that would have been impossible, we really had to convince the people again and again (interview data, SLG, 2LG, 1999).
These responses and the FEKLHAS data generally point a strong element of public control, preventing the use of inappropriate pressure by the BCU on either the community or the local and Kantonal authorities. This concept of civic control through participation is particularly evident in the collaborative structure of the *Calanda Commission* in which stakeholders collaboratively co-authored the FEKLHAS development proposal. It is within this participatory framework that the BCU voluntarily established the *Coordination Team* which included representatives from the *Calanda Commission* and all stakeholders affected by the FEKLHAS development. As indicated in Chapter 6, the primary role of the *Coordination Team* was to monitor and assure the collaborative development of the FEKLHAS project proposal. The creation of the *Coordination Team*, which moved significantly beyond collaborative symbolism, is intrinsically linked to BCU’s initial deep structure choices from which its unique and company specific deep structure history could develop. In sharp contrast, industrial developers who predominantly subscribe to techno-economic and legal reasoning, largely exclude pro socio-environmental strategic choices, primarily because they are very difficult to reconcile with techno-economic and legalistic deep structures. The outcome of these deep structure strategies is a deep structure history in which minimum regulatory compliance, techno-scientific problem solving and legalistic dispute resolution are the preferred responses to socio-environmental contingencies.

The primary reason for BCU’s pro socio-environmental contingency response lies with the initial, progressive deep structure choices of its founding management team. These early deep structure choices created a propensity for the early as well as next generation of managers to develop and maintain similar pro socio-environmental strategies and contingency responses (see Walsh, 1995). The interview data presented in this section
strongly indicate that BCU’s early strategic choices formed the basis for the company’s unique deep structure history, which is reflected in a special relationship between the BCU and the local community. To assure the continuation of this unique relationship BCU’s management had to deal with complex social, political and environmental interdependencies, which developed in a prolonged period of equilibrium. This was achieved by using an adaptive management approach consistent with the company’s deep structure history and initial strategic choices. This adherence by BCU’s management to earlier deep structure commitments assured the continuation of pro socio-environmental contingency responses which in turn reinforced the close relationship with the local community. This deep structure feedback loop is shown in Figure 7.2 and raises important questions about the linkages between BCU’s uncertain resource condition and its contingency responses to the social, political and environmental demands of the local community.

![Figure 7.2: BCU Deep Structure Feedback Loop](image-url)
As shown in Figure 7.2 the early deep structure choices of BCU’s founder provided strategic orientations for future socio-environmental, political and cultural contingency responses. As argued earlier, these initial deep structure choices created a propensity for managerial and technical staff to have cognitive frameworks and mental models that were similarly open to socio-environmental community demands (see Walsh, 1995; Tushman and Romanelli, 1985). Although these cognitive frameworks are primarily driven by the initial strategic orientations, they are equally grounded in the civic and/or socio-political engagements of BCU’s founder. This two-dimensional deep structure concept provides BCU’s management with a blueprint, determining the responses to emerging socio-environmental, socio-political and socio-environmental contingencies. Consequently, successive CEO’s, equally engaged in local politics, correctly analysed socio-environmental and socio-environmental community demands, effectively responding to these contingencies. This foresight has been the trademark for BCU’s management and in particular its CEO who established a collaborative and participatory framework in which community stakeholder engaged in continuous dialogue.

As indicated in Figure 7.2, this led to a special social trust relationship and a prolonged socio-environmental equilibrium, strong enough to survive the serious punctuating event of uncertain resource availability. The BCU assured the continuation of this particularly stable social trust relationship by introducing participatory structures such the Coordination Team. This contingency response is not only consistent with BCU’s initial deep structure choices, but also with its pro socio-environmental organizational deep structure. The decisive link in this deep structure feedback loop, linking community demands and BCU contingency responses, is the company’s commitment to pro socio-environmental, socio-political and pro socio-environmental strategies.
As previously argued, during longer periods of stability a congealment of social and environmental complexities occurs from which a different contextual setting emerges. Organisational theory assumes that different contexts require different strategies to achieve consistency between socio-environmental demands and organisational deep structure choices (Tushman and Romanelli, 1985). The question therefore is whether BCU management continues to use strategies consistent with its deep structure paradigm or whether, over time, a restructuring of its basic strategic orientation occurred, aligning its traditional managerial paradigm and its underlying ideology with a new, “greener” ecological paradigm?

The focus of the following analysis is therefore on the nature of BCU’s strategic responses in relation to discontinued resource availability and socio-environmental community demands. This approach has been chosen primarily because the contextual nature of uncertain resource availability is a determinant for the type of socio-environmental contingency responses chosen by BCU’s management. It furthermore reveals the managerial paradigm as well as the underlying ideology to which BCU management subscribes. More importantly, it shows whether management changed its allegiance, shifting from its traditional managerial paradigm to a greener, ecocentric alternative.

### 7.4 Strategic Orientations and Managerial Paradigms

In section 7.2 and 7.3 of this Chapter the mutual legitimization of stakeholder values, early deep structure choices and a pro socio-environmental deep structure history have been identified as the primary determinants of the special relationship between the BCU and the local community. As previously argued in Chapter 2, failure to legitimate and integrate different stakeholder value positions into techno-economic knowledge bases
and deep structure strategies results in ineffective contingency responses. Consequently, effective social and environmental contingency responses necessitate that managerial deep structures acquire an astute awareness of local value and belief systems. If, however, industry practitioners remain unprepared to deal with different stakeholder value positions, it will be difficult to assess whether they are based on the “dry, shallow or deep green” end of the environmental spectrum or any other combination thereof (Beder, 1992; O’Riordan, 1990). It is important therefore, to understand the distinguishing factors of social, political and environmental stakeholder value dimensions that are to be found in the socio-environmental paradigms and ideologies to which stakeholder subscribe. Individual and community value dimensions and therewith attitudes towards industrial development, however, are constantly changing with new scientific insights and increased environmental awareness (Borrow, 1995; O’Riordan, 1991). It is therefore of the utmost importance for industry managers to monitor and recognize possible sudden shifts in community value positions, which fundamentally influence local social and environmental realities. Whether these local realities support or reject industrial development depends largely on the socio-environmental paradigm or paradigmatic constellation to which local stakeholders may subscribe.

Within this framework of shifting environmental attitudes and changing scientific insights, scientists observed a general movement of community attitudes along the spectrum of environmental ideologies toward a “greener” position (Pearce et al 1993; Oriordan, 1991; Corgrove, 1982). Confronted with these new socio-environmental conditions, the BCU realized that projects such as the FEKLHAS development could not be exempted from ecological constrain. Furthermore, there was little choice for the BCU but to acknowledge the intrinsic linkages between the FEKLHAS project and local social, political and cultural realities. Particularly BCU’s senior management expected
these wider social realities to be the primary determinants of either the success or failure of the FEKLHAS development. This raises important questions about the sufficiency of BCU’s social and environmental contingency responses and the effectiveness of its traditional management paradigm. Firstly, in light of new socio-environmental conditions could BCU’s quarry project be successfully completed within the framework of the existing management paradigm or did the FEKLHAS development require a paradigmatic rethink? Secondly, was a decisive shift toward a “greener”, more ecocentric paradigm necessary to assure socio-environmental sustainability? Thirdly, was it possible for BCU’s management to maintain its traditional management paradigm by interchanging some conceptual aspects across the traditional / progressive paradigmatic divide? And finally, is socio-environmental sustainability more effectively achieved within the traditional paradigmatic framework by including local community stakeholders into the planning and decision-making process?

The most effective way to answer these questions is to examine BCU’s strategic responses to socio-environmental contingencies. This provides some insight into BCU’s environmental management paradigm and the extent to which community value positions were integrated into the company’s deep structure strategies. The FEKLHAS data indicate that the BCU pursed socio-environmental strategies that were firstly, consistent with its deep structure history and secondly, firmly grounded in a traditional corporate management paradigm. The response of a leading environmentalist, representing local and national green groups points to a BCU strategy designed to support a policy of openness,

The BCU was more open than they had to be. They handled the whole project openly. We did not have the feeling during any phase in the project that we could not inspect any part of the project or that something was being kept hidden from us - it was totally open (interview data, Si, IIG, 1999).
This statement suggests a socio-participatory strategy, which is overwhelmingly evident throughout the FEKLHAS data. A community leader actively involved in the Calanda Commission as well as in BCU’s Coordination Team made a similar observation,

They [BCU] set up an office that formulated very good basic principles. They always communicated openly with the outside with regard to their work. That was for us positive, very positive (interview data, Si, IG, 1999).

These observations suggest the existence of an official strategy of openness and inclusion. A comparative examination of community and industry responses in relation to BCU’s pro socio-participatory strategy reveals a concerted effort particularly by BCU’s senior managers to include the local community into the planning and decision-making process. The next three statements made by members of BCU’s senior management team indicate a strategic orientation of transparency and inclusion,

I offered them an open door at all times. I said we have an open house here, a ‘glass house’, we have nothing to hide. I invited the greens and the locals to work on the project with me and plan with me. The coordination team actually incorporated these people’s environmental positions into our planning process and that led ultimately to our decision to build the tunnel (interview data, Si, 3i, 1999).

The FEKLHAS data clearly shows a strategy of community participation and collaboration. The previous statements of company managers largely match the following comment made by a representative from a local environmental interest group,

The offer to participate was most certainly meant seriously. Those responsible for it, the people I met personally and also the office responsible - whether it be on the part of the director or his employees - it was certainly always honest in its intent (interview data, Si, IG, 1999).

Confirming that BCU’s approach to participation was indeed more than a symbolic gesture, a council representative from the Untervaz council assembly said,

Local citizen were entitled to enter objections to the process and were allowed to raise objections - they were invited to attend council meetings and were allowed to participate they really were able to make a difference (interview data, Si, LG, 1999).
To assess people’s ability to make a difference can be gauged by examining BCU’s willingness to listen to people’s concerns and its preparedness to actually change aspects of their construction plans. When asked whether people were empowered to really change important parts of the project one of BCU’s senior managers responded,

We invited the community to participate and we invited people at a point where we were still so flexible that we could change aspects of our planning. People must feel that they have a right to a say that is important. You have to let people get involved to make a difference (interview data, Si, LG, 1999).

The FEKLHAS data indicates that BCU’s strategy to include local stakeholders into the planning and decision-making process was genuine and designed to exceed participatory symbolism. As previously established the most tangible results of BCU’s strategy of openness and participation are the collaboratively developed FEKLHAS project proposal, the concealed mining method, the construction of the transport tunnel and alterations to the rehabilitation process. These significant changes to the FEKLHAS project are a direct consequence of community / industry collaboration and negotiation. The forums in which changes could be discussed and finally decided were the Calanda Commission, BCU’s Coordination Team and the FEKLHAS Project Commission. The most important aspect of these collaborative bodies is that commission members remained directly involved in the planning, decision-making as well as operational processes throughout the project. The FEKLHAS Project Commission in particular, which was designed to assure the implementation of earlier decision-making, offered its publicly elected community representatives quorum decision-making and voting rights.

It is important to note, however, that although community participation and collaboration was and integral part of BCU’s planning and decision-making process, the company continued to operate within the framework of its traditional managerial...
paradigm. This is quite evident in the next statement of a senior manager, who describes the FEKLHAS development from an techno-economic perspective,

After all we  are runn ing a commercial operation we have to be economically viable and all our decisions have to be commercially justifiable, so there are limits. The implementation committee agreed that such an approach is quite reasonable. We made concessions again and again, but as I said, there are obvious limits and consequently we had to refuse some of their demands (interview data, Si, 3i,9i, 1999).

This statement made by a senior BCU official suggests that in the final analysis the FEKLHAS development, like most industrial developments, was indeed driven by techno-economic feasibility.

As introduced in Chapter 2, a debate emerged in recent years focussing on an increasingly popular ecocentric worldview which classifies corporate socio-environmental practices as poor and firmly embedded in a thoroughly egocentric paradigm. Thus, its proponents request corporations to shift away from industrial egocentrism to assume a more ecologically moral management paradigm (Gladwin et al, 1992). This seemingly simple paradigm shift, however, suggests a paradigmatic dualism that excludes almost any other alternative. Scientists engaged in the debate argue that this paradigmatic shift from corporate egocentrism to its greener, ecocentric alternative will more properly guide future organisational behaviour (Gladwin et al 1996). Moreover, these authors suggest that unless corporations finally agree to abandon their traditional egocentric management paradigm the process of internalizing socio-ecological concerns into business operations cannot be successful (Irwin and Hooper, 1992; Shrivastava and Scott, 1992). Consequently, most researchers in this field develop strategies for the “greening” of business but fail to pay enough attention to the important social variable of community participation. However, to be effective community participation and collaboration should extent beyond simple community /
business dialogues or limited community advisory panels which are far removed from
eo-ecologically or limited community advisory panels which are far removed from
eco-democratic power structures. Consensus Conferences and Citizen Juries, although
providing for some limited community input into development processes, nevertheless
fall short of including local communities or their representatives into the actual decision
making-process itself. Therefore, after considering community concerns the final
decision-making powers remain exclusively with the macro-ecocorporatist structure that
includes the developer, technical experts and government agencies. Selected and
appointed community groups may be at best tolerated in an advisory capacity. In
contrast, the planning and decision-making structure in the FEKLHAS context provided
a limited power transfer in a micro-corporatist setting. Here the local citizen enjoyed
equal representation as can be gauged from the next two responses made by local
council officials,

Starting with the second sitting of the Coordination Team, three people from
Untervaz took part they were elected by the citizens of Untervaz. They were
voted into the Team through the local authority general assembly. So it was very
public (interview data, SoT, 2LG, 1999).

Another council official, partaking in the same interview session added,

Yes that’s right the representatives from the Coordination Team were publicly
elected. It was practically like a normal election and everyone is entitled to
nominate people from the local community assembly, we had, however, more
nominees than there were seats allocated (interview data, SoT, 2LG, 1999).

These statements show that, instead of being mutually agreed appointees, the
community representatives at the Coordination Team were actually publicly elected to
be included into the FEKLHAS planning and decision-making process. Moreover, that
BCU’s participatory strategy included a limited power transfer within its planning and
decision-making structure is reflected in the following exchange between an Untervaz
citizen and a senior manager at a meeting which included BCU staff, community
representatives, local green groups and members of the Untervaz citizenry,
[Manager]: I would like to hear from you now - what is the best strategy here, what is the best solution here?” [A woman responded]: “Are you saying that we are now allowed to have a say on how the project is to be planned and how the project is to be conducted. [Manager]: “Yes, that is why you people are there” (FEKLHAS data, SI, 3i,1999).

This promise made by the BCU manager was realized in BCU’s Coordination Team and the FEKLHAS Project Commission. The acceptance of elected community representative into the decision-making process as equal partners is evident in a statement made by one of the publicly elected members of the Coordination Team,

It goes without saying that sometimes the interests of the company were taken a bit more into consideration, but sometimes the interests of the community of Untervaz were more important. But however it went in the decision-making process the partnership was shared fairly, absolutely fairly and all the other stakeholders also perceived it as that (interview data, Si, LG, 1999)

In the context of the FEKLHAS development BCU’s participatory and collaborative strategies are to be assessed in a micro-ecocorporatist context that defines the local actors primarily as local citizen or their publicly elected representatives, local government, local green groups and other local interests. Furthermore, by sharing limited planning and decision-making powers with these local interests, the BCU assured full representation of the local community. Thereby overcoming the most prevalent problem of macro-ecocorporatism namely, that of the asymmetrical inclusion of business, technical experts, government agencies and selected environmental groups, which leaves community representatives at the fringes of the macro-ecocorporatist “participatory” structure.

As established earlier, BCU’s strategy to include the local citizenry into the FEKLHAS planning and decision-making process was supported by its traditional corporate management paradigm to which the social variable of community participation and collaborations was added. Community participation, therefore, if placed in the micro-
ecocorporatist / FEKLHAS context, is not only consistent with BCU’s traditional managerial paradigm and the concept of risk management, but is equally consistent with the “greener”, ecocentric worldview. The inclusion of the local community into BCU’s planning and decision-making structure, therefore, provided an effective counter for the two extremes of paradigmatic dualism namely, reckless egocentrism and utopian ecocentrism. In the context of the FEKLHAS development this means that BCU’s participatory structure acted as an effective control mechanism that prevented egocentric and ecocentric excesses. Furthermore, BCU’s participatory strategy arches across Cotgrove’s (1982) and Pearce et al (1993) paradigmatic boundaries because participation is consistent with both, the traditional and the alternative paradigm. The FEKLHAS concept, therefore, shows that paradigmatic boundaries are not impenetrable and a wholesale paradigm shift not necessarily the only way to assure socio-environmental sustainability.

The FEKLHAS data leaves little doubt that BCU’s approach to community participation resulted in responsible socio-environmental behaviour by the BCU as well as the local community and seems to reflect Purser and Montuori’s (1996:611) notion that “…for every ego there is an eco and both must be thought together”. The BCU, however, did not attempt to establish an ego / eco synthesis, but rather followed Hanna’s (1995) concept of integrating socio-environmental concerns into its ongoing business practices. How these participatory strategies and the integration of social and environmental concerns into BCU’s planning and decision making-process affected the development of trust and thereby the social equilibrium of the local community of Untervaz is examined in the following analysis.
Consolidating Local Social Trust: BCU’s Commitment to Participatory Strategies

As established previously, the inclusion of stakeholders by the BCU into its planning and decision-making processes created a social climate for dialogue, participation and collaboration, which significantly reduced stakeholder value incongruence. This perpetuated BCU’s pro socio-environmental behaviour and strengthened its close relationship with the local community. As discussed earlier, the FEKLHAS data indicates that the company’s participatory approach can be directly linked to its unique deep structure history. The early pro socio-environmental commitments and strategies of the BCU were initially introduced by its founder and his management team and maintained by successive CEO’s. This pro socio-environmental stance formed the basis for the establishment of participatory structures such as the Coordination Team and the Project Commission. It is important to note, however, that such participatory framework cannot be successful in a climate of social distrust. Consequently, trust-based strategies and commitments are needed to provide a sustainable forum in which stakeholders can negotiate value differences and address factual uncertainties, thereby transforming conflict into consensus (Bradbury et al 1999; Focht, 1996, 1995).

Some scholars describe trust as a social resource, which facilitates interaction and cooperation, thereby reducing the need to monitor the actions and behaviour of others, which in turn reduces negotiation costs (Zucker, 1986; Williams, 2001; Bradbury et al 1999). The FEKLHAS research data supports these views, which can be gauges from the following responses. One of the BCU managers entrusted with the development as well as the government approval processes of the FEKLHAS project said,

To obtain all the necessary approvals and permits in an amicable way we decided to establish a special committee [Coordination Team] and invite all the
people who are lawfully entitled to comment on the project. So from the very beginning we invited them to cooperate and contribute to this working group. The committee included representatives from the WWF [World Wildlife Fund], Greenpeace, local green and interest groups, community representatives who were elected by the community of Untervaz and some ornithologists (interview data, SoT, 4I, 1999).

When asked whether the local community and the various interest groups were actually empowered to influence the development design of the FEKLHAS project, the manager responded

Yes of course. We had to take some decisions and make some concessions which were more expensive than anticipated, but discussing and evaluating the project and the proposal together with government representatives, the local community and the interest groups was very advantageous, because we got the approval in record time (interview data, SoT, 4I, 1999).

These comments by the BCU are widely confirmed by various company external sources from which data was collected. One councillor from the local authority remarked

The coordination team was established in 1991. The coordination group included Kantonal representatives, interest groups, green groups and community representatives which were elected from the citizen here. The community people were voted into the coordination group through local council elections, they were publicly elected (interview data, 2LG, 1999).

Another local official recalled

In the negotiations with the BCU we were never pressured by the company or by their experts, no, we were really included, like partners. Our discussions were sometimes heated yes, but they were always fair and business like. (interview data, 2LG, 1999).

A similar response by an environmentalist who acted as the representative and spokesperson of local and national green groups points to a social climate of dialogue and collaboration.

We were certainly guaranteed the right of participation and a right to a say and in that sense we could and did effect certain improvements with regard to our concerns (interview data, 1IG, 1999).
When questioned whether calls for change by community or other interest groups actually resulted in changes to the original project design he answered “Yes partly, yes” (interview data, 1IG, 1999). At this point one should recall the alternative decision to build the transport tunnel between the quarry and the production facility as well as the introduction of a concealed method of mining. These decisions were primarily driven by community concerns in relation to some aspects of the initial proposal, which were perceived by locals as environmentally unsustainable.

BCU’s strategy of including local stakeholders into the planning and decision-making process at a very early stage provided firstly, a favourable social climate, secondly, a sustainable forum for dialogue and participation, which thirdly, reduced negotiation costs as predicted by Zucker (1986) and Williams (2001). For example, the favourable social climate resulted in the establishment of the Coordination Team, within which participants were empowered by the BCU to co-author the FEKLHAS project proposal. Throughout its development stakeholder concerns were dealt with as soon as they emerged, thereby largely excluding future rejections of the proposal by the local community, interest groups and government agencies. Consequently, the issue of time consuming and costly re-submissions to the appropriate authorities never arose; resulting in a well prepared project proposal consistent with all the necessary regulatory requirements. Stakeholders in the FEKLHAS case agree that the fast development and approval of the project proposal was largely the result of BCU’s consultative and participatory strategy (interview data, Si, 2LG, Si, 1IG, Si, 5GA, 1999). The extraordinary short approval process was also noted by local newspapers, describing BCU’s collaborative approach as a “pioneering” “exemplary” and as a process which led to a government approval in “record time” (Bündner Tagblatt, 1999; Fridolin, 1999).
The exceptionally short time span in which the project proposal was produced can be traced back to the early involvement of the local community into BCU’s planning and decision-making process. When asked whether BCU’s decision-making was much easier and much faster by including stakeholders into their decision-making process a senior BCU manager replied

Much faster, much much faster, it was probably the first time that a development of this kind [the FEKLHAS quarry project] was approached in this way. It could be an example of how industry should cooperate with the local community (interview data, E 4I, 1999).

The much shorter timeframe in which the project proposal was developed and approved indicates not only a favourable social climate of dialogue and participation, but equally important largely reduced negotiation costs and consequently a much earlier return on investments. BCU’s participatory strategy not only decreased the company’s negotiation costs, but also contradicts the assumption that eco-democratic participation unfailingly results in endless debates and delays in development processes, thereby excessively increasing negotiation costs. The FEKLHAS data, from either primary as well as secondary sources, strongly suggests that BCU’s trust-based strategies provided a social climate that enabled stakeholders to negotiate value differences and address factual uncertainties thereby transforming emerging conflict, into consensus.

In Chapter 4 it is argued that participatory dialogue and collaboration can neither be effective nor sustainable without a positive social climate which is underpinned by social trust. Since the company’s inception, BCU’s founder and successive CEO’s recognized and utilized social trust as an effective tool for significantly reducing socio-environmental and socio-political complexities (see Early and Cvetkovich (1999). This approach decreased the complexities of BCU’s social relationship with the local community particularly with reference to techno-economic and socio-environmental
issues. This means that BCU’s detailed explanations, openness and transparency in planning and decision-making greatly simplified the complexity of techno-economic and socio-environmental issues. This strategy enabled community stakeholders to more easily adapt to complex changes in their social and techno-economic environments (see Early and Cvetkovich, 1999; and Misztal, 1996). The following statements made by BCU managers, government officials and interest group representatives clearly point to a climate of social trust and complexity reducing strategies. The representative from a local / national green group stated

   We certainly could have invited our own experts we were free to do so, but we didn’t do it because their [BCU’s] expert team was very good and very comprehensible (interview data, SoT, IIG, 1999).

Another community spokes person remembered

   The local authorities and industry always have something against the greens and community protest groups but here in Untervaz there was good cooperation and the whole thing was very open and I appreciate that (interview data, IIG, 1999)

Similarly the representative from another interest group

   We did not have the feeling during any phase in the project that we could have not inspected any part of the project or that something was being kept hidden from us - it was totally open (interview data, Si, IIG, 1999).

An almost historical line repeatedly used in some form or the other by one of BCU’s senior mangers, it reads

   I offered them an open door at all times. I said we have an open house here, a ‘glass house’, we have nothing to hide. I invited the greens and the locals to work on the project with me and plan with me. (interview data, Si, 3i, 1999).

These interview responses as well as data from company records, local council minutes and Kantonal reports strongly indicate that the BCU provided a favourable social climate in which sustainable dialogue and collaboration could flourish. This means that the company largely conformed to the trust attributes introduced in Chapter 4 namely,
the free flow of information, cooperative behaviour and honest and open risk communication.

Scholars cited in Chapter 4 suggest that risk communication can only be successful if broad public participation leads to a mutually agreed definition on the “acceptability” risk (Bradbury et al 1999; Misztal, 1996; Earle and Cvetkovich, 1999, 1995; Kaspersen et al, 1992). Consequently, risk communicators should acquire an understanding of the socio-environmental structures of local communities. They should furthermore recognize that risk communication occurs in a context of multi-levelled social communication in which stakeholders make their own judgements about risk (Kaspersen et al, 1988, 1992; Krimsky and Plough, 1988). The FEKLHAS data is very clear on this point, showing that the BCU and in particular its senior management acquired detailed knowledge about local socio-environmental community structures. They furthermore obtained a deep understanding of the local multi-levelled social communication structures as well as familiarized themselves with community value and belief systems, which underpin community risk judgement.

The acquirement of these valuable insights can be traced back to BCU’s founder and his membership in the Kantonal government (research data 4I, 3i, 1999) as well as to a later CEO who also became a senior parliamentarian in the Kantonal government (data 4I, 3i, 1999). Consequently, being elected to the Kantonal parliament allowed BCU’s CEO to acquaint himself not only with the other 120 parliamentarians but equally important, with the local community, local interest groups and the appropriate public servants of Kantonal and local agencies. It is not surprising therefore that he “got to know all these people very well and was able to develop very good relationships with all these people (interview data, I, 3I, 1999)”. Throughout the research data a large number of
comments point to the popularity, honesty and openness of BCU’s CEO both, in his capacity as company manager as well as parliamentarian. The comments made by a community and an interest group representative respectively reflect these sentiments.

He is well respected is very popular and maintains excellent relationships with the local community and community groups as well as the Kantonal and local authorities (interview data 4I-3i, 1999).

The offer to participate was most certainly meant seriously. Those responsible for it, the people I met personally and also the office responsible - whether it be on the part of the director or his employees - it was certainly always honest in its intent (interview data, Si, IG, 1999).

It is in this context of a positive social climate that individuals or groups can rely on the action and behaviour of others and that promises and statements that are made in a trust relationship are being fulfilled by those who made them (Mayer et al 1995; Rotter, 1980). Although there are similar statements made about trust and fairness the following most clearly points to a climate of mutual trust and dialogue.

…and because they [community and interest groups] could see that attention was paid to their dearly held believes I expected in return that they are fair to us and I must say they really were (interview data, Si, 3i, 1999).

Conversely, in a negative social climate participants in social relationships are most likely to act inimically, thereby leaving expectations unfulfilled which in turn creates social distrust. As analysed in Chapter 4, negative social climates are primarily driven by a lack of commitment, socio-environmental incompetence, and an uncaring attitude towards dependent communities, which is usually accompanied by unpredictable social behaviour (Kasperson et al (1992). However, the data presented in this section of the FEKLHAS analysis strongly suggests BCU’s commitment to openness and fairness in dealing with community concerns. For example, the establishment of the Coordination Team, in which its participants co-authored the FEKLHAS project proposal, and the Project Commission, entrusted to monitor the project throughout its production phase.
indicates commitment, competence, caring and predictability. The data strongly suggest that without a firm commitment to openness and to a generous exchange of information, which was undoubtingly provided by the BCU, neither the Coordination Team nor the Project Commission could have been successful. These participatory structures in which stakeholders engaged in productive dialogue and collaboration provided a forum where community concerns and their socio-environmental and socio-environmental expectations could be realized.

As argued in Chapter 4, a caring social attitude towards dependent communities not only shows concern for community expectations, but also displays predictable and consistent social behaviour. Predictability and consistency, however, must remain fluid, meaning that a state of flux is necessary so that new socio-environmental insight and changes in community value orientations can be included into planning and decision-making processes. The most tangible outcomes of applying these basic trust dimensions of commitment, competence, caring and predictability are reflected in BCU’s decision to provide a favourable social climate. This saw the establishment of participatory structures such as the Coordination Team and the FEKLHAS Project Commission which ultimately led to the construction of a tunnel between BCU’s new quarry site and its production facility and the introduction of a concealed mining method.

7.6 Summary

This Chapter focuses on four participatory factors, which have been recognized as the most important elements in BCU’s successful public participation approach. There is firstly, the mutual legitimization and alignment of different stakeholder ideologies and their supporting value systems, which significantly reduced value incongruity and largely prevented cognitive dissonance. Secondly, BCU’s deep structure history, which
provided a pro socio-environmental blueprint for successive CEO’s of the BCU and determined the company’s socio-environmental contingency responses. Thirdly, BCU’s pro socio-environmental strategies, which have been found by this research to be grounded in a traditional managerial paradigm, which in turn is informed by BCU’s deep structure history. And finally, BCU’s commitment to public participation, which is primarily reflected in the establishment of the Coordination Team, assuring effective risk communication through mutual social trust. These four participatory elements are recognized by this thesis as being the cornerstone on which the BCU established a social climate of trust and collaboration, in which stakeholders could engage in constructive and sustainable dialogue.

The Mutual Legitimization and Alignment of Stakeholder Value Position

In Chapter 3 it was argued that without consistency between cognitive elements, as for example, industrial development and socio-environmental community values, cognitive dissonance is most likely to occur (Ajzen and Fishbein, 1980). However, as the data indicates, this scenario did not emerge in the FEKLHAS case and socio-environmental or legal sanctions were not enforced by the local community to end a possible state of dissonance. The primary reasons for the absence of cognitive dissonance in the FEKLHAS development are firstly, BCU’s unique, pro socio-environmental deep structure and secondly, the company’s commitment to legitimize and align different stakeholder values within the framework of the Coordination Team. By recognizing different stakeholder ideologies and their underlying value positions BCU’s management gained valuable insights into community sentiments and thereby into a possible presence or absence of cognitive dissonance. The data strongly indicates that the recognition and the alignment of stakeholder values and their consequent inclusion into BCU’s planning and decision-making process, resulted in appropriate and effective
socio-environmental contingency responses. It is in this light that most authors cited in Chapter 3 agree that both, the mutual legitimation and the alignment of community and organizational value systems are intrinsically linked to corporate success or failure (Schein, 1996; Hoffman, 1993; Posner and Schimdt, 1992).

Decision-makers within BCU’s management largely agree with this assessment of corporate success or failure. Their interview responses show that they recognized the importance and the direct link between the recognition and acceptance of socio-environmental community values and the success of the FEKLHAS project. Moreover, data collected from these interview responses as well as company and local council documents clearly suggests that socio-environmental community values and the techno-economic value positions of the BCU were actually legitimized by mutual recognition. This is consistent with BCU’s strategy of providing a forum for mutual value recognition, legitimisation and alignment namely, the Coordination Team. However, interview responses from external managers and development experts not linked to BCU’s deep structure clearly show that these respondents either misunderstood or misinterpreted the importance and function of socio-environmental values in the FEKLHAS project. This is in sharp contrast to BCU practitioners, who were socialised by their unique deep structure history. Here the data firmly indicates that BCU’s senior management and in particular its CEO clearly recognized the direct impact of local social, cultural, political, economic and environmental value issues on the FEKLHAS development process. This is particularly reflected in BCU’s and its CEO’s civic engagements. As Gersick (1991) suggests in Chapter 3, differences in recognizing the importance of community value issues, in this case by BCU external managers, lie with the socialization of managers into their own, system specific deep structures, which are informed by different deep structure histories.
In response to the socio-environmental challenges posed by the FEKLHAS project, stakeholders subscribed to one or a combination of three basic socio-environmental strategies. The data confirms this reaction by stakeholders who either selected the strategic position of environmental adaptation, of sustainable development or one of prevention and strict conservation as expected by O’Riordan and Ryner (1991). As the data indicates, the selection of these responses, however, largely depended on the ideologies and underlying value positions to which participants in the FEKLHAS development subscribed. These different strategic responses, driven by opposing ideological motivations and their supporting and equally discrepant value and belief systems needed to be mutually legitimized and aligned.

As reflected in the primary as well as the secondary data, this means that representatives in the Coordination Team mutually recognized and thereby legitimized opposing ideologies and their supporting value frameworks. Subjected to dialogue and debate, these different socio-environmental values and beliefs could therefore be collaboratively revised and aligned through mutually agreed compromise.

This research has found, that the successes of this legitimization and alignment process is grounded in the wider participatory context of the Calanda Commission, a participatory structure established under the auspice of the local council of Untervaz\(^1\) and the Coordination Team, an entirely voluntary initiative of the BCU. It is in this context that interview responses from opposing camps agree, that without acknowledging and thereby legitimizing different ideologies and value frameworks, discrepancies between them could neither have been aligned nor reconciled. Therefore, \(^1\)To review the structural and operational details of the Calanda Commission refer to section 6.3 in Chapter 6
by establishing the *Coordination Team*, the BCU provided a positive social climate and an effective participatory forum for dialogue, value legitimization and alignment as well as compromise and consensus.

**Deep Structure History**

As discussed in Chapter 2 and 3, deep structure is a set of fundamental and independent choices of the basic organizational configuration into which its substructures are organized (Gersick, 1991). These deep structures, Gersick suggests, are highly stable, because the initial deep structure choices and strategies exclude many contingency options and include only those which are mutually agreed upon and are consistent with the early deep structure choices. In periods of radical reorientations, on the other hand, deep structures as well as its core values, which determine deep structure decision-making, may be altered (Tushman and Romanelli, 1985)

If applied to the FEKLHAS context and in particular BCU’s deep structure such alteration of core values did not occur. Although faced with fundamental changes and reorientations in relation to resource availability, BCU’s early pro socio-environmental deep structure choices remained intact. The FEKLHAS data confirms that the BCU continued to pursue strategies of local social, cultural and environmental peace. These strategies are particularly reflected in the establishment of participatory structures such as the *Coordination Team* as well as in the provision of a climate of social trust, dialogue and collaboration. Interview responses from community and interest group representatives as well as local council and Kantonal officials point to a long standing special relationship with these stakeholders. However, BCU managers are quite determined that the company’s and their individual close relationships with the local community were established prior to its full integration into the Holderbank group.
Responses from community and local council representatives confirm this assessment, pointing to a special and unique relationship between the BCU and locals, which they suggest was developed over an extended period of time, starting with BCU’s inception in 1956.

This re-occurring theme of a special and unique relationship between the local community and the BCU can be found throughout the FEKLHAS data. However, the data also shows that this special relationship was established and maintained independently from Holderbank. Interview responses from the local authority as well as community representatives seem to agree with BCU managers that this independence and later semi-independence of the company assured the maintenance and further enhancement of the relationship. As indicated earlier despite facing radical reorientations in assuring resource availability BCU’s initially chosen deep structure strategies and behaviour pattern were tenaciously maintained by its management. This confirms Gersick’s (1991) view, suggesting that independent or semi-independent sub-system deep structures vigorously protect and maintain their long established deep structure relationships with local communities and institutions. The decision by BCU’s CEO to enter the Kantonal parliament with a view to better understand, inform and include the wider community into the planning and decision-making process of the FEKLHAS development falls into this category.

Responses from local council representatives, community leaders and interest groups almost exclusively confirm that in his attempt to inform and introduce the community to BCU’s development plans, which included techno-economic complexities, were communicated in plain language. This, as the data indicates, also applies to BCU’s development experts who clearly avoided creating any communication deficiencies by
translating community value questions into techno-economic language. Therefore, language distortion problems as discussed under sub-heading 3.2(ii) never arose.

These efforts by the BCU and its experts reinforced the company’s already strong relationship with the local and wider community. Moreover, there is also no indication in the research data of any excessive pressure by the BCU in an attempt to win support for its quarry development, “capturing” local or Kantonal authorities. Local council and Kantonal officials, questioned on the issues of capture and undue pressure pointed to the stringently transparent and very detailed government prescribed approval processes. Data collected from these authorities as well as company records confirm BCU’s correctness in dealing with these government agencies. Local and Kantonal departmental documents concerned with the FEKLHAS development show a strong element of public control. This concept of civic control is certainly not incompatible with BCU’s deep structure strategies. For example, the Calanda Commission and BCU’s Coordination Team are equally participatory structures of public control in which community and interest group representatives exercised their right to a say thereby significantly influencing the FEKLHAS development.

The FEKLHAS data leaves little doubt that BCU’s pro socio-environmental behaviour can be observed throughout its unique deep structure history. Its early deep structure choices provided a blueprint for BCU’s management, determining their socio-environmental, cultural and socio-political contingency responses. The research data also shows that BCU’s particularly stable and special relationship with the wider community was secured by its management through the establishment of participatory structures such as the Coordination Team. This enabled BCU’s management to recognize and correctly analyse socio-environmental and socio-environmental
community demands, long before they could evolve into a unsurmountable problem. Grounded in its pro socio-environmental deep structure history, this foresight has been the trademark for BCU’s management throughout the FEKLHAS development process. This applies particularly to the company’s CEO, who pre-emptively provided a positive social climate by his personal civic engagement and commitment and by establishing participatory frameworks in which community stakeholders engaged in constructive dialogue and collaboration.

*Strategic Orientations and Managerial Paradigms*

Individual and community value dimensions are in a process of constant change. The primary reasons for these changes are new scientific insights and increased environmental awareness (Borrow, 1995; O’Riordan, 1991). In Chapter 3 it is argued that shifts in socio-environmental value and belief dimensions can be expected to also change community attitudes towards the environment and thereby towards industrial development. This means that changes in community value positions simultaneously and fundamentally influence local social and environmental realities. Within this framework of new socio-environmental realities and new scientific insights researchers discovered a change in community attitudes towards socio-environmental issues and a shift along the spectrum of environmental ideologies toward a “greener” position (Pearce et al 1993:O’Riordan, 1991; Cotgrove, 1982).

As indicated earlier in this Chapter, this change in socio-environment attitudes raises the following questions. Was there a need for the BCU to move from its existing management paradigm towards a “greener”, ecocentric paradigm to assure socio-environmental sustainability? Was it sufficient to interchange some conceptual aspects across the egocentric / ecocentric paradigmatic divide to guarantee the successful completion of the FEKLHAS project? Finally, was it possible to win community
support for the project and assure socio-environmental sustainability, by using an extended version of the traditional paradigm, which would see the inclusion of stakeholders in to the planning and decision-making process?

This research answers these questions by investigating BCU’s socio-environmental contingency responses, which revealed that the BCU developed a socio-participatory strategy of openness and inclusion. This participatory and collaborative strategy can be found throughout the FEKHLHAS data. Data obtained from community representatives and government agencies as well as from company documentations point to community concerns and values being integrated into BCU’s strategies and its planning and decision-making process. There is, however, no evidence of a shift towards an ecocentric management paradigm. Instead, the data overwhelmingly suggests a traditional corporate management paradigm, which, however, included pro socio-participatory strategies. A comparative examination of data from the local community, environmentalists and local council and Kantonal representatives reveals a strategic effort by the BCU to include the wider local community into its planning and decision-making process. The data shows furthermore a willingness by the BCU to listen to community concerns as well as a preparedness to actually change aspects of their construction designs. Although community participation and collaboration was an integral part of BCU’s planning and decision-making process, management adhered to a traditional management paradigm. Responses form senior managers and in particular from the company’s CEO unmistakably suggest that the BCU was “after all, running a commercial operation” in which decisions have to be commercially justifiable.

In Chapter 2 an increasingly popular ecocentric worldview was introduced with its proponents requesting a decisive shift away from traditional management paradigms to
a more ecologically moral management paradigm (Gladwin et al, 1992). In the same Chapter it is argued that most researchers in this field developed strategies for the “greening” of business. They fail, however, to pay enough attention to the socio-environmental variable of genuine community participation which moves beyond participatory symbolism. In the FEKLHAS case community participation extended decisively and significantly beyond simple community advisory panels, Consensus Conferences or Citizen Juries. In these “participatory” structures community input is very limited, because community stakeholders are largely excluded from the final decision-making process. In contrast, participatory structures such as the Calanda Commission, BCU’s Coordination Team, and the FEKLHAS Project Commission, the latter with its quorum decisions and voting rights, genuinely provide a limited power transfer in planning and decision-making. The constitutions of these participatory structures suggest that its members cannot be mutually agreed appointees, but are to be publicly elected community members to be included into the planning and decision-making process of the FEKLHAS project. Data gathered from these elected community representatives, environmentalists as well as from BCU and the local council documents confirm a limited power shift in the overall planning and decision-making structure of the FEKLHAS project.

The FEKLHAS data strongly suggest that the BCU’s approach to public dialogue, participation and collaboration is reflected in and consistent with the company’s responsible socio-environmental behaviour. The data neither provides any evidence for an attempted egocentric / ecocentric synthesis or a wholesale paradigm shift from a traditional management paradigm to a “greener” ecocentric management paradigm. The BCU’s participatory approach rather follows Hanna’s (1995) and Purser and Montouri’s

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2 To review the operational structure and responsibilities of the Commission refer to sub-heading 6.5
(1996) concepts of integration, meaning the inclusion of socio-environmental community values and concerns into ongoing business practices within the framework of a traditional management paradigm.

Social Trust: BCU’s Commitment to Participatory Strategies

As discussed earlier, BCU’s pro socio-environmental commitments and strategies were initially introduced by its founder and maintained by successive CEO’s and their managers. Consistent with this pro socio-environmental deep structure history are participatory structures such as the Calanda Commission, BCU’s Coordination Team and the FEKLHAS Project Commission. Equally consistent with BCU’s deep structure strategies is the direct involvement of senior company managers within these participatory systems as well as their “hands on” civic engagements outside BCU’s organizational structure. However, to establish and maintain such forums of public participation requires a sustainable climate of social trust, in which stakeholders can negotiate value differences and address factual uncertainties to ultimately create consensus. A favourable social climate not only facilitates participatory interaction and collaboration, but also reduces the need to monitor the actions and behaviour of other stakeholders (Zucker, 1986; Williams, 2001).

Data collected from BCU external sources such as environmentalists, interest groups as well as local and Kantonal government agencies overwhelmingly point to a strong sense of social trust among stakeholders. Within this context stakeholders remained trustful, believing that others in this trust relationship will behave and act in similar ways. The tangible result of this social trust relationship is the collaboratively developed and co-authored FEKLHAS project proposal, implying a limited power shift towards community stakeholders. BCU external data sources confirm the company’s claim of a
power transfer in favour of local community stakeholders. This means that with the establishment of the *Calanda Commission*, the *Coordination Team* and the *FEKLHAS Project Commission* a limited power transfer occurred, providing community stakeholders with an opportunity to actually influence development designs of the FEKLHAS project. The tangible results of this empowerment process are not limited to the co-authored project proposal, but are also reflected in BCU’s decision to build a transport tunnel between the new quarry site and the production facility. Furthermore, substantial changes were also made in relation to the mining methods as well as the final rehabilitation of the FEKLHAS site after mining has seized.

These concrete results from BCU’s participatory strategies can be traced back to the early involvement of the local community into BCU’s planning and decision-making process. As argued in Chapter 4, dialogue and collaboration can be expected to be sustainable only if based on mutual social trust. The FEKLHAS data clearly shows that the BCU developed and utilized social trust as an effective tool, not only lessening negotiation costs but equally important, reducing socio-environmental and socio-political complexities. This means that BCU’s participatory approach, its openness and transparency in planning and decision-making significantly simplified the complexities of techno-economic and socio-environmental issues which emerged throughout the FEKLHAS development. The most striking benefit of reducing complexity is that community stakeholders more easily adapted to complex changes in the local socio-environmental and techno-economic environments. Interview responses and data from company records, local council minutes and Kantonal reports confirm the benefits of reducing complexity. The data points particularly to the provision of a favourable social climate by the BCU as well as to its strategy of openness and transparency as the driving force in reducing complexity. In this context of reduced complexity, authorities
were able to work through emerging socio-environmental and techno-economic problems in record time.

However, considering the overall participatory approach by the BCU a picture emerges which shows a commitment to the basic trust attributes discussed in Chapter 4 namely, the free flow of information, cooperative behaviour and honest and open risk communication. Risk communication, it is argued, can only be successful if broad public participation leads to a mutually agreed definition on the “acceptability” of risk (Bradbury et al 1999; Misztal, 1996; Early and Cvetkovich, 1999, 1995; Kasperson et al 1992). It can be gauged from the data that BCU’s management and in particular its CEO effectively communicated risk issues within the framework of the Calanda Commission, its Coordination Team and the FEKLHAS Project Commission. Furthermore, through direct civic engagements and political involvement BCU’s risk communicators acquired a detailed understanding of the socio-environmental and socio-environmental structures of the local community. Consequently, they were able to familiarize themselves with current community value and belief systems which underpin community risk judgements. As the data indicates, the acquirement of these valuable insights into community risk perceptions can be traced back to BCU’s founder and his membership in the Kantonal government. The civic commitments in the Kantonal government of BCU’s founder and the CEO responsible for the FEKLHAS development greatly enhanced BCU’s standing as being open and honest in its risk assessment and dealings with the local community. There are numerous comments and statements throughout the FEKLHAS data pointing to the popularity, honesty and openness of BCU’s founder and CEO both, in their capacity as managers as well as parliamentarians.
The FEKLHAS data strongly suggest that without BCU’s commitment to openness, public participation and collaboration the Calanda Commission, the Coordination Team and the FEKLHAS Project Commission could not have been successful. Furthermore, by providing these participatory structures community concerns could be included into the planning and decision-making process and socio-environmental, socio-environmental expectations realized. It is in this context that BCU’s social commitment as well as its predictable and consistent social behaviour, assured a favourable social climate as well as sustainable dialogue and collaboration.
Chapter 8

Case Study B

The East End Mine Controversy,

Redefining the Problem: Integrating Techno-Economic Factors and Socio-Environmental Community Values

8.1 The Bracewell - East End Quarry Development

8.1.1 Introduction

Redefining the East End Mine Problem

The previous FEKLHAS case study in Chapter 6 and 7 indicates that the development of a successful and enduring industry/community relationship depends largely on the integration of social, cultural, socio-economic and political factors into the overall development process of large industrial developments. As a direct consequence of this inclusive approach a close relationship between the community of Untervaz and the local cement producer, the Bündner Cement Untervaz (BCU) developed which is driven and maintained by social trust. The primary reason for this strong trust relationship is firstly, the very early inclusion of the local community into the planning and decision-making process and secondly, the integration of local social, cultural, socio-economic and political community concerns into all facets and phases of the FEKLHAS development process. Consequently, the BCU, the local council of Untervaz and the Kantonal agencies provided a favourable social climate and thus a means for developing consensus among stakeholders.
As demonstrated in previous chapters, the BCU and its progressive management as well as various Kantonal and local agencies provided a context in which community stakeholder established and maintained an effective dialogue. It is important to remember (see Chapter 6) that the participatory and social trust context in the Swiss case is based on a unique combination of commercial decision-making and on deep structure commitments that firmly support genuine community engagement. Nevertheless, BCU’s participatory management approach is grounded in purely voluntary arrangements between the BCU and the local community, because the company could have decided to embark on a path of minimum compliance. This means that the BCU operates its participatory strategies beyond government requirements as well as traditional Swiss cultural norms. Cultural differences and the influence of culture notwithstanding, the organization/community relationships, which emerged in the Untervaz case, were not directly derivative Swiss culture. The relationship between the BCU and local community groups in their attempt to balance techno-economic and socio-environmental goals through power sharing were strategies adopted by local stakeholders. In the Untervaz case, therefore, local industry/community relationships were more important than the general cultural base. Notably, organizational strategies to share power with locals and recognition in doing so will facilitate long-term economic goals relatively independent from broader cultural phenomena.

It is in this context that the Swiss collaborative approach can serve as an analytical and practical model in the following East End Mine (EEM) study. Particular emphasis is placed on key collaborative and participatory factors, which can be expected to provide some insight into:
• The historical developments of deep structure trust or distrust among EEM stakeholders.
• The inclusion or exclusion of social, cultural, socio-economic and political community concerns into the overall development process of the EEM development.
• The provision and assurance by the industrial developer and government agencies of a social climate favourable to establish and maintain a participatory and collaborative dialogue.

It is against this background that this thesis proposes to re-define the East End problem, placing it in a context of social trust and socio-environmental community concerns. This is best achieved by shifting it away from predominantly techno-economic thinking, emphasizing instead the social, cultural, socio-economic and political essentials of the East End development. This thesis argues that these socio-environmental issues are not only key contributors to the problem, but equally important, are vital for its solution.

Finally, the primary reason for redefining the EEM problem is to discourage exclusive techno-economic reasoning, which in isolation, cannot and did not resolve the dispute for more than three decades. Consequently, the subsequent Chapter 9 offers an analysis of the social, cultural, political and economic contingency responses by government agencies and the industrial developer in response to emerging techno-economic and geo-hydrological problems. Prior to this analysis, however, this Chapter provides an overview of the actual socio-environmental and social trust behaviour of the participants in the East End case. This requires an understanding of four primary aspects of the East End Mine development:
1. The background of the Gladstone region and the Mt Larcom district and the
   Bracewell / East End Mining project.

2. The historical development of community, government and industry deep
   structure strategies and socio-environmental contingency responses.

3. The geological and hydrological complexities surrounding the East End Mine.

4. The existence or absence of participatory structures e.g. collaborative planning
   and strategy development.

8.2 Setting the Scene

8.2.1 The Gladstone Region and the Mt. Larcom District

The township of Mt. Larcom is located 120 km south of Rockhampton and 30 km
northwest of Gladstone. Fishermans Landing, the home of QCL’s cement production
facility, lies 26 km to the east of Mt. Larcom and some 10 km north of Gladstone
(Figure 8.1). The city of Gladstone is an internationally recognized location for the
establishment of globally competitive manufacturing and processing industries and is
strategically located at the Central Queensland coast 600 km north of Brisbane.
Providing one of the three major port facilities and industrial centers of Queensland,
Gladstone supports major industries such as chemical and cement manufacturers, a trial
shale oil facility, an alumina plant and aluminium smelter. Future developments include
a 1.4 billion-dollar alumina refinery, which in turn will greatly enhance the prospects
for the planned 4.1 billion-dollar gas pipeline from New Guinea to Queensland,
supplying Gladstone’s existing and future industries.
Central Queensland and its coastal region has an abundance of natural resources such as coal, salt, ilmenite, silica sands, magnetite, oil shale, calcite as well as significant limestone deposits. Particularly large limestone reserves are found at Bracewell and East End in the Mt. Larcom district and are estimated to have a combined mining capacity in excess of 100 years (QCL (a), 2000).
To assure the supply of limestone for its cement manufacturing complex at Fishermans Landing, QCL operates a large limestone quarry at East End which lies about 8 km south west of Mt. Larcom as shown in Figure 8.2. Prior to mining East End government plans existed to dam the nearby Calliope River which was expected to flood large sections of the East End mining leases. The strategy, therefore, was to exploit the East End deposits as much as possible and after their inundation mining was to commence at the Bracewell reserves (Madden, 1975). The Calliope River project did not eventuate and consequent new estimates of the existing limestone reserves in the East End – Bracewell area surpassed earlier expectations significantly.
The East End leases without the Bracewell deposits were assumed to hold 163 million tonnes, exceeding initial estimates by 70 million tonnes. Considering the current annual extraction rate of some 2.5 million tonnes the total mining capacity of the East End reserves alone is expected to last 65 to 70 years (QCL (a), 2002). Sizeable mining leases secure these significant limestone deposits for excavation. These leases are outlined in Figure 8.3 and are held by the Darra Exploration Pty Ltd, whereby the shaded areas indicate the land owned by Darra Exploration / QCL, making the company the largest landowner in relation to the local farming community directly effected by the quarry development.
8.3 The historical development of community, government and industry deep structure strategies and the loss of social trust

In February 1974 the Darra Exploration Pty. Ltd. commenced an exploratory drilling program in the Bracewell and East End area near Mt. Larcom in Central Queensland. The objective was to locate a primary source of limestone to supply the cement production facility of the Queensland Cement and Lime Company (QCLC) at Fishermans Landing near Gladstone. When the known Bracewell and East End limestone deposits were proven to hold sufficient quantities of suitable raw material, a proposal to mine the area was submitted to the authorities. The local farming community almost immediately opposed the mining proposal and registered its socio-environmental concerns with Queensland government ministers, government agencies and the industrial developer. The driving force of their ongoing opposition is primarily based on community fears that the proposed mining activities cause irreparable damage to the local environment and the accustomed way of life. Consequently, farmers expected significant socio-environmental, economic and socio-environmental pressures be imposed by the EEM development on their Bracewell and East End communities.

These concerns of the local farming community appear to have materialized. Receding groundwater levels in the Bracewell / East End area continue to worsen, productive farmland and livelihoods have been lost and increasingly deteriorating land values exert significant pressures on local farmers and their families. These socio-environmental problems led to fundamental changes to long established socio-environmental community structures. However, sudden radical changes to local social and cultural deep structures are most likely to result in cognitive dissonance and socio-
environmental disequilibrium (Fishbein, 1993; Schein, 1996, Wollin, 1999; Romanelli and Tushman, 1994).

Such a state of dissonance, if related to the East End case, is most likely to emerge from significant discrepancies between social, cultural and political community value and belief systems and the techno-economic and geo-hydrological realities imposed by the EEM development. Consequently, without re-establishing the socio-environmental equilibrium, a successful local community structure and therewith an effective industry / community relationship, which is firmly based on social trust can neither be regained nor maintained. In the EEM context this means that increasing socio-environmental pressures, primarily due to deteriorating water reserves and the inherent economic losses, will force affected farmers increasingly to the margins. Therefore, without effective countermeasures, for example, self-assessment and self-criticism, deep-seated social distrust will intensify. Furthermore, firmly embedded government and industry deep structure strategies, responding to socio-environmental community demands need to be revised, thereby providing a social climate and forum for sustained participatory and collaborative dialogue.

The historical development of deep structure strategies, the loss of social trust and the actual responses by industry and government agencies to socio-environmental community demands are intrinsically linked to specific events or milestones in the EEM project. These milestones influenced and shaped the formation of the deep structure choices as well as the socio-environmental contingency responses of those involved in the EEM development. Therefore, the following six milestones are the focus of this study's attention because references to these specific events reappear particularly frequently and persistently throughout the research data. Moreover, although from
different perspectives, interviewees from either side of the EEM dispute refer to these events with particular consistency. Consequently, these events, particularly from a local community perspective, not only represent important steps in the deterioration of social trust, but also point to an almost irreconcilable entrenchment of social distrust. Therefore, this thesis suggest, that their categorization as primary socio-environmental concerns in the EEM case is justified. This means that this thesis recognizes these six events, which emerged from the data, as important steps in the development of community, government and industry deep structure choices, strategies and behaviours. Furthermore, these events are also recognized as primary milestones in a continuing downward spiral of social distrust.

1. The 1974 exploration and drilling program of the Darra Exploration Pty. Ltd.
2. The exclusion of social fundamentals eg. community value and belief systems, community spirit, community solidarity and social capital.
5. The collapse of the East End Mine Community Liaison Group.
6. The East End Mine Open Technical forum.

8.3.1 The East End/Bracewell Exploration Drilling Program

It has been established in Chapter 3 that organisational deep structure choices and commitments coincide with the establishment of a new development. Therefore, the commencement of the 1974 exploration-drilling program in the East End/Bracewell area
constitutes the inception of community, industry and government deep structure choices, strategies and behaviours. It furthermore represents the first milestone in the beginning of a 30-year downward spiral of social distrust. It is self-explanatory that significant changes in socio-environmental policies have been developed and implemented in Queensland since 1974 and fundamental shifts in community, industry and government attitudes towards social and environmental issues occurred since then. However, the project specific deep structure choices and strategies to which stakeholders subscribed in 1974 remain intact. This means that in relation to the East End development, East End mine specific deep structure inertia drive industry and some government agencies to uphold earlier policies and decision-making to assure the continuation of the EEM operation.

Comparatively, stakeholder deep structure strategies as chosen by the industrial developer and government agencies in the East End case, quite notably, contrast the deep structure choices of the Bündner Cement Untervaz (BCU). This applies equally to local and Kantonal (state) agencies, which together with the BCU provided a social climate of openness, collaboration and participation. As outlined in Chapter 6 and 7, prior to exploring the Calanda mountain range for suitable limestone deposits, the BCU as well as local government agencies informed the community through the media and public meetings about the company’s intention to extend its existing quarry operations. Within this climate of openness and inclusion BCU experts introduced the wider public to the company’s extensive exploration and drilling program. Furthermore, BCU’s management developed four core conduct criteria\(^1\), which were applied throughout the entire exploration phase of the FEKLHAS project. These core criteria for responsible socio-environmental conduct are purely voluntary and exceed local and Kantonal

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\(^1\) For a detailed review refer to Chapter 6
requirements. Instead of being limited to techno-economic feasibility considerations or geo-chemical production requirements, they deliberately included social, cultural, socio-economic, political and environmental community concerns. Guided by this particular combination of techno-economic and socio-environmental criteria, BCU's geologists and mining experts expectedly dismissed some potential limestone deposits for geo-chemical reasons. Others, notably, were rejected because they posed an unacceptable social, cultural and socio-economic risk for the local community.

Throughout the exploration process BCU experts continually informed the local community about the latest developments in the exploratory drilling program. The company’s quite extensive exploration efforts increasingly led to accurate predictions about the size, nature and possible location of the future quarry development. Consequently, at a public meeting the BCU was able to inform the local community about the location and size of the future FEKLHAS project. In response to these developments the local council assembly of Untervaz and BCU management decided to establish the official *Calanda Commission*, whose local community representatives were to be publicly elected. The overall function of this commission was to evaluate, advise and control the planning and decision-making process of the BCU throughout the development phase of the FEKLHAS project.

Conversely, industry and governmental strategies in the EEM development were shrouded in secrecy and knowledge and information was being used to maintain and manipulate political and techno-economic power structures. Consequently, no official public meeting was conducted, in which the industrial developer or the government and its agencies discussed the need or possible extent of the forthcoming exploration of the East End / Bracewell deposits. Attempts by the farming community to gain some insight
into the Bracewell / East End drilling program were unsuccessful and the drilling phase of the EEM project commenced without industry/community consultation. Furthermore, throughout the entire exploration phase no progress reports about the different stages of the drilling program were provided to the community. Instead, local farmers obtained their information from drilling crews and/or contradictory statements made by company managers and government ministers and their agencies. This can be gauged from the following statement “we got some information from them, and then the manager arrived and told us something else and we didn’t know what was going on” (interview data, 2F, 1999). Facts and knowledge obtained in this way were naturally unreliable. It is not surprising, therefore, that such negative attitudes to openness, which at the time were equally shared by the industrial developer, government ministers and their agencies, resulted in confusion, the circulation of false information, hearsay and above all, distrust.

The actual size of the mining lease application, for example, was largely withheld from the local farming community and primarily driven by a policy of excessive secrecy. Although the developer informed local farmers in 1974 about a reduction in the area required for mining, this information was never substantiated or officially confirmed by either the company or the Department of Mines. It was not until a Mining Warden’s Court hearing in February 1975 that farmers learned of the full extent of the mining lease applications. It is important to note that the full disclosure of the actual size of the mining lease application would have shown that the proposed lease area far exceeded the capacity of the Mt. Larcom district to absorb the loss of such vast expanse of farmland. It is in this context that the lease application, firstly, posed a direct threat to Mt Larcom as a viable agricultural district; secondly, threatened the accustomed way of

2 The initial lease application included 2200 hectares, later reduced to 1744 ha, finally to 1100 ha.
life of the Bracewell / East End farming communities; and thirdly, foreshadowed the end of long established local social and cultural structures. Consequently, local farmers not only voiced their concerns about future environmental problems such as the loss of existing groundwater reserves, but also recognized the possibility of the slow erosion of local social, cultural, socio-economic and political structures, which they feared might eventually result in a blighted community. This erosion process is well underway, signifying the final phase of the socio-environmental, socio-economic and political viability of the Bracewell / East End farming communities.

With the commencement of the Bracewell / East End drilling program local farmers organized, forming the Mt. Larcom and District Mining Protest Group (MLDMPG). During 1976 Port Curtis election campaign, a deputation from the MLDMPG was granted an audience with the then Queensland Premier and the Minister of Mines. Four delegates presented their case suggesting, that the expected socio-environmental impact on the local farming community warrants the rejection of the EEM lease application. The Premier and the Minister reminded the delegation that development in the state of Queensland is given priority by their government, other local issues, although recognized as important, are consequently treated with less urgency. However, the delegates were assured that the concerns of the Bracewell / East End farming communities will be considered. Furthermore, it was suggested to them that the lease application was still under consideration and might not be granted after all and in any case the MLDMPG will be kept in the picture (data HA 1997, interview data LG 2000).

Within 4 weeks of their return from this meeting the delegates observed some limited exploratory excavation activities and learned that four leases were granted totalling 1100 hectares. Locals still view this experience as a significant breach of trust. The
constant erosion of social trust in the EEM case stands in sharp contrast to the BCU / FEKLHAS experience where the proposal to obtain mining leases was co-authored by the company and the local community. It is important to remind the reader that this co-authorship was an initiative of the BCU and entirely voluntary. However, this does not mean that this company strategy was driven by corporate benevolence, but instead, it was based on basic company/community interest. The company, for example, satisfied its commercial needs and the local community assured for itself a genuine say in the FEKLHAS development. This participatory approach, driven by local interests, moved significantly beyond government requirements as well as the customary Swiss approach to community engagement.

The inception of the MLDMPG, the negative social climate and the emergence of community distrust in the early development phases of the EEM project constitute the first steps in the development of a by now deeply entrenched community deep structure of social distrust. Local farmers still direct their suspicion and distrust towards the government, its ministers and agencies as well as the industrial developer. Although primary contributors to the EEM dispute, the problems of social distrust and socio-environmental community concerns have never been seriously considered by the industrial developer or government agencies. In the FEKLHAS case on the other hand, the BCU and Kantonal authorities legitimized these socio-environmental concerns, by integrating them into their techno-economic considerations throughout every phase of the development.

In the EEM development industry and government stakeholders seem to ignore the most basic social trust dimensions of commitment, socio-environmental competence, socio-environmental caring and finally, predictability. As indicated in Chapter 4, these trust
dimensions are the minimum requirement to establish a favourable social climate. In the EEM case, however, the lack of social trust in the early phase of the development resulted in a downward spiral of community distrust, thereby creating a deeply embedded negative social climate. This scenario of entrenched social distrust and the absence of a positive social climate, which emerged in 1974 has been encouraged and sustained throughout the entire EEM development by government agencies and industry, significantly prolonging the EEM controversy. Community stakeholders feel that the deep structure choices and strategies to which EEM decision-makers subscribed in 1974 prevented a favourable social climate and thereby an effective stakeholder dialogue, leaving community expectations unfulfilled. Consequently, deep-seated, case specific deep structure inertia particularly with reference to community expectations still drives the actions and behaviour of those engaged in the EEM controversy.

It is in the context of unfulfilled community expectations on the one hand and East End Mine specific deep structure inertia on the other, that local farmers persistently pursue their opposition to some aspects of the development. This raises important questions about the resilience of the local farming community in their struggle for justice and local peace. To gain a better understanding of the origins of these socio-cultural forces, a historical account of the socio-environmental community deep structure commitments is offered under the next sub-heading. This will provide some insights into the socio-cultural cohesion of the East End/Bracewell communities, the development of social capital and the level of community commitment to social trust. These social dynamics, driven by a long established socio-cultural community bond, can be traced back to early settlement. Subsequent chapters will establish whether these deeply embedded socio-cultural dynamics are primary motivators for the local community and thereby directly contribute to the EEM dispute.
Industry or government decision-makers have neither seriously considered these social forces nor have they been analysed in any depth by previous examinations of the EEM case. Chapter 9 provides some answers to these questions, elucidating the socio-cultural deep structure commitments of the local community, which emerged with the early settlement of the East End/Bracewell area. It furthermore answers the questions whether these early commitments still drive the current socio-environmental dynamics of those in the local farming communities directly affected by the EEM development.

However, prior to a brief historical background analysis presented under the next subheading, the following Table 8.3.1 offers a comparative summary, which in its brevity and directness more clearly shows the difference between the FEKLHAS and EEM participatory approach in the exploration phases of these projects.
### Table: 8.3.1: The FEKLHAS vs. the EEM approach to exploration: A comparative summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKLHAS</th>
<th>EEM</th>
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<td><strong>Deep Structure formation</strong></td>
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<tr>
<td>- Inclusion of community into planning and decision-making</td>
<td>- Exclusion of community from planning and decision-making</td>
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<tr>
<td>- Free exchange of knowledge and information</td>
<td>- Secrecy, knowledge and information withheld</td>
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<tr>
<td>- Constant update about the latest developments throughout exploration phase</td>
<td>- None or very limited information given. Contradictory statements by managers, government ministers and their agencies.</td>
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<tr>
<td>- Voluntary core criteria for responsible socio-environmental conduct.</td>
<td>- Limited to techno-economic feasibility and geo-chemical production requirements.</td>
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<tr>
<td>- Specific deposits not exploited because of socio-environmental, socio-economic and political community concerns</td>
<td>- Techno-economic considerations override social, cultural, socio-economic and political community concerns</td>
<td></td>
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<tr>
<td>- Climate of social trust</td>
<td>- Climate of social distrust</td>
<td></td>
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<tr>
<td>- Effective participatory structures, therefore active community participation</td>
<td>- Absence of participatory structures, therefore no community collaboration or participation</td>
<td></td>
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<tr>
<td>- Continuous favourable social climate through openness and deep seated social trust</td>
<td>- Deeply inertial community deep structure of distrust</td>
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### 8.3.2 The Neglected Social Fundamentals: Community Solidarity, Community Spirit and Local Wisdom

The exploitation of the East End limestone deposits commenced in 1979 and since then the pit floor of the quarry has been driven to a depth of some 40m below the water table, causing the lowering of groundwater levels in its vicinity (Golder (a), 2001). The extent and impact of the mining operation on the local groundwater as well as its quality has
been subject to an ongoing dispute between the EEM operator and the local farming community. These geo-hydrological problems are discussed later in this Chapter in some detail. However, historically water reserves in the East End and Bracewell area were sufficient to support rural industries such as dairying, agriculture and pig farming. When Bracewell was first opened for selection in 1911 and Wilmot in 1906, the latter was later renamed East End, settlers established their base camps at permanent creeks and springs and began to clear the thick virgin scrub. In addition to the existing perennial water sources wells were dug throughout the area, assuring a sufficient water supply for the newly established local farming enterprises.

Local knowledge and experiences, accumulated since early settlement, suggest that even during severe periods of prolonged drought primary water sources such as Machine Creek, Hut Creek and Scrub Creek maintained their flow. Accumulated local knowledge claims that the drought of 1918 to 1921 was as equally severe as the recent El Nino events. The then Department of Natural Resources (DNR) agrees on this point, suggesting that the current drought is thought to be at least as serious and the 1918-1921 drought (DNR, 1998). However, although local anecdotal evidence additionally suggests that local creeks maintained their perennial flow between 1918-1921, government representatives decided to disagree on this point, insisting that local wisdom and experiences are unscientific.

Neither government agencies nor the industrial developer used anecdotal information or local knowledge in a systematic manner. Limited accreditation of local experiences and knowledge can be found in only one geo-hydrological report, accepting local wisdom as a general rule (see Golder (b), 2001). In the EEM case, however, priority is generally

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3 Historical accounts were taken from “Bracewell State School 75th Jubilee” provided by the Jubilee committee
given to techno-economic data. Consequently, in the EEM dispute the most relied upon and trusted form of knowledge is “expert” knowledge. This supports the earlier argument of the dependence of all parties, including the local action group, upon a technological fix. As discussed in Chapter 3, the inclusion of local knowledge into scientific inquiry significantly increases the accuracy of assessing and interpreting local conditions, thereby providing a more solid information baseline (Harding, 1998). Moreover, Harding argues that incorporating local wisdom into expert knowledge structures would provide a better grounding for abstract information, as well as significantly reducing scientific uncertainty. In the context of the EEM development industry and government agencies never fully legitimized local knowledge by integrating local experiences and wisdom into their planning or decision-making processes.

In contrast, the BCU legitimized local knowledge by actively seeking the accumulated wisdom of various community stakeholders, systematically integrating their observations, insights and experiences into the planning and decision-making process. For example, when consulted, local forest owners and in particular the local hunting fraternity reported that a variety of species of local wildlife traditionally migrate at certain times during the day from a nearby mountain range to drink at specific points from the river Rhine. The acceptance of local experience and knowledge by the company resulted in the rejection of a planned transport technology, which, if built, would have blocked the path of the local wildlife. The BCU and the community, therefore, developed an alternative, again including local knowledge and insight in the planning and decision-making process. This approach to local knowledge was shared by the local council authorities, Kantonal agencies and by the members of the FEKLHAS
Project Commission. This openness by Kantonal government agencies to local knowledge and experiences is very different to the attitudes of Queensland government authorities involved in the EEM development. Their response to local wisdom and experiences is short and clear. “If information is not collected, analysed and interpreted by the agency or by its approved external experts, such data cannot be recognized by the department as scientifically legitimate and can therefore no be considered in the final decision-making process” (interview data, SoT, SG, 2000).

However, local anecdotal evidence reflected in local historical records show that the digging of wells and the clearing of land often were collective efforts involving neighbours and other community members (Figure 8.4). This community spirit was particularly evident when the district was subjected to a severe type of virus leaving many locals unable to operate their farms or even cook for themselves. Local families
not affected by the virus cared for their fellow farmers, milked their cows and left cooked food on their verandas thereby avoiding infection. Descendants of these early settlers who have been engaged in the East End dispute for about 3 decades still live in the area and some of these are operating farms, which have been handed down to them through the generations. Consequently, there is a continuing commitment to this community spirit, particularly among EEMAG members, their supporters and the wider farming community directly affected by the EEM development. Moreover, this community spirit not only continues to be exceptionally strong, but increases in times of adversity, constituting a deeply embedded community deep structure of socio-environmental cohesion and solidarity.

This community spirit, if considered at all, has either been ignored or misinterpreted by those outside the farming community. Throughout the East End Mine dispute these stakeholders were unable to develop an understanding of the underlying social, cultural and political community value positions that underpin and drive the dynamics of the Bracewell and East End community deep structures. It is against this background that the developer as well as government agencies show no apparent concern or understanding that these community values and deep structure histories significantly contribute to the dispute and equally important, hold the key for its solution. It is not surprising, therefore, that most of these stakeholders continue to perceive socio-environmental counter positions and local value and belief systems as less legitimate or even irrelevant in the context of the dispute. Although socio-environmental value positions intrinsically determine the long-term deep structure choices and strategies of the local farming community and consequently those of EEMAG, these important elements in the East End case remain the least understood. Consequently, government agencies and the industrial developer employ strategies and decision-making structures,
which counter pose community value and belief systems and their long established deep structure commitments, thereby significantly contributing to an atmosphere of distrust, prolonging rather than resolving the dispute.

In the FEKLHAS case, industry and government agencies legitimized community value and belief systems by including them into their planning and decision-making process. This inclusive approach resulted in the establishment of participatory structures such as the *Calanda* and *FEKLHAS Project Commissions*. Furthermore, it provided the BCU as well as local and Kantonal government agencies with the distinct advantage of being fully informed about the community deep structure choices and strategies. This provided the FEKLHAS stakeholders with the possibility to adjust and align their opposing socio-environmental choices and strategies, thereby avoiding discontent and conflict. The data suggests a tradition of mutual deep structure acceptance, which can be traced back to the establishment of the BCU cement production facility in March 1957.

As a socially committed local parliamentarian, the founder of BCU developed a deep understanding of community value and belief structures, the local community spirit as well as the long-standing civic solidarity among the local community of Untervaz. The historical deep structure of the local community reaches back to 1567 AD when the village bought its freedom from the Cloister of Pfäfers and from the Bishopric of Chur in 1577 (Gemeide Untervaz, 1995). These historical occurrences are still remembered in the annals of the village and acknowledged with some pride by some locals (interview data, So, GM, 1999). Between 1577 and the late 1950s Untervaz continued to be a prosperous farming community with a deeply embedded culture, enduring traditions and a long established community spirit. The founder and the management of the BCU utilised these social and cultural forces, developing a firm bases of social trust and long-
term local peace. It is self-explanatory that the historical timeframe in the Untervaz case is vastly different to the historical setting of the East End / Bracewell communities. However, the historical occurrences in both cases are nevertheless a decisive factor in the development of community deep structures, forming the basis of present day culture. Consequently, it is vital for long-term local peace as well as for the success of any industrial development, that the industrial developer and government agencies develop a deep understanding of the socio-environmental deep structure of local communities. The comparison between the FEKLHAS and the EEM case indicates long-term local social peace and techno-economic success intrinsically require the inclusion of socio-environmental community concerns into the planning and decision-making process. As the following example shows the adherence to techno-economic reasoning and simple regulatory compliance does not necessarily result in local peace and social trust development. This means that the environmental developer and government agencies cannot afford to remain ignorant of the historical socio-environmental deep structure of local communities, their deeply embedded community spirit and long established community solidarities.

For example, in the East End Mine case the socio-environmental strategy employed by the industrial developer and its consultative experts followed the general principle of simple regulatory compliance. This strategic approach has been applied particularly at the most critical phase of community deep structure building namely, the planning and development process of the EEM project. Although to a significantly lesser extent, this largely continued throughout the operational phase of the development. However, despite following the prescribed sequence of government requirements and developing the project proposal in strict regulatory compliance, this strategy still resulted in a rancorous conflict driven by distrust, technical claim and counter claim. The question is
what differentiates this seemingly sensible strategic approach of compliance from the inclusive socio-environmental management of the FEKLHAS project. The data are very clear about this question, it is the absence of any insights by the industrial developer and the government agencies into the socio-environmental deep structure choices and strategies of EEMAG and the local farming community it represents. The strategy of simple regulatory compliance failed and ended in conflict because stakeholders outside the farming community failed to fully recognize the socio-environmental nature of opposition towards the EEM development. Particularly in the early stages of the project government agencies, the developer and technical experts had an exceptionally limited understanding of the interconnectedness of social, cultural and techno-economic issues. Consequently, these early stakeholders did not give a high priority to socio-environmental complexes, eg. long established community spirit and solidarity, directly contribute to the success or failure of any industrial development.

It is in this context that in the early phases of the development government as well as industry experts were, and some still are, very uncertain as to the meaning, application and importance of socio-environmental concepts in relation to industrial projects. Although “sociological considerations” (Oceanic Australia, 1975:90) did find their way into the Environmental Impact Study of the EEM project, their interpretation and application reveal a significant lack of understanding regarding sociological and in particular, deep structure cultural complexes. As the following example under the next sub-heading shows, the problem of interpreting social and cultural complexities in the EEM case is not limited to government and industry managers or to their respective development engineers, but extends into Queensland’s legal system.
Table: 8.3.2: Social fundamentals, local wisdom, community solidarity and community spirit: A comparative summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKLHAS</th>
<th>EEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local Knowledge</strong></td>
<td>- Inclusion of local wisdom and knowledge into planning and decision-making</td>
<td>- Predominant exclusion of local wisdom and knowledge from planning and decision-making</td>
</tr>
<tr>
<td></td>
<td>- Accumulated local knowledge and anecdotal information used in a systematic manner</td>
<td>- Local experiences and knowledge systematically rejected</td>
</tr>
<tr>
<td></td>
<td>- Looking beyond expert knowledge bases, thereby providing a more solid information baseline and decreasing scientific uncertainties</td>
<td>- Exclusive reliance on expert knowledge and a technological fix, thereby increasing socio-environmental tensions and scientific uncertainties</td>
</tr>
<tr>
<td><strong>Community Solidarity and Community Spirit</strong></td>
<td>- In depth understanding of community value and belief structures, including them into planning and decision-making</td>
<td>- Largely ignorant of community value and belief systems, regarded as unimportant or irrelevant, insistence on techno-economic solutions</td>
</tr>
<tr>
<td></td>
<td>- Fully informed about the historical development and importance of community spirit and community solidarity</td>
<td>- No or at best very little understanding of historical development and importance of community spirit and solidarity</td>
</tr>
<tr>
<td></td>
<td>- Community spirit and solidarity accepted by BCU management as inertial deep structures that directly impact on the FEKLHAS development</td>
<td>- No understanding of the socio-environmental forces of community spirit and solidarity by QCL management. No perception of the impact of these forces on the East End Mine dispute</td>
</tr>
<tr>
<td></td>
<td>- In depth knowledge of community deep structure choices and strategies through participatory structures eg. Calanda &amp; FEKLHAS Commission</td>
<td>- No awareness or understanding of deep structure choices and strategies. Absence of effective participatory structures</td>
</tr>
<tr>
<td><strong>Social Trust</strong></td>
<td>- Alignment of opposing company and community deep structure choices and strategies significantly increasing social trust</td>
<td>- No alignment of deep structure choices and strategies increasing distrust, prolonging the dispute</td>
</tr>
</tbody>
</table>

8.3.3 The Mining Warden's Hearing and Recommendations 1976

As indicated previously the problem of recognizing and interpreting social and cultural complexities in the EEM case is not limited to development engineers and government
technocrats. Although for different reasons, public servants of the legal system equally struggled with the socio-environmental complexities of the EEM problem. The Mining Warden engaged in the EEM case, for example, was clearly at pains in recognising and defining the grievances of local farmers as wider social and cultural community concerns. The shortcomings in his definition, however, cannot solely be assigned to the Mining Warden, because the framework of principles and regulations in which the Warden operates are set by governments and not by the courts. This means that the wider social and cultural community concerns could not be effectively dealt with by the Warden because they were largely outside the principles and regulations set by the government. Significantly more impacting on the ever-descending spiral of distrust in the EEM case, however, was the withholding of the Warden’s determination and recommendations.

To protect their livelihood and accustomed way of life, local farmers formed the Mt. Larcom District Mining Protest Group (MLMPG). The first major task of the group was to prevent the granting of mining leases to the developer. As a consequence of failed negotiations with government officials and their agencies the MLMPG decided to contest the granting of the leases at the Mining Warden Court in Gladstone. After a 5-day hearing the court decided against the farmers, recommending that the Darra Exploration lease application be granted under specific terms and conditions, which assured the restoration of disrupted or lost water supplies. The warden’s judgement was based on geo-technical evidence, state development concerns and economic considerations, which in the final analysis favoured the wider public interest of mining and cement production. The evidence provided by the farming community was deemed to be of a “personal nature” and therefore unable to compete with the wider public interest. These “matters of a personal nature” were, according to the Warden, related to:
• Possible negative impacts on the local water reserves and natural environment,
• Loss of home, farm, livelihood, community activity,
• Loss of productive farmland,
• Reduction in land value,
• Loss of opportunity through impositions of exploration and lease permits on farms,
• Reluctance by Banks to lend finance in support of farm improvements,
• Reluctance by financial institutions to underwrite the sale of farming enterprises,
• Loss of community and accustomed way of life,
• Inadequate compensation and
• Inability to utilize farm assets for financing retirement.

These supposedly “personal” matters, however, are clearly wider socio-environmental issues based on value and belief systems as well as community deep structure commitments. They furthermore form the social, cultural, economic and political community bases of the Bracewell and East End communities and if threatened usually drive the social dynamics of those defending their socio-environmental heritage and economic existence. Although the foregoing is a classic example of misinterpreting these social forces, the withholding of the Mining Wardens determination and recommendations, however, significantly undermined the already fragile social trust relationship between the developer, the government and the community. When it became clear that the Warden’s recommendations were not to be disclosed, a local spokes person expressed the feelings of the wider farming community, noticing “a bitter disillusionment at the news that justice could take such form” (data Hansard, 1976).

4 “Matters of a personal nature” extracted from the Jan 7th 1976 Mining Wardens Recommendations, which were obtained some 20 years after the Wardens ruling.
In view of the ever-increasing downward motion of social trust it is not surprising that the local community met the withholding of the Warden’s determination with some suspicion. The action of the Mining Warden Court was seen by locals as an attempt to protect the government and the developer from further court action since the absence of a courts determination largely prevents any appeal to a higher court. These suspicions held by the farming community were further deepened when the MLMPG advised its members that the withholding of the Wardens recommendations is the result of an invoked Ministerial discretion. The utilisation of this discretion, which is not a common occurrence, was later admitted by the then Minister for Mines. In his recommendations, obtained decades after their public exclusion, the Warden indicates that values permeate all aspects of environmental management and decision-making (data EM, LE, 2000). This means that stakeholders engaged in the EEM case interpret the EEM development from their individually held value and belief positions. However, legitimising ones own value position while disregarding the counter value positions held by dependent stakeholders, who are directly affected by ones industrial development, is destined to result in conflict.

The above-mentioned court hearing is just one example supporting this assumption. In the FEKLHAS cease on the other hand, participatory and collaborative structures provided a forum in which opposing value and belief positions could be mutually accepted, discussed and then legitimised by adjusting and aligning them long before they develop into a divisive and unsurmountable problem. This strategy of socio-environmental, economic and political value legitimisation and alignment, effectively utilised by the BCU management, proved to be most effective in avoiding delays, court costs, consultant fees, community distrust, damaging public opinion and an entrenched and costly dispute that would have been difficult to resolve. In the EEM case, however,
industry management as well as government agencies chose the costly path of defending their techno-economic and geo-hydrological positions, while excluding socio-environmental complexities from their vocabulary. Consequently, what has been effectively avoided by BCU’s management and local and Kantonal government agencies in the FEKLHAS case, still plagues stakeholders in the EEM development to this day.

However, three major events in the downward spiral of social distrust have been discussed so far:

1. Industry and government agency behaviour in relation to the 1974 exploration and drilling program of the Darra Exploration Pty. Ltd.

2. The exclusion of social and cultural fundamentals by the industrial developer and government agencies such as community value and belief systems, local wisdom, community spirit, community solidarity and social capital.


Another, equally important event, which contributed significantly to the development of socials distrust is discussed under the following subheading. This event in the downward spiral of distrust is directly linked to the special mining lease conditions imposed onto the industrial developer.
### Table: 8.3.3 The consequences of misinterpreting or accepting social issues: A comparative summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKLHAS</th>
<th>EEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Trust Structures</td>
<td><em>Calanda Commission and FEKLHAS Project Commission</em></td>
<td>- Absence of participatory and collaborative structures</td>
</tr>
<tr>
<td></td>
<td>- Provision of favourable social climate and participatory forum</td>
<td>- Negative social climate. Absence of participatory forum eg <em>Calanda Commission</em></td>
</tr>
<tr>
<td></td>
<td>- Recognition of social and cultural issues</td>
<td>- Misinterpretation of social issues as “matters of a personal nature” Exclusive techno-economic and geo-hydrological reasoning</td>
</tr>
<tr>
<td></td>
<td>- Alignment of different value positions long before they could</td>
<td>- Ignoring different socio-environmental and socio-economic value positions. Exclusive techno-economic reasoning results in court hearing</td>
</tr>
<tr>
<td></td>
<td>develop into unsurmountable problems</td>
<td></td>
</tr>
<tr>
<td>Social Trust</td>
<td>- Policy of openness and participation results in increased</td>
<td>- Withholding of Warden’s recommendation significantly reduces social trust levels</td>
</tr>
<tr>
<td></td>
<td>collaboration and social trust</td>
<td></td>
</tr>
</tbody>
</table>

### 8.3.4 Water Monitoring and the Interpretation of Hydrological Data

In the EEM dispute an unusually large amount of written material has been produced, culminating in seven major geo-hydrological reports\(^5\), numerous minor hydrological analyses, a vast number of publications prepared by the East End Mine Action Group (EEMAG), and enormous volumes of EEM specific correspondence. This extraordinary large amount of written material did not produce a definite answer to the problem, but instead, as one reports suggests, “…considerably confused the EEM groundwater issue” (Golder, (b), 2001:1).

It is not surprising, therefore, that the EEM dispute has deteriorated into a vicious cycle of technical claim and counter claim, in which stakeholders attempt to selectively use

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hydrological reports as a ready made political tool to justify a technical fix and to enhance their respective positions. This approach contributes significantly to a climate of social distrust, in which new geo-hydrological reports and findings are fiercely contested and viewed with deep suspicion. Technical reports in such a highly charged atmosphere become weapons rather than means of resolving the issue through scientific or hydrological data. In the EEM case an excessive trust in a technical fix as well as a considerable faith in hydrological analyses largely overrates the role and capacity of science in producing a definite answer to the problem.

For example, hydrological and engineering analyses by definition focus on the technical dimensions of the problem. Although essential in the EEM case, hydrological engineering is not sufficient to deal with the critical social and cultural fundamentals, which clearly are influencing how technical data are defined and used by the parties. A holistic model, which includes social and social trust issues as well as cultural, socio-economic and political community concerns, is needed. Hydrological analyses may be able to determine the potential geo-hydrological impact on the local environment, they cannot, however, answer whether such impacts outweigh local socio-environmental benefits. It is in this context that this thesis focuses on the neglected social, cultural, socio-economic and political fundamentals, which are firstly, an integral part of the EEM dispute and secondly, hold the key to its solution.

Stakeholders in the East End Mine dispute seem to agree that with the commencement of mining in 1979 the lowering of the local groundwater level in the vicinity of the mine occurred. Vigorously disputed, however, are the extent of the groundwater drawdown, the area affected, and the contributing factors of these groundwater losses. To specifically provide for this contingency of water loss special mining lease conditions
were imposed on the industrial developer to assure an alternative water supply to those “injuriously” affected by the mine operator. This can be gauged from the following excerpt of the special lease conditions.

Clause 11: If in the opinion of the Commissioner of Irrigation and Water Supply the operations of the lessee cause depletion of any groundwater supply, other than a supply belonging to the lessee, so as to affect injuriously the owner of such supply, the lessee shall, at his own expense, provide an alternative supply of water to the satisfaction of the commissioner (EEMAG (b) 2000).

In an attempt to comply with its obligations the company provides water for injuriously affected farmers by drilling bores, supplying pumping equipment and by delivering water by tanker. Affected farmers, however, reject these efforts by the mine operators as insufficient as well as unacceptably slow. EEMAG and its supporters claim that the company engages farmers in ineffective consultations and displays a particular slowness in considering the provision of alternative water supplies to injuriously affected farmers. In February 1998 the then Minister of Mines and Energy confirmed EEMAG’s claim, pointing to a breach of Clause 11 of the special lease condition by the company (research data, LET, MAE, 1998).

The EEM operator’s minimum and/or none compliance, according to local farmers, contributed to suspicion among stakeholders as well as to community distrust. Conversely, in the FEKLHAS case the continuous monitoring of compliance in the FEKLHAS project was entrusted to the FEKLHAS Project Commission. As outlined previously the members of the Commission, consisting of representatives from the community, local and Kantonal government and the industrial developer confirmed
compliance by quorum vote before approving the next phase of the development. Compliance problems as observed by local farmers in the EEM case are highly unlikely in the FEKLHAS project. Primarily because casual or non-compliance would be detected and dealt with by the monitoring body, the FEKLHAS Project Commission, long before it could develop into a problem for the local community of for the authorities.

Another important mining lease condition imposed on the EEM requires its operators to regularly monitor changes in water levels and quality. In addition to the monitoring and the establishment of a monitoring programme, Clause 9 (b) of the lease condition further requires that

…the results of the monitoring programme are to be made available to the Minister, the Commissioner and landholders in the area who in the opinion of the Commissioner may be affected by the mining operation (EEMAG (b) 2000).

Local farmers argued that the particular Clause 9 (b) of the lease conditions was subject to misinterpretation, difficulties in compliance and disputed responsibility. In compliance with Clause 9 namely, the quarterly measurement of water levels and water quality commenced in April 1977 and was carried out by an external expert of the then Queensland Cement & Lime Company. The collected data derived from an exceptionally large number of bores, which according to one government agency, is quite extraordinary if compared with similar projects (interview data HDRNR 2001)\(^6\). The recorded water level and quality data were stored at three different locations to minimise the risk of loss. After three years of monitoring the first report was produced

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\(^6\) See Figure 8.5
by QCL in 1980. The report suggests that for cost reasons a quantitative interpretation of the data, is not warranted unless specific problems arise which require analysis (Dudgeon, 1980). Although the comments of QCL’s expert imply a responsibility to interpret the collected data, the interpretation of the monitoring data, however, was not the responsibility of the company or its experts. A written official statement of the Irrigation and Water Supply Commission clearly outlines the responsibility of interpreting the collected monitoring data.

“It is emphasised that the duties of the Company and its consultants are merely to collect basic data relating to the groundwater supply. They will not be involved in the final interpretation of the data. Any determination of the effect of mining operations on groundwater supplies will be made by the Irrigation and Water Supply Commission.

(research data, LETW, 2001).

The foregoing statement by the Commissioner cannot be clearer in assigning responsibility. However, the interpretation issue and responsibility of the collection, assessment and reporting of the monitoring data developed into a persistent disagreement between the company and the appropriate government departments. Consequently, until 1995 the department produced no formal analysis on groundwater levels and water quality and the company provided only limited reports and assessments of their monitoring efforts. This discrepancy in opinion was finally settled in the mid1990s.

In March 1996 the government agency accepted and/or confirmed its responsibility regarding the final interpretation of the data and the company agreed to continue to collect basic groundwater monitoring data and provide the associated assessment reports annually (research data LETNR 1996). Research records show,
Figure 8.5: Groundwater Monitoring Bores

Source: DNR Resource Science Centre 1996

[Description of the figure: A map showing groundwater monitoring bores with shaded areas indicating water level differences and labeled zones A and B for estimated water level variations.]
however, that even after 1995 the department not always interpreted the company’s monitoring data and related reports and the company cannot explain large gaps in their monitoring data. The intermittency of data reporting by the company prior to 1995 and the ongoing haphazard final interpretation of the data by the department led to disbelief, confusion and suspicion among farmers, whose social trust levels are already stretched to the limit.

Moreover, the 1980 report on groundwater monitoring, prepared by QCL’s expert, fails to present any quantitative data in relation to groundwater volumes pumped from the East End quarry. Although most important for assessing the overall groundwater drawdown situation in the affected areas, there was no mine pump-out data available to landholders. It required intense community pressure to rectify this situation and after 1983 affected landholders were provided with the mine pump-out data. The data provided, however, turned out to be seriously fragmented. This fragmentation, community experts suggest, points to casual sampling protocols and/or archival losses which led to significant gaps in the data, spanning over months and even years.

Furthermore, almost 15 years after the first official groundwater-review was produced by the industrial developer a second report was presented to the landholders. The local landholders, entitled to groundwater monitoring data, complained about the lack of reporting to the appropriate government agency. However, since no timing for the reporting of the monitoring results was specified, the Department of Mines and Energy concluded that the formal lack of reporting and the consequent 15-year delay in informing landholders does, in their view, not constitute non-compliance with Clause 9 of the lease conditions. It is important to remember that Clause 9 requires that local
landholders be informed about changes in water levels and quality, which had to be measured quarterly. This means that although changes in groundwater levels were observed by government agencies and the developer, the wider farming community were neither provided with monitoring reports nor interpreted monitoring data for 15 years. Consequently, the compliance verdict of the department was firmly rejected by the wider farming community as highly inappropriate. In a later assessment of the monitoring issue the Department of Natural Resources confirmed the landholders concerns, suggesting that rigorous water monitoring and reporting protocols are not being followed by the company (research data LETJ, 1999). In its revised assessment of the monitoring issues the department omitted, however, that it was required by the then Irrigation and Water Supply Commission to interpret the monitoring data, which it failed to do for over a decade.

The practice of sparse and slow data distribution while pursuing minimalist compliance is not new. Industrial organizations and government institutions frequently use this method as a means of controlling the situation (Roome, 1998; Wilson, 2000). The developer in the EEM case, therefore, is certainly not alone in using this approach. The research data and the responses from various stakeholders suggest that handling of the issues associated with Clause 11 as well as Clause 9 (b) of the lease conditions was and still is questionable. It firstly, contributed greatly to confusing, prolonging and entrenching the EEM dispute and secondly, it deepened the social distrust held by landholders and the affected farming community to levels from which recovery is very difficult to achieve.

Conversely, in the FEKLHAS development the free flow of correct and detailed information developed into a matter of routine. The primary reason for the regular
dissemination of data, reports and wider information about the various development phases of the project are to be linked to the developers *Coordination Team* and the *FEKLHAS Project Commission*. As introduced in Chapter 6 the responsibility of the *Coordination Team* was to collaboratively develop the project proposal, which required a detailed knowledge of the planning, development and decision-making processes. Therefore, the local community, through its representatives at the *Coordination Team*, was constantly engaged in the planning and development process and consequently familiar with emerging data. After the planning and development phase of the FEKLHAS project was completed the *Coordination Team* served its purpose and was disbanded.

To assure the implementation of the regulations and guidelines set by the *Coordination Team* the *FEKLHAS Project Commission* was established. The responsibility of the *Commission* includes the monitoring of the different development and production stages of the development. This includes the physical inspection of the quarry sites and an assessment of compliance with government regulation, but equally important compliance with earlier company / community agreements developed by the *Coordination Team*. If the *Project Commission* reports non-compliance at any stage of the FEKLHAS development, the next phase of the development cannot commence before the problem is rectified. It is important to remember that community representatives serving at the *Commission* are full members with quorum voting rights. This means that in the FEKLHAS case compliance is not limited to government authority alone, but is extended to the community, which is empowered through the *FEKLHAS Project Commission* to block further development stages in the case of non-compliance.
### Table: 8.3.4 The EEM case and the monitoring of groundwater levels, free flow of information or limited data distribution? A Comparative Summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKLHAS</th>
<th>EEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participatory Structures (outcomes)</strong></td>
<td>- Calanda Commission and FEKLHAS Project Commission</td>
<td>- No participatory and collaborative structures that indicates real empowerment of community</td>
</tr>
<tr>
<td></td>
<td>- Free flow of information, detailed and up to date data available to community</td>
<td>- Strategy of slow and incomplete data distribution</td>
</tr>
<tr>
<td></td>
<td>- Collaborative reporting and monitoring of compliance with government regulation but also with company/community agreements</td>
<td>- Large gaps in vital data, limited reporting, lack of rigorous monitoring protocols</td>
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<tr>
<td></td>
<td>- Community empowered to block further development stages in the case of non-compliance</td>
<td>- Lenient assessment of compliance by government agencies. Community relies on pressure to obtain information and vital data</td>
</tr>
<tr>
<td><strong>Social Trust</strong></td>
<td>- Social trust and social capital developed as a matter of routine</td>
<td>- Limited dissemination of data and vital information resulted in prolonging and entrenching the dispute and most importantly in community distrust, suspicion and frustration</td>
</tr>
</tbody>
</table>

### 8.3.5 The East End Mine Community Liaison Group

As outlined earlier in this Chapter the East End Mine (EEM) dispute can be traced back to the mid 1970s with the persistent exclusion of the local community from the planning and decision-making processes being one of the hallmarks of the dispute. In an attempt to change this situation, the 1996 Impact Assessment Study (IAS), Environmental Management Plan, required EEM stakeholders to establish a Community Liaison Group (CLG). At this point, however, the local community was still grappling with prior, unresolved issues. For example, as a consequence of withholding the recommendations of the Mining Warden in 1976 community trust and confidence in the authorities was...
severely undermined and was never fully restored. Moreover, local farmers felt that the limited flow of information throughout the EEM development as well as unreliable and contradicting messages from the government, its ministers, their agencies and the developer, contributed greatly to distrust and suspicion among locals (research data LPH, 2004). It furthermore, increasingly exhausted stocks of social capital and rapidly reduced social trust levels. Consequently, in this highly charged atmosphere of social distrust and unresolved issues, the inaugural meeting of the CLG held in March 1996 could not and did not herald the beginning of innovative participatory and collaborative developments in the EEM dispute. Therefore, the establishment of the CLG, basically a reaction to the requirements of the IAS Environmental Management Plan, was far removed from the participatory approach experienced in the FEKLHAS case.

For example, the Calanda Commission and the Coordination Team were established very early in the FEKLHAS development, coinciding with the inception of the project. This means that these participatory structures were effectively in place prior to the development of the FEKLHAS project proposal, which was co-authored by the community and the planning and development experts of the BCU. Moreover, these participatory structures were developed and maintained beyond government regulation and requirements. Consequently, the early involvement of the local community and the commitment by the industrial developer to move beyond regulatory requirements provided the company and the FEKLHAS development with three major advantages. Firstly, it provided a firm basis for the development of social capital and community trust, which in the FEKLHAS case has developed into a matter of routine; secondly, a very close and productive industry/community trust relationship, which still endures today; and thirdly, an unusually effective working relationship between industry,
community and government stakeholders, which is reflected in the monitoring of the FEKLHAS development by the Project Commission.

The participation of government experts from various agencies was particularly useful for the Calanda Commission, the Coordination Team and the FEKLHAS Project Commission. Primarily because any collaboratively developed proposals that emerged from these participatory forums, could be scrutinised by the participating government experts at any stage of their development. Consequently, emerging deviations from regulatory requirements could be detected and corrected immediately and long before they could develop into a serious problem. Consequently, because any possible deviation from regulatory requirements was discovered early and corrected immediately, no time consuming and costly re-submissions of a revised project proposals or even parts thereof, were necessary.

Participatory structures in the FEKLHAS development as, for example, the Calanda Commission and the Coordination Team as well as the Project Commission are bound by agreed guidelines, constituted in the Pflichtenheft (obligation and responsibility guidelines). Moreover, they also offered genuine power sharing with the community at the project level, which is reflected in constituted quorum voting rights. This stands in sharp contrast to the Community Liaison Group (CLG) in the EEM case, which is clearly lacking genuine participatory features. The CLG neither has clearly constituted responsibilities and/or obligations, voting rights nor genuine power sharing of any kind. Instead, prior to its establishment, preliminary discussion between the local farming community and the industrial developer were limited to the distribution of power and points of reference. For example, contrary to local community representatives who preferred a distinctly local approach, the industrial developer favoured a broader
regional jurisdiction for the CLG. Farmers rejected this regional approach, viewing it as an attempt to divert attention from the EEM problem to other more borderer issues (interview data, LPH 2004).

Moreover, the company’s request to limit community representation at the CLG to only two members was received by locals with suspicion, fearing a power shift towards the other participants in the CLG. However, the final membership at the CLG consisted of 5 representatives from EEMAG, 2-3 delegates from the company, 2 persons represented the EEM quarry, and 1 participant in the CLG was provided by the Department of Natural Resources whereby up to 3 representatives from the Department of Mines and Energy attended the CLG meetings. The latter member of the CLG, however, withdrew in November 1998 from the Community Liaison Group on behest of the then Minister for Mines. The primary reason for this withdrawal lies with the Ministers preconditioned offer to fund a mediation process. It was made quite clear to the community that if the Minister’s offer were refused, his department will resign its CLG membership. Other government agencies also withdrew from the CLG over time while the industrial developer continued to half heartedly support the liaison group until its final demise. One of the reasons given by departing CLG members was that in their view EEMAG persistently and repetitiously reintroduced previously discussed issues to the agenda. However, interview respondents from various camps in the dispute agree that the continued reintroduction of previous agenda items was indeed warranted, simply because

…many of the continuously re-introduced issues were ever resolved. [Therefore], the CLG members representing the local community were well within their right to insist on at least some sort of closure of the issues raised (interview data, 9/0 SoT, 2000).
Consequently, the Community Liaison Group was unable to serve as a genuine participatory and collaborative forum. Members of the CLG as well as some external stakeholders with an interest in the CLG are adamant that stakeholders used the CLG as a political platform. They furthermore suggest, that participants showed little interest in fundamental and genuine problem solving, instead, no effort was spared to justify individual positions and at times, even pressuring other participants into submission (research/interview data L1, 2001). These statements suggest that the Community Liaison Group firstly, lacked participatory and collaborative commitment and fairness and secondly, was never sufficiently equipped to develop into an effective participatory medium. This means that neither power sharing, voting rights, specific responsibilities and obligation for its members or constituted guidelines were enshrined in a formal CLG constitution.

In the absence of basic participatory requirements, the CLG was unable to provide a participatory forum and a social climate in which lost stocks of social capital could be recovered. Neither could the CLG produce an effective industry/community trust relationship as experienced in the FEKLHAS case. Therefore, the Community Liaison Group failed to contribute to the solution of the EEM dispute. Instead, given its history and performance record the CLG significantly contributed to the downward spiral of distrust and the further erosion of the already diminished stocks of social capital.
### Table: 8.3.5 The CLG a genuine participatory forum? A comparative summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKHLHAS</th>
<th>EEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participatory Forums</strong></td>
<td><strong>-Calanda Commission, Coordination Team and FEKHLHAS Project Commission</strong></td>
<td>Community Liaison Group (CLG)</td>
</tr>
<tr>
<td><strong>Structures</strong></td>
<td>-Agreed guidelines, Constituted obligations and responsibilities.</td>
<td>-No genuine power sharing. No constituted obligations or responsibilities. No voting rights of any kind.</td>
</tr>
<tr>
<td></td>
<td>Genuine power sharing constituted in quorum voting rights</td>
<td></td>
</tr>
<tr>
<td><strong>Time of Inception</strong></td>
<td>-Prior to project proposal. Established simultaneously with the start of the planning and development processes.</td>
<td>-Established 16 years after mining operation commenced. No previous participatory structure available</td>
</tr>
<tr>
<td><strong>Social Trust</strong></td>
<td>-Social climate of trust and collaboration</td>
<td>-Social climate of distrust and suspicion</td>
</tr>
<tr>
<td></td>
<td>-Commitment to participatory fairness.</td>
<td>-No commitment to genuine participation or collaboration.</td>
</tr>
<tr>
<td></td>
<td>-Forum for problem solving and innovative participation eg. Collaboratively developed alternatives</td>
<td>- CLG used as political forum to justify and defend individual positions. Agenda items discussed but with limited outcomes</td>
</tr>
<tr>
<td></td>
<td>-Participatory structures successfully continue to contribute to an effective and productive industry/community relationship. They greatly contribute to social trust development, which has turned into a matter of routine.</td>
<td>- Genuine participatory structure was never established. In its absence no solution to the dispute could be achieved. Historical background and performance record contributed greatly to the downward spiral of distrust and suspicion.</td>
</tr>
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</table>

### 8.3.6 The East End Mine Open Technical Forum

The Open Technical Forum (OTF), if successful, would have involved participants from industry, various state government agencies and their respective experts, the local farming community represented by the East End Mine Action Group (Inc) (EEMAG) and their hydrological consultants. The primary aim of the OTF was to

Comprehensively establish, via the combined inputs of scientific, technical and local knowledge, the degree and extent of the hydrological impacts of the East
End Mine while recognising that there may be consequential socioeconomic impacts, as a basis for developing a strategy to address the identified impacts of the Mine (Environmental Protection Agency, 2000).

Industry, government agencies, EEMAG and the farming community positively acknowledged these aims and welcomed the Open Technical Forum. However, two major points of disagreement emerged.

- Firstly, the release and full disclosure of technical information prior the OTF, although repeatedly demanded by EEMAG, could not be realized.

- Secondly, representatives of the local farming community insisted that the procedural guidelines of the OTF lacked equitability.

In response to the first point of disagreement community representatives suggested that adequate time should be provided for the participating stakeholders and their respective experts allowing them to study the data prior to the forum. However, the facilitator of the OTF, the local office of the Environmental Protection Agency, failed to assure the prior disclosure of vital geo-hydrological data to the potential attendants of the OTF. Underpinned by a long history of community distrust this failure proved to be a major stumbling block for the OTF and one of the primary reasons for its demise.

Although remaining committed to the concept of the OTF the local community urged the organisers of the forum to acknowledge “the history of pain” associated with the dispute. Considering this backlog of pain, the community found it difficult to take a leap of faith as suggested by the organisers of the OTF (EEMAG, (d), 2000). Instead, the community “remained gravely concerned by unresolved issues that [as they perceived it] limit the Forum’s fairness and accountability” (EEMAG, (d), 2000). In response to
the community’s insistence on fairness and equitability at the OTF the EPA amended the procedural guidelines repeatedly, adding a series of new amendments to the guidelines. An excerpt from a letter send by the local EPA office to EEMAG clearly shows some frustration with an exceptionally cautious community and its ongoing objections and consequent request for amendments. It furthermore indicates a determination by the EPA to arrange the OTF even without reaching consensus with the local community representatives.

The Environmental Protection Agency does not intend to enter into any further correspondence about the attached Procedural Guidelines or the Program. The Agency will proceed now to arrange the Open Technical Forum on this basis (Environmental Protection Agency, 2000).

This particular reaction by the local EPA office is indicative of the attitude towards EEMAG and its community supporters, which, as the data suggests, is equally shared by some government ministers, local authorities, state agencies and the industrial developer.

The efforts by the local EPA to establish an Open Technical Forum is quite different to the participatory approach taken by the developer and state authorities in the FEKLHAS case. Considering possible socio-environmental and environmental impacts, agreement was reached between the community, local and state agencies and the developer to establish the Calanda Commission. To assist the Commission and to collaboratively plan and develop the FEKLHAS project proposal the developer introduced its Coordination Team, which included representatives from the community as well as from the local council and Kantonal agencies. Within this participatory framework procedural guidelines were not decreed and changed only after community rejection. Instead, the Coordination Team collaboratively developed a binding constitution stipulating obligations and responsibilities, established procedural guidelines for dealing
with disputed techno-economic issues and agreed to decide disagreements or alternatives by majority vote. This assured balanced outcomes through genuine community participation.

For example, prior to discussing techno-economic community concerns at public meetings, technical experts and consultants of the Bündner Cement Untervaz explained and presented the technical problems to representatives of the Coordination Team and thereby to the wider community for consideration. If the complexity of these issues required further explanations, information sessions and workshops dealing with these complexities were offered by the BCU. All techno-economic information, documentations and expert reports related to the problem were made available to the Coordination Team and the community expert. This procedure assured the in depth study of the reports and technical documents by the technical advisors of the community prior to the publicly held techno-economic forum on which disputed issue were decided or alternatives suggested. The experts representing the Coordination Team and thereby the wider community were selected by the Coordination Team and remunerated by the developer. The selection process and the final decision on appointing these community experts was the prerogative of the Coordination Team, neither the company nor any government agencies decided on these matters.
Table: 8.3.6 The open technical forum vs. FEKLHAS participatory structures: A comparative summary

<table>
<thead>
<tr>
<th>Theme</th>
<th>FEKLHAS</th>
<th>EEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participatory Structures To Deal with Techno-Economic disagreements</td>
<td>-Calanda Commission, Coordination Team</td>
<td>Open Technical Forum</td>
</tr>
<tr>
<td></td>
<td>- Constituted obligations and responsibilities. Genuine power sharing constituted in voting rights</td>
<td>- No genuine power sharing. No constituted obligations or responsibilities. No voting rights of any kind.</td>
</tr>
<tr>
<td></td>
<td>- Collaboratively established and agreed procedural guidelines for possible techno-economic disagreements</td>
<td>- Decisions by decree. Changes and amendments only in response to community protest.</td>
</tr>
<tr>
<td></td>
<td>- Coordination Team assures consensus through collaborative problem solving and final voting</td>
<td>- Due to frustration attempts were made to establish OTF without community consensus</td>
</tr>
<tr>
<td>Time of Inception</td>
<td>- Prior to project proposal. Established simultaneously with the planning and development processes. Continuing participatory structure to be maintained until mine closes</td>
<td>- Ad hoc structure established only after severe complications and community disquiet. No previous, long-term or permanent forum available to deal with techno-economic issues</td>
</tr>
<tr>
<td>Social Trust</td>
<td>- Social climate of trust and collaboration</td>
<td>- Proposed leap of faith rejected by community because of “backlog of pain”</td>
</tr>
<tr>
<td></td>
<td>- Commitment to participatory &amp; procedural fairness.</td>
<td>- Community struggle to achieve procedural fairness</td>
</tr>
<tr>
<td></td>
<td>- Disclosure of technical information prior to techno-economic forum. Free flow of information is a matter of routine.</td>
<td>- Secrecy, no free flow of information. At best half-hearted and/or significantly delayed disclosure of tech info and reports</td>
</tr>
</tbody>
</table>

Finally, as established in previous chapters all techno-economic problems in relation to the FEKLHAS project always included the associated socio-environmental impacts on the local community. This means that the Calanda Commission, the Coordination Team and its members from industry, the community, the Kantonal EPA, the Department of
Natural Resources and Land, the Kantonal Forestry Authority as well as from the local council used a holistic approach. This is clearly not the case in relation to East End Mine development and the Open Technical Forum, which excluded such community concerns as being beyond the scope of the Forum (Environmental Protection Agency, 2000).

8.4 Summary

Since the commencement of the exploratory drilling program in 1974 and throughout the actual operational phase of the East End Mine, six primary events have been recognised as major steps towards an ever-increasing downward spiral for social distrust. This chapter illustrates that this distrust among stakeholders in the EEM case is mutual and not limited to anyone stakeholder. It is futile, however, to apportion blame to stakeholders as being the primary or a lesser contributor to this unfortunate situation. Instead, this chapter offers a comparative analysis, highlighting the deep structure choices, strategies and actual behaviour relating to the participatory commitments of Cement Australia, the Bündner Cement Untervaz and the communities engaged in the East End Mine and FEKLHAS project.

The first event in the EEM development: *The 1974 exploration and drilling program of the Darra Exploration Pty Ltd* must be seen as the inception of deep structure choices, strategies and commitments which still influence stakeholder attitudes in relation to the concept of community participation. Throughout the exploration phase of the EEM project contradictory, very limited or no information about the progress of the development was given to the local community. This indicates the exclusion of local community stakeholders from the planning and decision-making process and suggests a certain degree of secrecy, maintained by the continuous absences of a free and open
exchange of information. Moreover, ministers, state government agencies and the
industrial developer, in favour of techno-economic development, overrode community
concerns, thereby hastened the inception of a deeply inertial social climate of distrust.

In contrast, the FEKLHAS management included the local community into its planning
and decision-making process, assuring the constant dissemination of the latest
information about the development, maintaining this approach throughout the
exploration, development and operational phase of the project. This suggests not only a
free exchange of information but also a strong commitment to genuine community
participation underpinned by progressive deep structure choices and strategies.
Consequently, a favourable climate of social trust through participation and openness
developed. Furthermore, social trust and openness was also a major factor in the
development of participatory structures such as the Calanda Commission and the
Coordination Team. As discussed earlier each of these participatory forums
collaboratively, developed and co-authored the FEKLHAS project proposal shortening
the proposal and approval process significantly.

The second event in the EEM case refers to: The exclusion of social fundamentals, for
example, community value and belief systems, community spirit, community solidarity
and social capital. The data relating to this event strongly suggests a high level of
ignorance by the industrial developer and state government agencies particularly with
reference to community value and belief systems. Although part of the primary driving
forces of community deep structure strategies and contingency responses, most of these
stakeholders regard community value and belief systems, which determine community
deep structure strategies, as unimportant or irrelevant. Consequently, community deep
structure choices and strategies are ignored or misinterpreted, leading to ineffective
socio-environmental contingency responses by the industrial developer and government agencies, thereby unnecessarily prolonging the dispute. As long as social, cultural, economic and political community concerns and the underpinning community value and belief systems remain at the margins, any attempt to align techno-economic and socio-environmental values must fail. This means that the stakeholders from outside the farming community continue to insist on an exclusive techno-economic fix, thereby significantly increasing scientific uncertainties. As discussed earlier the vast amount of geo-hydrological studies and reports cannot and did not fix the problem. Instead, the exclusion of socio-environmental values systems contributed widely to an upward spiral of confusion and scientific uncertainty. It has been established in earlier chapters that the exclusive reliance on “value free” expert knowledge in the EEM case led to the systematic rejection of local knowledge and experience in the decisive phases of decision-making by industry and government agencies alike.

As established in Chapters 6 and 7 the developer in the FEKLHAS case employed an entirely different approach to local knowledge and community participation. By looking beyond expert knowledge, the management of the BCU developed a more solid information baseline, thereby significantly decreasing scientific uncertainty. Accumulated local wisdom and anecdotal information were used by BCU and the supporting government agencies in a systematic manner. This allowed the BCU to developed an in-depth understanding of community value and belief systems, the historical development of these values and consequently providing managers with valuable insights into community deep structure choices and strategies. This means the BCU’s socio-environmental contingency responses were precise and effective in dealing with social, cultural, economic and political socio-environmental community demands. The most convincing and profitable outcome of legitimising community value
and belief systems in the FEKLHAS case is the establishment of the *Calanda Commission* and the *Coordination Team* in which the continuous alignment of opposing company and community values developed into a matter of routine.

The third event adding significantly to the downward spiral of distrust in the EEM case is *The Mining Warden's Hearing and Recommendations in 1976*. Particularly disappointing, according to the locals, was the withholding of the Warden’s recommendations after the hearing. Withholding the Warden’s recommendations is an option available to the government, but is historically rarely applied in Queensland. Consequently, the invocation of this ministerial discretion contributed unnecessarily to an already strained trust relationship between the local community, industry and government authorities. The negative social climate in the EEM case is primarily the consequence of a total absence of genuine participatory structures. Consequently, neither an effective and sustainable industry/community dialogue, nor the balancing of community and industry goals could occur. It is in this context that government and industry stakeholders continue to misinterpret the role that socio-environmental, economic and political community value positions play in the EEM dispute. This is consistent with the Mining Warden’s interpretation of social and cultural issues, which the Warden interpreted as “matters of private concern”. Consequently, the exclusive reliance on techno-economic and geo-hydrological reasoning led to a conflict between technical and social value positions. Seeking a solution through the legal system community stakeholders turned to the Mining Wardens Court. The Court, however, did not resolve the problem, but instead, increased complexity and distrust primarily through withholding the Wardens recommendations.
In the FEKLHAS case, stakeholders resolved disputed issues without engaging the court system. Participatory structures such as the *Coordination Team, Calanda Commission* and *FEKLHAS Project Commission* provided a participatory forum, clearly absent in the EEM development, in which opposing value positions are mutually accepted and thereby legitimised. This means that any emerging issues, based on assumingly irreconcilable differences in value positions, could be arrested long before they could develop into unsurmountable problems. Instead of withholding vital information a policy of openness exercised by BCU as well as by local and Kantonal government agencies effectively increased community interest in collaboration and thereby social trust.

The fourth major event contributing to the strained trust relationship among EEM stakeholder is the *Water Monitoring and the Interpretation of Hydrological Data*. The examination of this particular point of disagreement in the EEM case revealed significant gaps in vital monitoring data, limited reporting and a lack of rigorous monitoring protocols. Moreover, the lenient assessment by government agencies regarding the developers compliance with its monitoring and reporting responsibilities is perceived by the local farming community as a major breach of trust, giving rise to speculations and assumptions about favouritism. The emergence of a long-standing disagreement between the developer and the then Department of Natural Resources (DNR) as to who should interpret the collected monitoring data clearly worsen suspicion and distrust. Consequently, the limited dissemination of vital hydrological monitoring and interpretation data is not surprising, because years of monitoring data is missing, reports were rarely submitted and the collected monitoring data was not interpreted for more than 15 years. This strategy of slow and incomplete data
distribution not only prolonged the dispute, but equally important, significantly increased community distrust, suspicion and frustration.

In the FEKLHAS development, on the other hand, the free flow of accurate and timely information as well as up to date data is freely available to the community. The primary reason for this policy of openness lies with the FEKLHAS Project Commission. As introduced in Chapter 6, the Project Commission consists of community, local and Kantonal as well as interest group representatives. Its responsibility is to monitor all socio-environmental as well as environmental aspects of the FEKLHAS operation. Community/industry agreements as well as regulatory compliance are monitored and reports are collaboratively co-authored by the members of the Commission and submitted to the local council assembly for approval. The community through the Project Commission is empowered to block the next stage of the project in the case of non-compliance. Consequently, in the FEKLHAS case compliance hardly develops into a serious issue and social trust is routinely generated.

The fifth event, the collapse of The East End Mine Community Liaison Group (CLG) further heightened the tension between the stakeholders in the EEM dispute. The CLG was established 16 years after mining commenced and never displayed the hallmarks of a genuine participatory structure. Instead of providing a forum in which problems are solved or alternatives are collaboratively developed, the CLG developed into a political forum used by stakeholders to justify and defend their positions. The CLG did not offer genuine power sharing, never developed a constitution enshrining obligations and responsibilities or provided voting rights of any kind. In the absence of a genuine participatory structure, achievements in problem solving were limited. Given the historical background, the political nature as well as the poor performance record of the
CLG, it can be argued that the CLG contributed greatly to an unfavourable climate of distrust, which ultimately lead to its demise.

The final and sixth event in the EEM case, which adversely affected stakeholder relationships, is the failure of *The East End Mine Open Technical Forum* (OTF). Although a laudable attempt to bring the opposing camps in the EEM dispute together, the OTF was only established after severe complications and community disquiet. Prior to its establishment no long-term or permanent forum was available to deal with emerging techno-economic or geo-hydrological issues. Disheartened by previous experiences a “leap of faith”, necessary to participate in the OTF, was rejected by the local community. It is important to recognise, however, that local community representatives were quite willing to participate if firstly, procedural fairness could be assured and secondly, vital data made available to their hydrological experts prior to the OTF. The organisers failed on both accounts, resulting in the cancellation of the meeting. The data clearly indicates that the organisers of the forum as well as participants from industry and government agencies equally failed to grasp the importance of collaborative planning and openness particularly in a volatile climate such as the EEM problem. Changes to the procedural guidelines, for example, were only made in response to community pressure and the observed reluctance by industry and some government agencies to assure the free flow of information also contributed greatly to the failure of the OTF.

In the FEKLHAS case similar forums such as the OTF are planned and developed collaboratively by community, industry and government representatives. The planning of a technical forum in the FEKLHAS development would be organised by the *FEKLHAS Project Commission*, a continuos establishment, which is designed to remain
until the final closure of the mining operations. The Commission is not an ad hoc structure, developed after the proverbial horse has bolted, but a genuine participatory institution in which procedural guidelines are collaboratively developed and were the free flow of information is as a matter of routine. In the FEKLHAS case the commitment to procedural and participatory fairness is not a matter of choice, but enshrined in constitutional obligations and responsibilities underpinned by constituted quorum voting rights.

Discussing the FEKLHAS and the EEM approach to community collaboration and participation, this Chapter revealed an enormous perceptual chasm between participants in the FEKLHAS and EEM case of what constitutes genuine community participation. In Chapter 7 stakeholder responses indicate that the participatory approach in the FEKLHAS case is widely accepted by the community, local and Kantonal agencies and local interest groups. The following Chapter 9 similarly uses stakeholder responses and document analyses to highlight the different views about community participation and collaboration in the EEM case. Moreover, interview responses, information and observations derived form document analyses are linked to the six primary events introduced in this Chapter to further assure the accuracy and validity of the research.
Chapter 9  
Case Study B  
The East End Mine and the FEKLHAS Development  
A Comparative Analysis

9.1 The East End Mine Development and the Emergent Themes

9.2 Introduction

From the East End Mine (EEM) investigation 6 themes emerged as primary events in a progressive downward spiral of social trust. Interview responses, industry and government documents, geo-hydrological reports as well as internal and external correspondents generated by the industrial developer, government agencies and the local community refer to these six events with notable consistency. A closer examination revealed that stakeholders from either side of the dispute view these occurrences as the most consequential and impacting events in the EEM controversy. These are:

1. The 1974 exploration and drilling program of the Darra Exploration Pty Ltd.
2. The exclusion of socio-environmental fundamentals.
5. The collapse of the East End Mine Community Liaison Group.
6. The failure of the East End Mine Open Technical forum.
It is important to note that not one of the socio-environmental\(^1\) as well as social trust issues, which are intrinsically linked to these events, have ever been seriously considered let alone satisfactorily solved by those involved in the dispute. Stakeholders continue to insist upon a techno-economic fix, while ignoring the underlying socio-environmental dynamics and socio-environmental drivers of the dispute. However, consistent with the grounded theory approach used by this study, these six incidences achieved theoretical purpose and relevance because they are repeatedly present in the data (see Strauss and Corbin, 1990). Moreover, as indicated in Chapter 2 and 5, this study uses physical and theoretical spatiality analyses\(^2\), meaning that the research phenomena of deep structure, participation and social trust are comparatively examined across the global/local divide. Consequently, the three primary determinants, which underpin the successful participatory approach in the FEKLHAS case, are comparatively analysed with the community engagement issues, which emerged from the East End Mine (EEM) data\(^3\). This means that the most impacting participatory issues that emerge from the six primary events listed earlier are investigated and analysed by linking them to the determinants identified as the drivers of the FEKLHAS participatory success. These are:

1. The mutual legitimization of stakeholder value and belief systems

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\(^1\) As explained previously, the term socio-environmental, as used by this thesis, includes not only the natural environment, but also the social, cultural, economic and political environments under investigation.

\(^2\) For a review of the definition of physical and theoretical spatiality refer to sub-heading 2.2 Theoretical Background in Chapter 2.

\(^3\) As discussed in Chapter 8 the FEKLHAS approach is a participatory arrangement between the industrial developer and the local community. It significantly exceeds the most stringent government requirements and thereby government authority. The FEKLHAS participatory experiment also overwrites general Swiss cultural and political norms by operating in a direct democracy framework of community empowerment and engagement beyond Swiss traditional norms. Consequently, local industrial developers as well as local and state government agencies in Queensland cannot justify their participatory tokenism by exclusively pointing to the socio-environmental, cultural or political differences between Switzerland and Queensland, because nothing prevents them from moving beyond local government requirements or socio-environmental and political norms.
2. Pro socio-environmental deep structure histories and strategies in relation to community concerns; and

3. Community participation, social trust and trust behaviour

9.3 The mutual acceptance, legitimisation and alignment of stakeholder value and belief systems

As discussed in Chapter 3, incongruity between the value positions of local communities affected by industrial development, and those held by the industrial developer, is the primary reason for cognitive dissonance at both the individual and group level\(^4\) (Schein, 1996; Hoffman, 1993; Ajzen and Fishbein, 1980). If incongruity between value positions persist, stakeholders affected by industrial development are most likely to apply legal and political sanctions in an attempt to eliminate the dissonant state (Schein, 1996; Hoffman, 1993; Ajzen and Fishbein, 1980; Poser and Schmidt, 1992). Schein (1996) in particular suggests that the successful alignment of community and organisational values intrinsically decides corporate success or failure.

As discussed in Chapter 3, the socio-environmental problems, which derive from incongruent stakeholder value positions, are not driven, as widely believed, mostly by techno-economic, financial or ecological facts, but more often by competing socio-environmental values (White, 1970, Schein, 1996). This means that the exclusion of social, cultural, economic and political community concerns from development disputes can be expected to result in sanitised techno-economic solutions, which can only solve parts of the problem. As indicated in Chapter 8 industry, some government ministers and their respective agencies in the EEM case firmly insisted on official techno-

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\(^4\) To review the theoretical analysis discussing the theories of cognitive dissonance refer to Chapter 3. The concept of cognitive dissonance has actually been applied to the FEKLHAS case in Chapter 7. Its application is repeated in this Chapter.
economic value positions; while simultaneously excluding the socio-environmental community concerns and values held by the East End / Bracewell communities. Consequently, neither the mutual acceptance of different stakeholder values, let alone their alignment, was ever seriously considered by any of the participants in the EEM controversy. This is reflected firstly, in the absence of a genuine participatory forum\(^5\), necessary for the value alignment process. Secondly, it positioned the local community in a prolonged state of cognitive dissonance. Thirdly, it resulted in ongoing socio-environmental and socio-political sanctions, applied by the local community in an attempt to eliminate the dissonant state and fourthly, it contributed greatly to social distrust between stakeholders.

This apparent lack of understanding the role which social, cultural, socio-economic and political community values play, particularly in relation to effective and long-term industry/community relationships has been traced back in Chapter 8 as far as 1974. With the commencement of the exploratory drilling program in the East End/Bracewell area in 1974, locals registered their concerns without delay. A member of the Mt. Larcom District Mining Protest Group (MLMPG) remembered:

\[
\text{We didn’t want them to drill on our land because of a whole range of reasons, but when we argued that starting a quarry on good farmland is not right, the Premier at the time said we have the right to go to the court and fight the case (Interview data, 2F, DL, 1999)}
\]

Moreover, although directly affected by the drilling program, local farmers were denied access to vital information regarding the nature and the extent of the exploration effort and the consequent granting of mining leases. This information was of particular importance to locals, because vast and extended mining leases would have made the

\(^5\) The East End Mine Community Liaison Group (CLG) does not constitute a participatory structure since it was devoid of community empowerment or voting rights as provided by the \textit{Calanda Commission}, the \textit{Coordination Team} and the monitoring body, the \textit{Project Commission} in the FEKLHAS case. As indicated in the precious Chapter 8 the CLG was primarily used as a political forum for the advancement and/or consolidation of individual stakeholder positions.
local farming community socially, culturally and economically non-viable. These fears substantiated when local framers discovered the extent of the proposed leases as can be gauged from the following statement made by a member of parliament.

Little did anyone of the farmers in the district realise that the company wanted four leases totalling 2271ha (Hansard, Senate, 1976).

However, with the help of parliamentarians of the then opposition party, the original lease area was reduced to 1223 ha to reduce the impact on local framers (Hansard, 1977). The following statement made by a local farmer represents a viewpoint, which re-emerges throughout the data with notable consistency. Farmers felt that there has been an apparent lack of communication between the industrial developer and the local farming community throughout every phase of the EEM the development, going back as far as the planning stage of the project.

We just didn’t know where and when they would start the mine. We knew it was somewhere in the Mt Larcom district but that was all we knew (interview data 2F, 1999).

This interview response implies communication problems between stakeholders and also reveals an underlying social trust issue namely, the exclusion of the local farming community from participating in the planning and decision-making process by obstructing the dissemination of information. The second part of this interview points to three additional socio-environmental community issues

Our main concern was that they [Darra Exploration] might take out such a big area of productive farmland, which would have made the rest of us non-viable. The biggest thing for us was that our life-style would change. We thought that’s the end of us, our community will die (interview data 2F, 1999).

The farmer’s answer implies firstly, a social and economic cost that the loss of productive farmland inherits. Secondly, it points to socio-environmental problems, which are intrinsically linked to fundamental changes in lifestyle. Thirdly, the answer suggests a socio-historical problem namely, the loss of long established social, cultural,
economic and political community structures. Such scenario generally demonstrates a systematic failure of power sharing and trust.

In the FEKLHAS experience on the other hand the free flow of information assured that the locals were more than adequately introduced to the FEKLHAS project prior to its commencement. Furthermore, the community was encouraged to participate in the planning process, while their socio-environmental value and belief systems were included into the overall development and decision-making process. This approach of openness and participation is reflected in the following statement made by a senior manager of the FEKLHAS developer.

I invited the greens and the locals to work on the project with me, and plan with me. And because they could see that attention was paid to their dearly held beliefs I expected in return that they are fair to us and I must say they really were (interview data, Si, 3i, 1999).

This interview response not only shows the inclusion of community values into the decision-making process, but also indicates the development of social trust and social capital, which in the FEKLHAS case developed into a matter of routine.

The vast differences between the community engagement approach in the EEM and the FEKLHAS developments are particularly apparent when considering the following two statements. An East End community member gave the first response, whereas a senior decision-maker of the Bündner Cement Untervaz made the second statement, referring to the pre-planning phase of the FEKLHAS development.

[EEM response]
The drilling crews appeared from nowhere and started drilling, we got some information from them, and then the manager arrived and told us something else and we didn’t know what was going on. We couldn’t get an answer from no one, the manager said one thing, the drilling crew had no idea themselves, and the Minister [of Mines] said another thing and the department said nothing (interview data 2F, 1999).
Local interest groups confirm the latter response as can be gauged from the observations of a local community leader representing a national environmental group.

BCU’s representatives went to a great deal of trouble to create an atmosphere of openness. I always had the feeling I was speaking on the same level and they actually understood the way we think. Often people don’t understand our way of thinking, our philosophies and values and therefore do not understand why we are against or in favour of a project.

The FEKLHAS data cited so far indicates that the very early inclusion of community stakeholders into the planning and development process led to an atmosphere of mutual social trust between the BCU and the local community. It is on these bases that BCU’s management introduced the participatory forums of the Coordination Team and the project monitoring body, the FEKLHAS Project Commission. Stakeholders within the framework of these participatory structures mutually recognised, balanced and aligned the techno-economic value position and interest of the BCU with the socio-environmental values held by the local community.

The EEM data most clearly contrast the FEKLHAS participatory approach. Three primary determinants emerge from the data and are identified as main contributors to the prolonged EEM dispute. The first determinant is the exclusion of the local community from the planning and decision-making process. The second contributor suggests an apparent lack of understanding the importance of socio-environmental
community values, particularly in relation to their role in industry/community relationships. The third determinant is related to the stakeholder insistence on a techno-economic fix, while excluding the social, cultural, economic and political drivers of the dispute.

In an attempt to change this situation the 1996 Impact Assessment Study (IAS) Environmental Management Plan required the EEM stakeholders to establish the Community Liaison Group (CLG). At this point, locals still grappled with unresolved socio-environmental issues and most farmers felt that

The limited flow of information and the unreliable and contradicting messages from the company and government agencies contributed to distrust and suspicion among locals (research data, LPH, 2004)

In such a highly charged atmosphere and 16 years into the EEM controversy, the CLG had at best a very limited chance to be successful. Interview data indicate that since its inception in 1996, stakeholders on all sides generally used the CLG as a political tool to advance and/or consolidate individual positions. One member of the CLG remembered

We were all frustrated to the max because to get anything onto the agenda was very difficult. What they [the industrial developer] didn’t like was blocked, what they didn’t want to talk about was not put on the agenda, what they didn’t want to do they didn’t do (interview data, 8F, 1999).

Industry representatives at the CLG, although interpreting events from a different perspective, nevertheless shared this frustration.

We thought that the farmers and their EEMAG representatives used an elastic agenda. Every time we seemed to be close to a solution all of the sudden all sorts of obstacles were raised. It’s almost as if they ask us for a cookie and we say no, you can’t have it, but we finally cave in and say ok have your cookie. You can be certain that their response will be, no we don’t want the cookie because we might be allergic to that type you are giving us. We may be winning with other people but never win with those raising the concerns (interview data, 3i, 1999).
In view of the mounting and almost irreconcilable positions among the CLG membership the liaison group finally failed. Parting members justified their departure from the CLG as being the result of EEMAG’s strategy to persistently and repetitiously resubmitting previously discussed agenda items. Other interview respondents engaged in the CLG agree that the continuous reintroduction of previous agenda item was justified because

…many of the continuously re-introduced issues were never resolved. [Consequently], the CLG members representing the local community were well within their right to insist on at least some sort of closure of the issues raised (interview data, 9/0 SoT, 2000)

The foregoing data indicates that neither the mutual acceptance of different stakeholder values nor their consequent alignment was possible within the framework of the CLG. This is because the CLG was never designed to be a participatory structure with constituted guidelines, community empowerment or quorum-voting rights.

The following responses by two Untervaz community representatives highlight the fundamental difference between the participatory approach used in the FEKLHAS case and in the EEM development.

[Untervaz respondent one] The BCU was more open than they had to be. They handled the whole project openly. We did not have the feeling during any phase of the project that we could not access information or could not inspect any part of the project, nothing was hidden from us it was totally open. And in the interest of a fast settlement requests by the Coordination Team were settled with no delay. They [BCU] even went a bit further when asked for something extra.

[Untervaz respondent two] yes that’s right, again and again they made these concessions (interview data 2LG, 1999).

These statements indicate an exceptional high level of management expertise in operating participatory structures such as the Coordination Team as well as managing
the process of mutual value recognition. The balancing of community and BCU interest as well as the alignment of mutually accepted value positions still takes place within the framework of the FEKLHAS participatory structures and, as the date indicates, has developed into a matter of routine.

The *Calanda Commission*, BCU’s *Coordination Team* and *FEKLHAS Project Commission* provide not only a forum for socio-environmental and techno-economic value alignment, but equally important it reflects a deep understanding of the important role socio-environmental community values play in successful industry/community relationships. In the EEM controversy, however, stakeholders insist on a techno-economic fix, while refusing to seriously include social, cultural, economic and political community value issues into the problem solving process. Interview data finds that this refusal still continuous in spite of the recognition by some influential stakeholders that socio-environmental value concerns are the primary drivers of the dispute. This can be gauged from the following statement made by a senior public servant, promoting the importance of including socio-environmental community values and concerns into the problem solving process. When asked whether a techno-economic or techno-scientific assessment of the disputed geo-hydrological issues by an independent expert of international standing, could finally settle the dispute, the respondent said

That is one way of resolving some parts of it, but if the answer that is produced does not facilitate a resolution that the social and community issues and concerns require, then that would not really assisting (interview data, 12GA, 2000).

There are similar statements made by representatives from industry and politics, recognising the important role that social issues play in the EEM dispute. For example, answering the question whether he can see a shift from a purely technical towards a more social argument in the EEM dispute, a manager of the EEM developer said
The community might see us of playing not fair; perhaps peoples social concerns might have been overridden in the past. However, I think that the whole issue has gone from being an economic issue to being a technical issue to being a social issue (interview, 5i, 1999)

Moreover, a local politician familiar with the dispute also points to the importance of including social issues into the dispute solving process

Insufficient attention has been given to the social impact of the mine, there is certainly not only an economic impact or a potential loss of farmland, but there is also a social cost associated with the development (interview data, 9/0, 2000).

These statements show that social community concerns in relation to the EEM development are recognised by some important stakeholders. The problem is, however, that the necessary structures to accommodate and balance social community issues with the techno-economic goals of the developer have never been established in the EEM case. As this chapter progresses some explanations are offered as to why social, community issues continue to be excluded from the EEM development.

However, before moving to the next segment of this Chapter a short summary attempts to consolidate acquired insights, by pointing to some of the reasons why stakeholders assign different levels of importance to socio-environmental value issues. The comparative analysis of the EEM and FEKLHAS developments in relation to the mutual acceptance and alignment of community and organisational value and belief systems demonstrated two fundamentally different approaches. In the EEM case, industry and government agencies separated official techno-economic value positions from the socio-environmental values of the local community. One explanation for this disjuncture emerged from data collected at the “Leadership 99 Conference”, organised by the operators of the East End Mine (EEM). Most senior and operational managers at the conference regarded social and cultural community issues as of little or no importance,
only one of the eight focus groups ranked social issues as of medium or high importance. These industry practitioners clearly recognised the importance of good industry/community relations. However, limited by their exclusive techno-economic training most managers misunderstood or misinterpreted the role, which socio-environmental value issues play in these relationships. (research data CHV. SoT. 1999). Consequently, precedence is given by industry practitioners and government agencies to seek a technical fix rather than aligning their techno-economic value positions with those of the local community as the following response by an industry manager suggests.

we are in many respects predicated by experiences and impacts of the market. At the moment, for example, we are having very bad experiences in the market and are therefore less inclined to compromise, particularly in relation to disputed community issues (interview data, 5i, 1999).

The following response by a public servant similarly points techno-hydrological considerations, having precedence over social issues.

I may have a blinkered view on this, but my focus is groundwater and groundwater impacts. I may have not been aware of other issues out there, but those other issues have become more prominent. The focus seems to have shifted more over to land matters and social impacts (interview data, 4GA, 1999).

The second part of this response clearly acknowledges social community issues. However, as established in Chapter 8, EEM specific deep structure commitments, made in the mid 1970s, continue to exclude social community concerns into the EEM problem solving process, as can be gauged from the next statement.

I guess we probably do try to defend some of those old decisions. You know, in hindsight you may be able to see that maybe the decision was not as good as it could have been. In hindsight you may look back and say, we probably should have done that differently or we shouldn’t have done it at all, but you have got to bear in mind the information people had at the time and the set of rules they were working under at that particular time. It is a cliché that hindsight gives you 20-20 vision, but it is true (interview data, 4GA, 1999).
Similarly the Mining Warden in his recommendations of 1976. Guided by government legislation and legal guidelines the Warden interpreted the following socio-environmental community concerns as “matters of a personal nature”:

1. Possible negative impacts on the local water reserves and natural environment,
2. Loss of home, farm, livelihood, community activity,
3. Loss of productive farmland,
4. Loss of opportunity through impositions of exploration and lease permits on farms,
5. Reluctance by Banks to lend finance in support of farm improvements,
6. Reluctance by financial institutions to underwrite the sale of farming enterprises,
7. Loss of community and accustomed way of life,
8. Inability to utilize farm assets for financing retirement

(Extracted from the Jan 7th 1976 Mining Wardens Recommendations)

These supposedly “personal” matters, in contrast, are wider socio-environmental, socio-economic and political issues based on the deep structure value and belief systems to which the East End and Bracewell communities subscribe. As discussed earlier socio-environmental community concerns are not driven, as widely believed, by techno-economic, financial or ecological facts, but by competing value positions (White, 1970, Schein, 1996). This means that the exclusion of social, cultural, economic and political community values from the EEM dispute can be expected to result in sanitised techno-economic solutions, which at best can only solve parts of the problem. Precisely here lies the answer to one manager’s question, referring to the persistency of community sanctions in the light of, as he perceives it, almost unsurmountable techno-economic and/or geo-hydrological odds.

I can’t understand why these guys are so stubborn the hydrological reports are undoubtingly against them. They never seem to give up, I must give them that, I would have thrown the towel long ago.

(interview data QR, Si, 2002).
The primary reason for this manager’s disbelief is the low weighting given by industry and government agencies to the social, cultural, socio-economic and political drivers of the EEM dispute. A similar view was expressed by another industry practitioner.

I am making no apologies we are running a business, but social or cultural issues? I believe they have their place but in relation to the wider EEM problem they are irrelevant (research data Si, 1999)

The foregoing responses from industry and legal practitioners indicate that stakeholders from outside the farming community are not recognising the importance of the socio-environmental, socio-economic and political deep structure dynamics and their direct impact on the EEM dispute. For local farmers the socio-cultural decline of their community is much more then industry and government stakeholders realise, significantly exceeding concerns about “matters of a personal nature”. A local farmer reflects the uncertainties of a declining community in the following statement.

[to] take out such a big area of productive farmland would have made the rest of us non-viable. The biggest thing for us was that our life-style would change. We thought that’s the end of us, our community will die (interview data 2F, 1999).

Against this background this thesis argues that the Mining Warden, government agencies and industry practitioners misinterpreted social issues, which are driven by deeply entrenched social, cultural, economic and political community value positions. The responses by the EEM farming community confirm White (1970) and Schein’s (1996) notion that if these “matters of a personal nature” or more correctly, social, cultural, economic and political community value positions are threatened, they drive the social dynamics of those who defend their socio-cultural heritage as well as their socio-economic and political existence.

However, the fact that the Mining Warden underestimated the importance of socio-environmental community concerns cannot solely be assigned to the Warden. Primarily
because the Warden, like other government officials, operate within the framework of principles and regulations, which are set by governments and not by the courts. For the EEM controversy this means that the Warden could not effectively deal with the wider social and cultural community concerns because it would have required him to move outside government principles and regulations. The problem, therefore, is of a systemic rather than an individual nature.

Another example of separating techno-economic value commitments from the socio-environmental value and belief systems of the local farming community can be observed in the following statement by the then Minister of Mines. A deputation from the Mt Larcom District Protest Group reported that at their arrival the then Minister for Mines pointed from his conference room window to large building sites below, saying:

> Look out of the Window. That is what society demands, cement, and that is what they must have (interview data 2F12F, 21F 6F, 1999 and Hansard, 1976).

This statement made by the minister is, firstly, far removed from accepting different community value positions and, secondly, makes it exceptionally difficult for the appropriate state government agency to accept any position other than that held by its superior.

Consequently, the exclusion of socio-environmental community value and belief systems in the EEM case by government ministers, their agencies, as well as the industrial developer indicates a wider system failure. Its origins are to be found in the deep structure histories of EEM stakeholders and the early deep structure choices and strategies to which they subscribed. These early choices and strategies are a legacy which still influences current government and industry decision-making in both cases as can be gauged from the following comparative analysis.
9.4 Socio-environmental deep structure histories, choices and strategies

In the previous analysis the mutual acceptance and alignment of different stakeholder values has been identified as one of the most important preconditions for the effective industry/community relationship in the FEKLHAS case. Conversely, in the East End Mine development, techno-economic value positions of industry and government agencies largely override the social, cultural, economic, political and environmental values held by the local community. Their exclusion from the conflict solution process is the more surprising since industry and government stakeholders recognise the validity of these community values and concerns, which can be gauged from the following statement made by a senior public servant.

The socio-economic impacts are consequential to the hydrological impacts of the East End Mine. A proper assessment of these socio-economic impacts would of course need to focus on both benefits and disbenefits to local and wider communities (LT, EW, P3, 2000).

Other similar statements made by industry managers show that stakeholders are cognisant of the impacting nature of social issues in the EEM case. For example, when asked which issues might be the most important in solving the EEM dispute social issues, technical, economic or political issues, a manager said “ultimately the social issue” (interview data 5i, 2000). Recognising a shift from exclusive techno-economic reasoning to a more social understanding of the controversy another industry practitioner answered

I think that over time people perceived the mine more as part of a larger picture, a picture I suppose of social neglect. I think it has gone from water depletion to being a social issue (interview data, 5iR, 2000)

Although the foregoing statements point to some understanding of the social dynamics of the EEM dispute, earlier interview responses presented in this chapter indicate that
social issues and socio-environmental community values continue to remain outside the scope of EEM problem solving processes. This raises important questions about the reasons for the persistent exclusion of social issues from the problem solving process. As earlier interview responses show, the answer lies with a profound lack of commitment to community participation. This is also reflected in the absence of participatory forums in which the techno-economic goals of the EEM developer and the socio-cultural aspirations of the local community can be balanced as experienced in the FEKLHAS case.

As discussed in Chapter 2 and 3, the starting point of organisational deep structure choices and strategies coincides with the inception of a new company or the planning of a new industrial development project. During the early phases of organisational deep structure development senior decision-makers commit to basic strategic orientations and choices thereby creating the propensity for managerial and technical staff to have similar cognitive frameworks and mental models (Walsh, 1995). This means that these early experiences of key organisational decision-makers also influence the deep structure commitments, choices and strategies of later generations of managers.

In both, the EEM and the FEKLHAS case, for example, later generations of managers continue to promote and apply earlier deep structure strategies and commitments. In the EEM case, however, managers from industry and government agencies find themselves defending earlier deep structure commitments despite their incompatibility with contemporary socio-environmental thinking. However, as established previously, the defence of these earlier deep structure strategies is limited to the EEM case, and is therefore project specific. The respective statements from industry practitioners, parliamentarians and public servants show that they are fully aware of the inherent
problems as well as the incompatibility of earlier decision-making, but driven by the
depth structure commitments of previous generations of managers defend these earlier
project specific strategies.

[Industry manager] I think it is probably true that I have to live
with the legacy of decisions from back then. I think that is also true
in relation to the previous incumbent of this position and I
certainly feel I have to live with that as well (interview data, 5i,
2000).

[Industry manager] I definitely live with the legacy from previous
times and from previous incarnations of the company, absolutely
(interview data, 5iR, 2000).

[Parliamentarian] Yes they [government agencies and industry]
quite often have to defend their earlier decisions. They shouldn’t
have to, but they are (interview data, 9/0, 1999).

[Public servant] I guess we probably do try to defend some of
those old decisions. You know, in hindsight you may be able to
see that maybe the decision was not as good as it could have been
(interview data, 4GA, 1999).

[Public servant] I think you could surmise that we are living with
the legacy of some of our past performances and some are coming
home to roost now (interview data, 11GA, 1999).

These responses confirm not only the handing down of EEM specific deep structure
commitments, strategies and decision-making from one generation of managers to the
next, but it also indicates the inertial nature of these earlier deep structure commitments.
As explained in Chapter 3, deep structure is a set of fundamental interdependent choices
of the basic organisational configuration into which its sub-systems are organised
(Gersick, 1991). This includes the choices and basic activity patterns that maintain a
system’s resource exchange with its natural and social environments. This means that
eyear strategic orientations become components of a system’s deep structure and thereby
part of the organisational decision-making structure itself (Gersick, 1988; Eisenhardt
and Schoonhoven, 1990; Eisenhardt, 1989). The next response made by an industry
manager shows that earlier deep structure commitments have indeed become part of EEM specific decision-making and the organisational decision-making structure itself.

We are legally in compliance with regulation, compliance and with everything, so where is the problem? You see that is not just our problem but it also applies to government agencies. You've got these old guys still there sticking to decisions they made in 1977. That is what I believe is holding us back in East End (interview data, 3i, 1999).

The foregoing interview response indicates two major points, firstly, a minimum compliance strategy clearly a legacy of the 1970s and early 1980s, and secondly, a defence strategy of earlier EEM specific decision-making spanning over 3 decades. When asked whether earlier decision-making particularly in relation to the EEM development constitutes a legacy of the 1970s, the same manager observed

you have got to remember that some of the old company is still around and in charge and so is the old thinking and the old logic (interview data, 3i, 1999).

This response confirms the deeply inertial nature of EEM specific deep structure commitments, strategies and decision-making. These deep structures are highly stable, because initial deep structure choices exclude many contingency options and include only those that are mutually agreed upon and are consistent with the earlier deep structure choices (Gersick, 1991). When applied to the ongoing EEM controversy this means that early deep structure choices by industry and government stakeholders favoured techno-economic solutions to emerging problems, while paying little attention to the socio-cultural factors of the dispute. Consequently, the initial commitment to a technical fix excluded possible participatory contingency options; firstly, because the social contingency responses of community participation and collaboration are not mutually agreed upon by past and present substructure management; and secondly, they are inconsistent with the deep structure choice of a technical fix.
However, as established in Chapters 2 and 3 proponents of the punctuated equilibrium paradigm suggest that in prolonged periods of stability, deep structures permit only incremental change. If, however, long periods of techno-economic equilibria are punctuated by fundamental external perturbations, as for example, sudden limitations in resource availability, then deep structures and its core values are altered (Tushman and Romanelli, 1985, Wake, Roth and Wake, 1983, Gersick, 1991). In the East End Mine (EEM) and the FEKLHAS developments, however, such alterations did not occur. Instead, a new phenomenon emerged in both cases, which may be called selective deep structure commitments. This means that although fundamental changes in environmental and socio-environmental policy were progressively introduced into both, the Swiss and Queensland organisational structure, case specific deep structure commitments remained unchanged.

This suggests that organisational structures are capable of isolating change thereby assuring stability while maintaining earlier deep structure choices and strategies that are exclusive to specifically critical or controversial developments. Therefore, as the EEM and FEKLHAS data indicates, organisational deep structure forces associated with incremental change are more compatible with the punctuated equilibrium idea than previously considered, because even drastic punctuating events such as resource availability, experienced in both cases, do not necessarily result in fundamental deep structure change. This means that in the FEKLHAS case, the inclusive participatory approach remained unchanged, because of early and by now deeply entrenched socially progressive deep structure choices and strategies. In the EEM case the deep structure strategy of excluding socio-environmental community values and concerns from decision-making continues to provide a safeguard for legal exposure.
Consequently, selective deep structure commitments can be case specific, rather than effecting change throughout the organisational structure. This means that while a corporation accepts new socio-environmental insights into its core organisational structure, local organisational sub-structures, engaged in specifically critical developments, are tolerated to accept or reject these new insight and/or policies. The acceptance or rejection of progressive socio-environmental insights and policies depends on earlier, case specific deep structure commitments, which can be explicitly site and/or project specific. This definition of selective deep structure commitments adds to the punctuated equilibrium paradigm by raising important questions about fundamental organisational change, particularly with reference to the sudden discontinuation of resource availability.

This thesis, therefore, proposes that although uncertainties in the availability of resources would punctuate prolonged periods of techno-economic equilibria, they may not lead to fundamental organisational change. Instead, local organisational sub-structures engaged in critical industrial developments can persist in maintaining selective deep structure commitments, which allow core organisational changes, but disallow changes to local deep structure commitments. These questions are re-visited in the summary and conclusion Chapter of the thesis.

In the FEKLHAS case, for example, early deep structure commitments not only remained sympathetic to local socio-environmental community concerns, but new advances in the area of corporate social responsibility were added to existing commitments. This even further enhanced the long established value alignment process which successfully balanced BCU’s techno-economic interest with the socio-environmental value positions of the local community for years. Similarly, the EEM
development, new policies on corporate social responsibility and on the environment were widely promoted and adopted by the industrial developer. However, in relation to the ongoing EEM controversy, earlier deep structure choices and strategies that exclude socio-environmental community concerns remain intact. This means that case specific inertia and deeply embedded earlier deep structure commitments prevented fundamental deep structure changes, forcing the industrial developer and government stakeholders to live with the legacy of earlier deep structure decision-making. Consequently, these stakeholders have little choice but to largely de-legitimise social, cultural, economic and political community demands to avoid legal exposure. The following statement made by an industry manager supports not only the theoretical assumptions about the inertial nature of deep structure choices, but also indicates that possible legal exposure plays a decisive role in EEM deep structure decision-making.

> With some of the old attitudes still around, we should ask ourselves whether we are too reactive. I do believe we could manage the East End situation better by being more proactive. We should be truly proactive, looking beyond our legal defences and stop thinking reactive. We continue to hide behind our legal defences, and be assured, that way of thinking is still very strong. That’s why I say we are a long way from Untervaz, our mentality and our mindset is still far removed from being truly proactive. I believe by hiding behind our legal people we are repeating our past mistakes (interview data, 3i, 1999)

This statement clearly points to early, case specific deep structure choices passed on by successive generations of managers, still promoting the deep structure strategy of reactive legalism to prevent exposure. The respondent is clearly cognisant of this deep structure choice of legalistic re-activism, but like his fellow managers, remains captured by EEM specific deep structure commitments and decision-making. However, advances in company policy, dealing with corporate social responsibility, have been made and have been implemented by the industrial developer. This equally applies to new and progressive socio-environmental government legislations, which are implemented and
maintained by their government agencies. However, the integration of these policies into the EEM controversy is highly unlikely, because of earlier EEM specific deep structure commitments, which, Gersick (1991) suggests, exclude many contingency options and include only those that are mutually agreed upon and are consistent with the earlier deep structure choices. This means that industry and government stakeholders, which share the responsibility for the planning, approval and operational processes of the EEM development, have little choice but to live with the legacy of earlier decision-making. It is necessary for these stakeholders, therefore, to defend earlier EEM specific deep structure decision-making because it controls socio-environmental community demands and equally important, minimises legal exposure. Although reluctantly, industry and government respondents recognise that the legacy of earlier EEM specific decision-making does play an important role in relation to the EEM case. This has been confirmed by a government representative stating, “government agencies and industry actually defend their earlier decisions quite regularly, they should not have to, but they actually do”(interview data, 9/0, 1999). Similarly, a public servant recognised that decision-makers in the EEM case “try to defend some of their old decisions, realising that earlier decisions were not as good as they should have been. (interview data, 4GA, 1999) These responses in relation to earlier decision-making indicate that government agencies struggle at times with institutional histories, previous organisational cultures and earlier deep structure commitments. A prime example of how EEM specific deep structure decision-making impacts on stakeholders 20 years after these decisions were made is related to the controversy about water monitoring. A member of the Queensland parliament remembered

I think the best example with regard to the legacy of earlier decisions is the responsibility to monitor water depletion, which was required of the department from day one of the East End Mine project. (interview data, 9/0, 2000).
As indicated in Chapter 8, a letter from the then Water Supply Commissioner confirms the forgoing statement, clearly proportioning the water monitoring responsibilities.

The duties of the Company and its consultants are merely to collect basic data relating to the groundwater supply. They will not be involved in the final interpretation of the data. Any determination of the effect of mining operations on groundwater supplies will be made by the Irrigation and Water Supply Commission (research data, LETW, 1977).

Despite this clear directive a major difference of opinion emerged. Firstly, with reference to which department should be responsible and secondly as to who should conduct the assessments.

When the local community representatives approached the appropriate government agencies, seeking advice with regard to changing local water levels, they were referred to another agency. The analysis of the data confirms that such referral actually occurred as the following response from a representative of the department indicates

We had the feeling they [the other department] were passing the buck to us, because in the scheme of things our department is not the lead agency, we saw our role as being advisory to them [the other department], but not beyond that (interview data 4GA, 1999).

This demarcation dispute reduced trust levels in the government/community relationships significantly. The following statements made by a local farmer, a local politician and a company manager are representative of a consistent theme on this issue

[Local farmer] The government departments really had failed in their supervisory role. When we pointed the data collection and assessment issue out to them it caused aggravation within the departments, but it also caused aggravation in the community, because we saw ourselves as having been failed (interview data 17F, 1999).

[Local politician] The assessment and interpretation of the collected groundwater monitoring data was part of the franchise agreement,
but it was not adequately continued by the department for 20 years (interview data, 0/9, 2000).

[Company manager] The final assessment of the groundwater monitoring data has always been the responsibility of the department, but they never did. At the time there was quite an argument about it, it really was a hot potato type of issue back then (interview data, 3i, 1999).

Despite the Water Commissioner’s directives cited earlier and the similar understanding and interpretation of the franchise agreement by other stakeholders, the department maintained its position.

We believe that it wasn’t our role to do that assessment. We believe that our role was to review the work done by consultants for the company (interview data, 4GA, 1999).

As mentioned earlier, this statement clearly contradicts the directive of the Commissioner pointing to the company and its consultants to “merely collect basic data relating to the groundwater supply”, while the department’s responsibility was “the final interpretation of the data”. Against this background the local farming community expected the department

…to come up and say yes, we haven’t done a good job, we haven’t realised the importance of this water monitoring and we will now strive to do something to address that, but there is nobody who has the guts to say it (interview data, 9/0, 2000).

It is not surprising that the department is defending earlier decision-making, because the cost of interpreting data accumulated over a period of 20 years would be prohibitive. This similarly applies to the industrial developer, because there have been serious problems with the collection and archiving of the groundwater monitoring data. An excerpt of company documentation obtained and cited by the community interest group EEMAG reads:
...samples being scattered and lost, bores not being adequately logged and data not being always properly recorded (EEMAG, LET/45, 2000).

Consequently, the search for groundwater monitoring data, which has been missing or lost over a period of 20 years would not only be very costly, but any conclusion drawn from post-terior assessments that rely on fragmented and/or incomplete data would naturally be highly inaccurate. When confronted with the water monitoring issue a parliamentarian familiar with this problem said

Of course the department defends its earlier decisions. They are by default defending their inaction or inefficiency from the past (interview data, 9/0, 2000).

This issue of groundwater data monitoring caused a deep division between the local farming community, government agencies and the industrial developer. This is even acknowledged by a public servant saying

It really came to the crunch in the early 1990s when water levels were severely impacted throughout the district. The farmers wanted answers but there was the problem with the monitoring data. That led to a major rift between us and the locals. I have got the suspicion that there may have been a commitment by the department to do that work [data assessment/interpretation], but as things happen, times changes and people leave (interview data 4GA, 1999).

It is against this background that both, the industrial developers as well as the appropriate government departments realise that there have been problems with the collecting, archiving and interpretation of the water monitoring data. It is important to note that the groundwater monitoring issue has never been fully resolved, but stakeholders agreed to disagree over the issue. However, the water monitoring problem affected all stakeholders alike. Firstly, it significantly disadvantaged the local farming community and their hydrological argumentation namely, that the mine and not drought led to the depletion of local water reserves. Secondly, the issue contributed to increased
suspicion among stakeholders and thereby to an already accelerating downward spiral of social trust.

In sum, previous interview responses point to a wider systemic problem associated with the collection, archiving and interpretation of groundwater monitoring data. However, neither individuals serving in government agencies nor individual managers appointed by the industrial developer can be apportioned blame individually for the outcomes of earlier strategies and decision-making. Instead, the very nature of case specific organisational and institutional deep structure choices point to a system failure, which is driven by a firm commitment techno-economic solutions, which, incidentally, was shared with local community groups. Consequently, the EEM data presented to this point indicates that the case specific deep structure choices of the industrial developer as well as those of government agencies rejected socio-environmental community concerns, viewing them as not fundamental to their decision and development strategies. Instead, their EEM specific deep structure strategies show a firm commitment to a conservative, techno-economic value and belief system and an unshakable faith in an exclusive technical fix. This deep structure history of EEM stakeholders, which excluded genuine community participation, effectively prevented the establishment of participatory structures as experienced in the FEKLHAS development.

This raises important questions about the strategic orientations and managerial paradigms to which the EEM developer subscribes, meaning whether the developer needs to move from a traditional, socio-environmental exclusive egocentric paradigm to an inclusive and more sustainable ecocentric managerial approach. This question, however, has to be approached by considering the phenomenon of selective deep structure commitments, which similarly to Hanna (1995) suggests that there is no need
for a wholesale shift from an egocentric to an ecocentric managerial paradigm. As
demonstrated under the following sub-heading, a limited power shift towards the local
community affected by the EEM development and the acceptance of basic participatory
principles by the developer and government agencies is not inconsistent with the
traditional egocentric paradigm or risk management.

9.5 Strategic orientations and managerial paradigms in relation to community
participation, social trust and trust behaviour

9.5.1 Strategic orientations and managerial paradigms

It has been established in Chapter 3 that models of neatly packaged and mutually
exclusive paradigms, which offer a simple choice between anthropocentrism and its
ecocentric alternative (see Catton and Dunlap 1980; and Cotgrove, 1982), are, in fact,
multi dimensional. Moving beyond simple paradigmatic choices, O’Riordan (1991)
suggests a process of paradigmatic evolution towards three levels of environmental
commitment or “greenness” dry, shallow and deep (see Table 3.3). As explained
previously O’Riordan’s typology of greenness seems to demarcate three possible levels
of commitment. However, this thesis proposed that these levels are not mutually
exclusive and the paradigmatic divide between them can be bridged. This applies
equally to Pearce’s et.al. (1993) spectrum of sustainability, which is characterised by
four paradigmatic quadrants and two, overarching “technocratic” and “ecocentric”
ideological distinction (see Table 3.4). The question is, if neither Pearce’s et. al. two
overarching ideologies nor the four paradigmatic quadrants are monolithically exclusive
and if O’Riordan’s (1991) levels of “greenness” are interchangeable, which social
variable would be the most effective in bridging the egocentric/ecocentric paradigmatic
divide?
As proposed in Chapter 3, the socio-environmental variable of participation, which allows a limited power shift towards local communities, possesses these characteristics. Primarily because genuine community engagement and participation entails direct and immediate controlling powers and is therefore consistent with the traditional managerial approach of risk management as well as with the participatory goals of ecocentrism (Hanna, 1995). Hanna’s theoretical assumptions are supported by the FEKLHAS as well as EEM case. However, prior to a more detailed explanation statements made by a senior BCU manager and an EEM decision-maker clearly show that both companies are driven by techno-economic feasibility, meaning a traditional egocentric paradigm informed BCU and EEM decision-making.

[BCU management]
After all we are running a commercial operation we have to be economically viable and all our decisions have to be commercially justifiable, so there are limits. The implementation committee agreed that such an approach is quite reasonable. We made concessions again and again, but as I said, there are obvious limits and consequently we had to refuse some of their demands (interview data, Si, 3i, 9i, 1999).

[EEM management]
I am not going to hide from you that this is a business and it is quite legitimate for any business to strive for higher profits. The responses of our company and any business for that matter are in many respects predicated by experiences and impacts of the market. At the moment, for example, we are having very bad experiences in the market and are therefore less inclined to compromise, particularly in relation to disputed community issues (interview data, 5i, 1999).

The foregoing statements show that both, the BCU and EEM management use traditional managerial paradigms and techno-economic strategic orientations in their analyses and strategies associated with community engagement. However, the decisive difference is that in the FEKLHAS case the social variable of genuine community participation was added to the traditional managerial paradigm. The data therefore suggest, that the traditional managerial paradigm and genuine community engagement can in certain circumstances, be integrated. This is certainly not the case in the EEM
development, here, case specific deep structure commitments prevented early community engagement, stopped any movement beyond participatory symbolism and excluded the notion of limited power sharing from the vocabulary of the industrial developer.

It is important to remember that community engagement in the FEKLHAS case is driven by a limited power shift towards the local community. This means that, consistent with Hanna (1995), BCU’s inclusive approach forced direct and immediate changes to the FEKLHAS power dynamics. The FEKLHAS data further indicates that this new power structure enhanced the effectiveness of BCU’s risk management responses for three reasons. Firstly, close community involvement provides more accurate insights into changing socio-environmental community values and concerns, thereby assuring effective socio-environmental risk contingency responses. Secondly, BCU’s inclusive approach is largely consistent with the strategies and goals of environmental ecocentrism, therefore thirdly, maintaining close relationships with local communities and their socio-environmental interests. The latter is reflected in the response of a leading local environmentalist.

We were certainly guaranteed the right of participation and a right to a say and in that sense we could and did effect certain improvements\(^6\) with regard to our concerns (interview data, IIG, 1999)

Thus, the FEKLHAS approach in particular shows that genuine community participation and limited case specific power sharing is consistent with the environmental goals of ecocentrism as well as with the traditional management concept of risk management. Consequently, any call for a wholesale shift from traditional

\(^6\) These “certain improvements” included the change of existing development designs, resulting in the construction of a 4.2 km transportation tunnel in favour of a concrete road, linking the mine site and the production facility. The choice of words by the green group representative may be interpreted as a cautious understatement. This is quite understandable since these groups were not accustomed to such a progressive participatory approach, which allowed limited power sharing.
egocentrism to its ecocentric alternative may not deliver the assumed benefits deep green environmentalists hope to achieve. Since radical ecocentrism fundamentally contradicts the worldview of most organisational decision-makers, any limitation to a simple, dualistic paradigmatic choice can be expected to result in sustained resistances rather than movement towards ecocentrism. Therefore, by adding genuine community participation to the traditional paradigm, the boundaries between O’Riordan’s (1991) levels of “greenness” as well as Pearce’s et. al. (1993) paradigmatic quadrants appear no longer impenetrable. It should be noted that the most important point here is that industry/community relations hold the key to bridging the gap between corporate anthropocentrism and ecocentrism. The following statement by the president of a local interest group highlights that the traditional management paradigm in the FEKLHAS case was broad enough to accommodate genuine community engagement and the recognition of community values without changing to the ecocentric paradigm.

They [BCU] really had some problems with our philosophy and our ideas and I really appreciate that they didn’t just dismiss them no, they actually integrated them into the proposal [FEKLHAS project proposal] and all I can do is recommend that other companies act likewise. With FEKLHAS I think we reached a solution that is just about optimal (interview data SoT, IG1, 1999).

This means that the social variable of genuine community participation, as applied in the FEKLHAS case, bridges across paradigmatic boundaries, thereby producing a techno-economic/socio-environmental hybrid, which, as experienced, assures local peace. It furthermore reduced transaction costs associated with long-term conflict and legal battles. Thus, the concept of genuine participation, which includes a limited case specific power transfer towards local communities, provides an effective control mechanism, which is consistent with egocentric risk management as well as ecocentric socio-environmental goals. Consequently, as the FEKLHAS development shows, community engagement, which promotes case specific power sharing, contributed
greatly to an effective social trust relationship between the industrial developer and the local community. It furthermore provided a positive social climate, which formed the basis for the development and maintenance of participatory structures such as the \textit{Coordination Team} and/or the \textit{FEKLHAS Project Commission}.

Conversely, in the EEM case, the insistence on participatory symbolism in favour of genuine community engagement resulted in a negative social climate, suspicion and social distrust. The following analysis of the actual participatory behaviour by the BCU and the EEM developer show how a social climate of trust and/or distrust developed in the FEKLHAS and EEM case.

\textbf{9.5.2 Community participation, social trust and trust behaviour}

As discussed in Chapter 4, in a positive social climate, it is expected that individuals or groups can rely on the actions and behaviour of others, and that promises and statements, either oral or written that are made in a trust relationship are being fulfilled by those who made them (Mayer et al 1995; Rotter, 1980). Conversely, a negative social climate is usually driven by a lack of commitment, technical and socio-environmental incompetence, an uncaring attitude towards dependent communities, and finally, by inconsistent and unpredictable behaviour in relation to community expectations. Consequently, to prevent the emergence of a negative social climate, Kasperson et. al., (1992) identified the following four social trust dimensions as essential for effective trust related behaviour.\footnote{The four trust/behaviour dimensions used in this study have been developed by Kasperson et. al., (1992), but have been modified to fit this analysis.} These are:

\begin{itemize}
  \item Commitment;
  \item Competence;
  \item Caring,
\end{itemize}
• Predicability

9.5.2 (i) Commitment

Kasperson and his colleagues suggest that community perceptions of commitment are primarily based on the belief that industrial developers as well as government agencies act objectively, fairly and openly with a commitment to assure the free flow of accurate information. Furthermore, the industrial developer and government agencies are expected to fulfil their obligations in accordance with agreed societal norms and standards.

It is in this context of basic trust behaviour that the BCU in the FEKLHAS case provided a positive social climate primarily through openness in which social trust developed as a matter of routine. This policy of openness is reflected in this next statement by a FEKLHAS manager

I invited these groups and I openly discussed all the issues and in this way they understood our plans and what we were doing. (interview data, S, 3I, 1999).

A local environmentalist confirms that the company not only assured the free flow of information, but showed also a clear commitment to openness.

The BCU was more open than they had to be. They handled the whole project openly. We did not have the feeling during any phase of the project that we could not access information or could not inspect any part of the project, nothing was hidden from us it was totally open. (interview data, Si, 1IG, 1999).

The EEM data similarly points to some attempts made by the developer to pursue a policy of openness. However, deeply embedded and case specific deep structure commitments prevented such approach as this next response made by a local politician indicates.
I think the company tried to be open, but because of their endemic defensiveness they failed to be open and approachable on certain issues. As a result local landowners responded to this uncertainty with suspicion and distrust (interview data, 9/0, 2000).

This stands in sharp contrast to the FEKLHAS approach to openness, which can be gauged from the following response made by a BCU executive.

I offered them an open door at all times. I said we have an open house here, a ‘glass house’, we have nothing to hide. I invited the greens and the locals to work on the project with me and plan with me (interview data, Si, 3i, 1999).

Although a company view, it is supported by local environmentalists, the local community as well as government agencies, cited extensively throughout Chapter 7. The next statement by a Kantonal public servant also confirms that the developer in the FEKLHAS case actively approached community stakeholders, seeking their input and comments and encouraging locals to participate.

It is not at all the case that all Bündner firms engage the community in their projects, informing them and asking them for their input. They [BCU] actually asked the locals whether there is anything the company might have overlooked. I think the BCU in this way played the role of a forerunner for large projects in Graubünden (interview data, 6GA(i), 1999).

It is almost self explanatory that BCU’s commitment to openness and the free flow of information culminated in the fair treatment of community stakeholders, which in turn resulted in a social climate of trust. It is within this trust environment that the BCU established its Coordination Team in which limited power sharing lead to an even closer trust relationship between the FEKLHAS developer and the local community.

Conversely, a collection of interview excerpts from the EEM case demonstrate deeply entrenched and case specific deep structure commitments, which at best support selective openness and an severely limited information exchange. Different members of
the local farming community affected by the EEM development remember their encounters with government and industry.

[Statement referring to industry]
It took 18 month before we knew that they slapped an exploration lease on our land. We weren’t notified we never got a letter from them saying we will put a mining lease over you property. We found out by accident, I couldn’t believe it. They always said they wanted to be a good neighbour. I know we can’t stop them, but I think it is common decency to say we are going to do it (interview data, 17F 1999).

[Statement referring to government]
We met the Minister in Brisbane [Minister of Mines]. They told us there will be another meeting with the farmers before they grant the leases, so don’t worry. We got off the bus back here 4 o’clock in the morning and the leases were granted the next days, another meeting? what a joke there was no other meeting, they already decided to grant the leases when we were down there [in Brisbane]. We are only country people you know, the leases were granted behind our backs just like that (interview data, 16F, 1999).

[Statement referring the legal system]
We learned that the recommendations of the Warden’s Court can be withheld at the discretion of the Minister.\(^8\) I was bitterly disillusioned at the news, and incredulous that justice could take such a form. I feel there must be something damaging to either the legality of the principle of granting these lease applications or the Warden’s recommendations would not be kept so well hidden (Hansard, Senate, 21 October 1976)

[Statement referring to industry]
I think that there was a build up of a greater feeling of distrust over the years, but I still hope the company will do the right thing eventually (interview data 7F, 1999).

[Statement referring to government agencies]
For the last 4 years or so I followed it more closely and see more and more the effects of the lack of support from these government departments and yes, I have become very distrustful of government departments because of what happened. They are leaning towards mining rather than taking care of us (interview data, 7F, 1999)

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\(^8\) Withholding the Mining Warden’s recommendations is subject to the discretion of the Minister, but is historically rarely invoked. The issue was noted by the opposition in the Queensland Parliament when the Queensland Cement & Lime Company Limited Agreement Bill was presented to the House. The Hon. Mr. Prest, Member of Port Curtis, highlighted the secrecy surrounding that decision. (refer to Hansard 28 September 1977, page 998)
In contrast to the FEKLHAS case where trust development and a positive social climate was the norm, the EEM data illustrates the absence of basic social trust behaviour by either the industrial developer or government agencies. Although the unavoidable prerequisite for a positive social climate government ministers, the industrial developer and government agencies fail to show a genuine commitment to act fairly and openly or assure a free and timely flow of accurate information. Consequently, these stakeholders are perceived by the local farming community as not fulfilling their obligations in accordance with agreed societal norms and standards. This means that stakeholders from industry and government agencies are seen by the local farming community to override their socio-environmental values and concerns in favour of a techno-economic paradigm, which excludes genuine community participation. It is in this context that industry and government stakeholders in the EEM case fall short of complying with the basic trust behaviour dimension of commitment suggested by Kasperson and his colleagues (1992). Whether the industrial developer or government agencies developed a trust behaviour pattern in relation to technical and socio-environmental competency is analysed in the following segment.

9.5.2 (ii) Competence

As participants in social relationships, local communities judge government institutions and industrial organizations in relation to their actions as well as technical and socio-environmental competency. If government agencies, industrial organizations or individuals within them are occasionally wrong, community expectations remain in tact and local communities are most likely to forgive such limited failings. If, however, consistent failures and inadequacies in technical and socio-environmental competencies dominate the social trust relationship, the loss of trust can be expected. Risk managers as well as government institutions must show, or at least be seen, that they are
technically but equally important socially and culturally competent (Mayer et al 1995; Kasperson et. al., (1992).

Throughout the FEKLHAS development technical and socio-environmental competencies have been the cornerstone for BCU’s social trust behaviour. For example, as discussed previously BCU’s management invited locals prior to the inception of the FEKLHAS quarry, informing them about their plans and strategies in relation to the project

I discussed our project with interest groups and community leaders outside this district here, explaining the project and our philosophy. I invited these groups and I openly discussed all the issues and in this way they understood our plans and what were doing. (interview data, S, 3i, 1999).

This statement shows an exceptional foresight in preventing possible local opposition to the proposed FEKLHAS development. It furthermore points to above average risk management competencies, which are inclusive and trust building. This applies equally to the next statement made by one of BCU’s senior managers

Everybody’s ideas and views were considered. We did not simply submit our own work and ideas to the authorities for approval. They were all involved in developing the project proposal and their concerns and ideas are actually part of the proposal (interview data, St. 3i, 1999)

Again, this statement clearly shows an inclusive participatory approach with strong trust building properties based on well-defined risk management competencies. As discussed in Chapter 7 BCU’s trust building behaviour culminated in the establishment of the Coordination Team. An initiative of BCU’s management, it provided the FEKLHAS stakeholders with three distinct advantages. Firstly, it provided a forum for mutual value recognition and legitimisation. Secondly, limited power sharing within the Coordination Team provided the community with a socio-environmental control mechanism. Thirdly,
very early insights into changing community values and concerns in relation to the FEKLHAS project, which emerged from the *Coordination Team*, significantly enhanced the accuracy of risk management decision-making, and thereby the effectiveness of BCU’s socio-environmental contingency responses.

In contrast to BCU’s effective risk management and clear vision of the FEKLHAS project, the EEM development, particularly in the early stages, was seen by locals as being marred by uncertainty and confusion, which can be gauged from the following statements. The first response derived from one of the approving government agencies and the second from a local farmer

[Government agency]
In those very early stages it was difficult to know what effects might be because from my and the departments point of view their proposal wasn’t even completely firm. The developer had four leases and we did not know which lease they were proposing to mine. The developer had no idea what they were going to do, but they didn’t advise anyone either (interview data, 4GA, 1999).

[Local Farmer]
The drilling crews appeared from nowhere and started drilling, we got some information from them, and then the manager arrived and told us something else and we didn’t know what was going on. We couldn’t get an answer from no one, the manager said one thing, the drilling crew had no idea themselves, and the Minister [of Mines] said another thing and the department said nothing (interview data 2F, 1999).

The foregoing statement, although cited earlier, has particular relevance in confirming a state of uncertainty and confusion in the early stages of the EEM development. It highlights a problem that was recognised by the local farming community and the approving government agency, whereby the latter had difficulties in discerning which leases were to be approved for mining. More importantly, these last two interview responses reveal uncertainties, which contradict some basic principles in competent risk management. This means that without clear and refined techno-economic and socio-
environmental strategies, EEM decision-makers could not be expected to provide informed explanations about the company’s philosophy, its plans or long-term strategies in relation to the EEM project. Consequently, the shortcomings in technical and socio-environmental competencies, highlighted by the previous interview data, created a social climate of confusion, suspicion as well as distrust, which not only determined community deep structure choices and strategies, but it also further hardened the unforgiving forces in the community.

Government agencies are equally judged by the local community in relation to their actions and their technical and socio-environmental competency (Kasperson et al., 1992). As discussed earlier, the disagreements between departments in relation to the interpretation of relevant groundwater monitoring data shows, firstly, communication problems between government agencies, and secondly, points to a general system failure. The following response highlights these problems.

> We had the feeling they [the other department] were passing the buck to us, because in the scheme of things our department is not the lead agency (interview data 4GA, 1999).

These differences between government departments, but more importantly, the consequences of these differences namely, uncertain and incomplete information about the extent of water losses by drought or mining activities were perceived by locals as governmental inadequacy and failure. This can be gauged from the next statement made by a local farmer in relation to the water monitoring issue.

> …the government departments really had failed in their supervisory role …we saw ourselves as having been failed (interview data 17F, 1999).

However, according to Kasperson and his colleagues (1992), communities do not forgive or tolerate what they see as consistent failures and inadequacies in technical and
socio-environmental competencies. The perceived shortcomings of government agencies and the developer in relation to the water monitoring issue led to social distrust. The next statement made by a public servant interprets the water monitoring and assessment problem as an issue of community distrust.

The whole monitoring and assessment saga was a major cause of rift between us and the local community (interview data, 4GA, 1999).

Earlier interview responses suggests that government agencies as well as the industrial developer were and are judged by the local community as having not met their responsibilities, particularly with reference to the groundwater monitoring and assessment issue. This perception by the local community significantly adds to a climate of suspicion and distrust. The most effective way to prevent the emergence of an almost irreconcilable community distrust situation, as Hanna (1995) suggests, is a participatory approach. Primarily because genuine community engagement and participation entails direct and immediate controlling powers, not only for the community, but also for the industrial developer.

For example, at one stage in the FEKLHAS development decision-makers feared to “lose control of the situation” (interview data, 3.i CH, 1999), which required a fundamental change in participatory strategy and tactics. As discussed in Chapters 6 and 7 the inclusion of the local community into the FEKLHAS planning and decision-making process was by no means solely driven by corporate altruism, but it was also a straightforward commercial decision. It is important to note, however, that the introduction of participatory structures in the FEKLHAS case was made much easier because of earlier deep structure choices that favoured community engagement. It is in this context that EEM decision-makers neither reached the level of social trust behaviour nor the level of competency as proposed by Kasparsone’s et al (1992).
The next segment is concerned with the social trust dimension of *Caring*, analysing the attitudes and approaches by the industrial developers in the FEKLHAS and EEM case towards dependent individuals and communities. These attitudes and caring behaviours are constantly monitored by local communities and directly determine their contingency responses, which may support or reject a development.

**9.5.2 (iii) Caring**

Particularly important for the development of social trust relationships are public perceptions of a caring attitude towards dependent individuals and communities. Organizations and institutions engaged in industrial developments must be seen by individuals and local communities, which are directly affected by their development, as showing concern for their expectations. A caring attitude and behaviour by industrial organizations and government agencies are important, primarily because their organisational structures exert control and authority over dependent individuals and communities, their well being and their way of life Kasperson et.al., (1992).

In the FEKLHAS case the Bündner Cement Untervaz (BCU) developed and maintained such a caring attitude towards dependent individuals and the local community. This is reflected in the following statement made by a BCU staff member.

> Staff directly discussed their concerns with the big chief and of course relationships were quite personal and these personal relationships also extended to the local community (interview data, H, 4I, 1998).

This response points to a close trust relationship, which is not limited to BCU’s internal staff members, but reaches beyond factory gates into the community. It furthermore suggests a strong deep structure social commitment by the company which went not
unnoticed by the local authorities. A local council representative confirmed the foregoing statement, highlighting BCU’s social commitment.

They [BCU] employed people from the village because they were from here. Again and again people approached them with this or that and were not turned away it was a social service for the population. That is what is probably most highly regarded about this company (interview data, 2LG, 1999).

Kantonal authorities similarly point to a unique relationship between the BCU and locals, as one Kantonal official observed.

The BCU was very open, very conciliatory and fulfilled many additional wishes when people said ‘it would be good if you check variants and other options with regard to mining or transportation’ for example. And quite a number of options were actually re-considered (interview data, 6GA, 1999).

The foregoing statements are just a limited number of interview responses, reflecting a widely held perception about BCU’s social commitment, community engagement and caring attitude, which is reflected in BCU’s participatory structures such as the Coordination Team.

Conversely, decision-makers in the East End Mine (EEM) project seem to selectively exclude the social trust dimension of Caring from the development. This selective exclusion, however, should not be seen as a new phenomenon. It is instead, a deeply entrenched and EEM specific approach to corporate social behaviour, which emerged with the inception of the EEM project in the 1970s. As discussed previously, this social trust behaviour by EEM decision-makers was consolidated by their case specific deep structure choices and commitments. This means that the industrial developer in the EEM case is not seen by locals as showing concern for their expectations. This is particularly the case with respect to the purchasing of properties from local farmers by the industrial developer. There have been amicable and mutually agreed property deals
between the developer and local landowners. However, these limited successes did not result in the development of a more inclusive social trust relationship between the industrial developer and the local community. To the contrary, in the view of the local farming community the conduct of company representatives, entrusted with the negotiating and purchasing of potential properties, greatly damaged the company’s reputation and standing as a caring corporate citizen.

Although generously supporting local artists, sporting clubs and schools the developer’s generosity is perceived by those affected by the development as not being genuine, as indicated in the next statement.

The company knows that we are struggling out here, but they spend big in Tannum Sands, supporting large community projects to secure their sand mining leases. Why don’t they clean up their act up here in Mt Larcom? They seem to have the money (interview data, 14F, 1999)

Similarly, donations supporting Mt Larcom’s civic institutions and projects are equally questioned by the EEM and Bracewell communities for the very same reasons. It is not surprising that the developer’s benevolence is questioned firstly, because of the unresolved socio-economic issues in relation to the EEM controversy and secondly, because, as one farmer said “we have been short changed, we are left out because we have no public relation value” (interview data, 17F, 1999). This means that farmers view the social responsibility to which the EEM developer subscribes as “targeted altruism which offers PR returns” (interview data, 17F, 1999). This is obviously quite different to Kasperson’s et al (1992) request to adopt a caring attitude towards dependent individuals and communities, which means the solving of socio-economic problems with those that are dependent and do not possess any PR value.
The following statements show a perception of dependency and powerlessness among the local farming community. Farmers affected by the EEM development doubt the company’s willingness to adopt an attitude of social responsibility and care towards them. This next response, for example, indicates the difficulties in selling properties in the EEM affected areas and the problems arising there from.

It is difficult for potential buyers to get money from the bank, when they find out the land is in the affected area of the mine the buyers say no and the banks say no (interview data, 14F, 1999).

Driven by exceptionally difficult circumstances one particular landowner attempted unsuccessfully to sell his property. His property was rejected by potential buyers, primarily because of the impacts imposed by the mining operation as for example, receding water levels and an exploration lease on his land. Impacts imposed by the mining operation are not restricted to the EEM water issue as the next statement by an East End Mine Action Group (EEMAG) representative indicates.

Our legal advice is that there is an entitlement if one can demonstrate that the company has injuriously affected a person or persons through impacts associated with the operation not necessarily water only. The…….family fits definitely in this category. (interview data, 17F, 1999)

However, after various unsuccessful attempts to sell the property, pressured by his difficult circumstances and, according to him, injuriously affected by the mining operation he approached the developer, offering his property. His following response indicates a state of desperation rather than unrealistic overpricing.

We approached the company, telling them that we don’t want more than what we paid for it [the property], nothing more nothing less (interview data, 14F, 1999).

In response to the landowner’s proposal two company representatives assessed the offer. The landowner reported the following:
These two fellows came to our property and treated us like we were nothing, not even as the owners of this property. I felt they were totally arrogant and they didn’t want to hear why we couldn’t sell the land. When I noticed some technical inaccuracies in something they said, they started to ignore me and talked to my husband (interview data, 14F, 1999).

Various attempts by EEMAG, to persuade the developer to consider the exceptional circumstances of the family were unsuccessful.

As indicated earlier some fair and successful property settlements to the satisfaction of both the company and the landowners have certainly been made. However, a local political leader close to the EEM case said to the issue of fair settlements,

There are a couple that actually sold to the company close to their primary leases. They are in the minority they are certainly not in the majority (interview data, 9/0, 2000).

The same respondent suggest further that the majority of landowners

…feel isolated and targeted by the company, and this is what has been told to me, these are the ones that are more vulnerable, the ones that are older, the ones that are on their own and the ones that have been ill. Offers are made with the proviso that: remember we will not be back to talk to you about it if you reject it and they are required to retain confidentiality. They feel very much that they are isolated and targeted rather than dealt with as a community as a whole (interview data 9/0, 2000).

It should be noted that a significant number of landowners are advanced in years and that the age balance of the local population, affected by the EEM development, shows a greater proportion of elderly citizen. Consequently, the assumed targeting of this age group might not be deliberate, but rather a proportional problem.

Other interview responses include:

I particularly remember a lady living closest to the mine. She came to me one day she hadn’t long lost her husband. He died from an
unexpected massive heart attack. She was on her own trying to run bores and stock. She got a letter from the company that was absolutely atrocious. It said that ‘the company has accepted responsibility for anyone who was injuriously affected, however on review you are not one of those who are injuriously affected’. She lives next door to the mine. She was beside herself (interview data, 9/0, 2000).

When a key manager in the company was presented with these comments, he expressed personal concern and understanding. However, as a representative of the company he had the following response, which demonstrates the systematic nature of the issue. The response of this company representative is presented in two parts, but derives from the same interview.

[Part 1]
Legally we have done nothing wrong. Now legally we have done the right thing, assuming the company never does anything illegal, knowingly. Really the bottom line is that we have affected these people for 20 years and we are still affecting them. I think they have a case.

[Part 2]
I do believe we could manage the East End situation better by being more proactive. We should be truly proactive, looking beyond our legal defences and stop thinking reactive. We continue to hide behind our legal defences, and that way of thinking is still very strong (Part 1&2, interview data, 3.i, 1999).

The data used in this segment is only a very small part of the voluminous material collected for this analysis. However, a close examination reveals that industry and government agencies engaged in the EEM development are not seen by individuals and local farmers as showing concern for their expectations.

The final segment under this sub-heading sets out to establish whether industry or government agencies contribute to the development of a social trust relationship by pursuing the basic trust behaviour of consistency and predictability.
9.5.2 (iv) Predictability

As established previously the successful development of social trust relationships depends largely on the fulfilment of community expectations. If industrial organizations and/or government institutions consistently act contrary to those having these expectations, distrust is most likely to follow. Predictability and consistency in organisational behaviour in fulfilling community expectations, however, must remain fluid. This state of flux is necessary to allow the inclusion of new insights and changed value orientations into decision-making processes. Any response by industrial organizations and government agencies to newly emerging techno-economic or socio-environmental information, however, should be consistent with general societal value and belief systems.

In the FEKLHAS case the consideration of community concerns and the acceptance of changing socio-environmental insights aligned community and company expectation. It furthermore, added fluidity to the company/community relationship, which was a primary factor in the FEKLHAS case, but not in the EEM development. The alignment of industry and community goals was primarily achieved under the auspices of BCU’s participatory structures such as the Coordination Team and the monitoring body of the FEKLHAS Project Commission. In January 1999 future members of the Commission such as local interest groups, community representatives and environmentalists were invited by the Untervaz council to comment on an official constitution for the FEKLHAS Project Commission in which terms of reference, obligations and duties were to be specified. In March 1999 the Untervaz council executive officially approved and
instituted the constitution or *Reglement* and *Pflichtenheft*. It requires the FEKLHAS *Project Commission* to:

1. Monitor, supervise and control the implementation of the FEKLHAS project in compliance with Federal, Kantonal as well as local council and community requirements.
2. Appoint an independent ecologist to advise the Commission throughout the FEKLHAS project.
3. Instruct the appointed ecological expert to develop a detailed program of ecological measures, which are to guide the deforestation, mining and rehabilitation phases of the project.
4. Before approving the next project phase, examine whether the preceding phase has been concluded within the construction and deforestation guidelines and present the examination results to the Untervaz council executive for approval.
5. Assure the attendance of at least one Commission member representing the interests of the Untervaz community at the annual FEKLHAS project inspections.
6. Develop appropriate rehabilitation measures and contingency plans, which are to be implemented in the event of the premature closure of the FEKLHAS quarries.
7. Assure the modification of the FEKLHAS concept in response to changing circumstances and new insights, as long as such adjustments are ecologically sensible and technically and economically possible.
8. Officially report to the Untervaz council executive at least once a year.

(Gemeinde Untervaz, 1999a)

Conversely, the constituted participatory approach in the FEKLHAS case, which largely assured the fulfilment of community expectations, EEM stakeholders were denied genuine community participation.

As discussed in Chapter 8 the now defunct Community Liaison Group (CLG), established in response of the Environmental Management Plan requirements, was never designed to be a genuine participatory forum. This means that the CLG was not sufficiently equipped to provide an effective participatory medium of power sharing, voting rights, specific responsibilities and obligation for its members. These basic

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*Translated from the German *Reglement* and *Pflichtenheft* means: Regulations and Responsibilities*
participatory features were not considered by the CLG’s founding fathers. Consequently, in the EEM case no community control mechanism could assure a consistent and predictable behaviour of the industrial developer. Participants reported that since the CLG was not a genuine participatory forum it was often used by participating stakeholders as a “political platform, justifying their respective positions and at times, even pressuring other participants into submission” (research/interview data K/LO,1, 2001). The following confidential interview data illustrates the political and unpredictable nature of EEM stakeholder meetings.  

In one of the more critical stakeholder meetings a participant approached the minute taker after the meeting with a request to delete a vital passage in which an important and substantial commitment was made to the community. It should be noted that the request was not aimed at the usual minor corrections of minutes, but at the deletion of every word referring to the commitment. However, the request was refused, forcing the adherence to and final fulfilment of the commitment (taken from interview data, K/LO, 2000).

As indicated above social trust relationships depend largely on balancing industry and community goals, thereby meeting expectations. The foregoing, however, shows not only some disregard for community expectations, but it also reflects the unpredictable behaviour of important stakeholders in the EEM case, which, as discussed earlier, resulted in mutual suspicion and community distrust.

Predictability and consistency in organisational behaviour that culminates in the fulfilment of community expectations is a basic prerequisite for the successful establishment of social trust relationships. In the FEKLHAS case participatory guidelines constituted in the Pflichtenheft assured predictable behaviour of the industrial developer and/or government agencies, primarily because stakeholders are bound by

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10 To assure confidentiality, the actual interview response has been paraphrased by the author of this thesis. However, it maintains and reflects the true meaning of the original interview text.
constituted guidelines and mutually agreed decision that were made in the framework of these guidelines. Conversely, not bound by constituted guidelines stakeholders in the EEM case were relatively free to change their commitments to mutually accepted informal agreements. Consequently, EEM decision-makers interpret predictable trust behaviour, as understood by Kasperson’s and his colleagues (1992), rather differently.

It seems to be characteristic of the company’s interaction with the community. The company on a number of occasions made agreements and then didn’t carry through with these agreements. We had a big public meeting where some strategies were mutually agreed. I chaired that meeting so I know what was said, and I think it was two days later and that strategy was totally abandoned by the company without notifying anyone (interview data, 9/0, 2000).

This observation made by a government representative illustrates problems of predictability upon which trust is based. As indicated earlier, changes in strategy and contingency responses may be justified, but only if they are driven by newly emerging techno-economic or socio-environmental insights, which are consistent with general societal value and belief systems. Comparing the EEM stakeholder relationships, there was no participatory forum in which such new insights could be mutually agreed upon and then changed into new strategies and tactics, which was routine in the FEKLHAS partnerships.

As discussed previously a farmer’s delegation from the East End and Bracewell communities reported meeting with a government minister who personally assumed that leases will not be granted to the developer without further consultation with the farming community. The following statement by one of the delegates illustrates why predictability is an important dimension of trust and community expectations.

….. Another meeting, what a joke there was no other meeting they already decided to grant the leases when we were down there [in Brisbane]. We are only country people you know, the leases were granted behind our backs just like that (interview data, 16F, 1999).
However, EEM decision-makers from industry and government agencies were equally frustrated with, as they perceived it, “unpredictable behaviour and constantly changing goal posts” (interview data, Ri/notes. 2000). This approach taken by the farmer’s representative body, EEMAG, was also referred to as, “EEMAG’s elastic agenda”. According to industry and government decision-makers such unpredictable behaviour by the farmer’s interest group as well as by other local individuals was seen by them as affecting their trust in the community.

The following and final statement is another example, which, from the local community group’s perspective, affected their trust in the EEM decision-makers. EEMAG, representing local farmers and those affected by the EEM development, commissioned a hydrological report with a hydrologist in Brisbane. According to EEMAG their consultant was approach by a government department to delay the publication of his report to accommodate the department. A government official has confirmed this incident as can be gauged from this next statement.

A department contacted the consultant and there was an agreement between the department and EEMAG’s consultant that he would delay his report to the benefit of the department, and I believe breached at least confidence with the contractor, which was EEMAG (interview data, 9/0, 2000).

This statement points to a number of issues which are inconsistent with predictable social trust behaviour as suggested by Kasperson and his colleagues (1992). Firstly, there is the unpredictable behaviour of the government department as well as that of EEMAG’s hydrological consultant. Secondly, the delay of the report disadvantaged EEMAG’s position and thereby its constituency. Thirdly, the actions of the agency and the consultant contributed greatly to community distrust and fourthly, community expectations in relation to the integrity of government agencies and members of the
professions have not been met. Although directed towards a government department and a professional individual, it nevertheless entails an underlying, wider distrust of a system that allows individuals from government agencies, industry and the professions to behave in unpredictable untrustworthy ways. As Kasperson and his colleagues (1992) suggest if industrial organizations and/or government institutions consistently fail to meet expectations, distrust is most likely to follow and any restoration of lost trust relationships is difficult to achieve.

9.6 Summary

Six primary events emerged from the study of the East End Mine development (EEM), which proved to be the main contributors to mutual distrust. These events led the community to distrust industry, government officials and agencies, while EEM decision-makers showed little trust in EEMAG and the community it represents. Listed earlier in this Chapter, these six events have been chosen for analysis because they are repeatedly present in the data and stakeholders in the EEM controversy refer to them with notable consistency. Since this study uses a comparative spatial analysis, meaning that the collected data is analysed across the global/local divide, the following three determinants, which drive the FEKLHAS participatory success in Switzerland, have been selected as the positive example for this analysis. These are:

1. The mutual legitimization of stakeholder value and belief systems
2. Pro socio-environmental deep structure histories and strategies in relation to community concerns
3. Community participation, social trust and trust behaviour
Thus, the most prominent participatory issues that emerged from the six primary events in the EEM case have been comparatively analysed by linking them to the three positive examples that support the FEKLHAS participatory success.

The mutual legitimization of stakeholder value and belief systems

The East End Mine data demonstrates that decision-makers from industry and government agencies assigned a higher priority to techno-economic reasoning than to the socio-environmental value and belief systems of the local community. Although cognisant of community values and socio-environmental concerns, stakeholders in industry and government did not provide a climate of social trust in which techno-economic and social value positions could be mutually accepted and aligned. This resulted in a highly fluid situation in which stakeholders from all sides had to adjust to changes in the behaviour of others, which was often seen as unpredictable. This behavioural fluidity and the absence of social trust is explained by the general social trust literature as the failure to acknowledge trust as a key element for cooperation and participation in economic activities (Korczynski, 2000; Bradbury et al, 1999). This clearly applies to the EEM decision-makers from industry and government agencies, subscribing to techno-economic deep structure choices, which largely exclude socio-environmental community issues. Consequently, the developer adopted a policy of minimum compliance to regulation, which, as the data suggests, was sanctioned by the involved government agencies. Interview responses from industry practitioners indicate that the minimum compliance strategy was perceived by the developer as a cost effective remedy to correct possible lapses in community cooperation. Community engagement and a project specific power shift, on the other hand, were dismissed as too costly and time consuming.
Consistent with the literature (see Korczynski (2000), the data demonstrates that this neo-classical management approach by EEM decision-makers could only be maintained, because of its limiting assumptions regarding human motivations. This means that decision-makers from industry and government agencies maintained their techno-economic preferences despite the fact that the drivers of the dispute are predominantly socio-cultural. These social and cultural motivators, which this thesis traced back to early settlement, informed the early deep structure commitments and contingency responses of the East End/Bracewell farming communities. These contingency responses are now applied by farmers in an effort to defend long established social, cultural, economic and political community structures and thereby their accustomed way of life. However, EEM decision-makers continue to dismiss social and cultural community concerns as of lesser importance in solving the EEM controversy, thereby prolonging the dispute. Consequently, the data in Chapters 8 and 9 demonstrate that the exclusion of socio-cultural community concerns from the EEM problem solving process results in unpredictable social behaviour by all stakeholders, it de-stabilises industry/community relationships and greatly contributes to mutual suspicion and social distrust.

The FEKLHAS experience, on the other hand, shows that participatory structures such as the Coordination Team and the FEKLHAS Project Commission acted as stabilising factors. This means that these participatory forums support and confirm the theoretical assumptions of Williamson (2001), which suggest that genuine participation reduces the need to monitor the actions and behaviour of other stakeholders. The FEKLHAS data clearly shows that moving beyond minimum compliance actually increased cooperation, reduced negotiation costs and encouraged the balancing of community and industry goals.
It is with reference to the mutual acceptance and alignment of different stakeholder value positions where the EEM data most strongly highlights the differences between the FEKLHAS and EEM participatory approach. From the EEM data three primary determinants emerged, which contributed greatly to an ongoing state of social distrust, which in turn prevented the development of a participatory forum and the mutual acceptance and alignment of the different stakeholder value positions.

The first determinant is linked to the exclusion of community values from the planning and decision-making process and the limited flow of information. The EEM data indicates that particularly the absence of correct and timely information led to a highly charged atmosphere of mutual suspicion and social distrust. The emerging question is what are the origins of the EEM management approach that severely restricted openness and transparency and significantly limited information exchange?

As discussed in Chapter 3, community and corporate value positions are intrinsically linked to social, cultural, economic and political complexities and to the socio-political system in which they occur (Habermas, 1976; Kekes, 1993). This means that the selection and legitimisation process of community and corporate values is driven by the dominant ideology in an attempt to assure its validity claims. The consequences of validating dominant norms, Habermas suggests, are continuous. This means that strategic choices that are based on previous dominant ideological norms, which can be expected to guide future communication and decision-making structures.

Consequently, based on the data in chapters 8 and 9 this thesis argues, that the ideological norms that dominated socio-political and techno-economic thinking at the inception of the East End Mine (EEM), still inform EEM specific decision-making.
Habermas’s notion of the continuous validation of previous dominant ideological norms is consistent with the East End Mine specific deep structure commitments of current ministers, their agencies and the developer. This means that the previous socio-political ideology of secrecy and exclusive techno-economic reasoning, which dominated the 1970s and thereby the East End Mine decision-makers of the day, has been handed down from one generation of managers to the next to avoid EEM specific legal exposure.

The second determinant is related to an unrealistic faith in a techno-economic fix by the industrial developer, government agencies as well as local groups, which effectively excludes socio-environmental community values from the EEM controversy. This preference for a technical fix did not provide a definite answer to the EEM controversy. Instead, the constant call for a technical solution, while excluding the social drivers of the dispute, even further entrenched community distrust, which in turn prevents the mutual acceptance and alignment of the techno-economic and socio-environmental goals of EEM stakeholders.

It has been argued in Chapter 3, that the dominant political paradigm defines the environment, decides what constitutes a problem and decrees whether the problem poses a threat to that environment (Greider and Gerkovich, 1994). Against this background, disputes about industrial development are to be seen as a contest between the values held by people affected by development and the wider political and economic priorities of the dominant ideology. Such disputes, which includes the EEM controversy, have very little to do with expert interpretations of techno-environmental problems. Instead, as experienced in the EEM case, stakeholders from either side of the
dispute use technical expertise as a ready political tool to legitimise their value claims, as well as to control the terms of the debate.

Conversely, as the EEM data in Chapter 9 indicates and as expected by Cozzens’s and Woodhouse’s (1995), industry and government experts fail to acknowledge the political nature of their work and its inherent link to industry and government power relations and funding priorities. The research data presented in this Chapter demonstrates further that EEM experts have been drawn into the socio-cultural and political sphere of the dispute and are exposed to social manipulation and political control. It is in this context that the EEM dispute goes beyond technical reasoning and a simple technical fix. The EEM issue is driven to a significant extent by socially determined factors and is therefore based on the intrinsic environmental, socio-cultural and economic worth of the East End/Bracewell area. Such intrinsic worth cannot be determined by techno-economic or geo-hydrological interpretations alone. Instead, it has to be determined by the values held by those whose lives are affected by the industrial development (Harding, 1998).

The third determinant points to industry and government stakeholders who underestimate the importance and the role that socio-environmental community values play in industry/community trust relationships. The primary reason for misinterpreting social trust issue in the EEM case lies in an overemphasised trust in technical solutions.

The EEM data presented in Chapter 9 indicates, that technical summaries and conclusions that refer to local geo-hydrological problems are occasionally not seen as what they really are namely, a very limited attempt to solve a technical problem in a complex socio-cultural, political and historical setting. Consequently, since these social,
political and cultural complexities are largely misunderstood by technical experts as well as by industry and government practitioners they are usually ignored (Harding, 1998). As experienced in the EEM controversy and as expected by Harding, the reliance on expert opinion and solutions that exclude social, cultural and political complexities resulted in an ongoing dispute that is increasingly difficult to resolve.

Underestimating the importance of socio-environmental community values in relation to the EEM controversy is not limited to industry practitioners and government agencies. Government legal officials equally misinterpret the importance of socio-environmental community values and concerns. The 1976 Mining Warden recommendations may serve as an example for such misinterpretation. As listed previously, eight of a larger number of community concerns presented to the Warden were judged to be “matters of a personal nature”. This thesis argues that these “personal” matters represent clearly wider socio-cultural, socio-economic and political community concerns, driven by long established deep structure value and belief systems of the East End and Bracewell communities. However, the Warden was acting in accord with government principles, guidelines and regulations. This means that the Warden, like his government agency counterparts, is limited by these guidelines. Consequently, the refusal by EEM decision-makers to include socio-environmental community values into the planning and decision-making process must be seen as a wider system failure. This means that the organisational and institutional systems failed to incorporate and seriously consider basic dimensions of community values and behaviour.

*Strategic orientations and managerial paradigms*

The EEM data shows that socio-environmental community values and concerns remain outside the scope of EEM planning and decision-making. This raises the question whether industry and government stakeholders in the EEM case need to move from a
traditional anthropocentric management paradigm to its ecocentric alternative. As indicated previously such paradigmatic shift may not produce the benefits that the proponents of ecocentrism expect. This is because egocentrism fundamentally contradicts traditional managerial paradigms. Consequently, managers can be expected to reject such a radical transformation and support sustained resistance rather than movement towards an ecocentric paradigm. This means that traditional managerial paradigms should have the capacity to, firstly, include socio-environmental variables such as community participation and, secondly, introduce a limited, case specific power shift towards local communities. As experienced in the FEKLHAS case, these factors were routinely considered as a consequence of the strategic partnership between the developer and the local community.

As proposed in Chapter 3 the socio-environmental variable of genuine community engagement possesses such attributes. According to Hanna (1995), Fung and Wright (2004) and Hoppe et al (2005), genuine community participation entails direct and immediate controlling powers and is therefore consistent with traditional risk management and the goals of participatory ecocentrism. This means that firstly, risk managers can more accurately interpret changes in community perceptions and value positions; secondly, provide effective socio-environmental contingency responses; and thirdly, environmentalist as well as community representatives are taken beyond participatory symbolism by being involved in the early planning and decision-making.

The FEKLHAS data in Chapters 6 and 7 clearly points to the mutual benefits that genuine community participation offers. It also supports Hanna’s (1995) theoretical assumptions that traditional management paradigms are broad enough to allow a limited, case specific power shift and to genuinely include local communities without a
wholesale paradigm shift. The FEKLHAS data is very clear on this point that by adding the social variable of community participation to the traditional management paradigm O’Riordan’s (1991) different levels of “greenness” as well as Pearce’s et al. (1993) boundaries between their paradigmatic quadrants are no longer impenetrable. Thus, the social variable of community participation as applied in the FEKLHAS case firstly, bridges across O’Riordan’s as well as Pearce’s et al paradigmatic boundaries secondly, it produces a techno-economic/socio-environmental paradigmatic hybrid thereby thirdly, assures local peace. However, in the EEM case, genuine community engagement was outside the traditional managerial paradigm to which the industrial developer and government agencies subscribed. The exclusion of social variables per se from the EEM controversy points to a persistent and EEM specific systemic problem. The main reasons for this persistence are EEM specific deep structure choices and commitments, which prevent any paradigmatic changes or more precisely, the inclusion of socio-environmental variables. This results in the further consolidation of participatory symbolism and a social climate of social distrust and suspicion.

Community participation, social trust and trust behaviour

The primary determinants of a positive social climate in large industrial developments are the attitudes, actions and social behaviour of the developer, government authorities as well as local community and other groups seen as NGO’s. To maintain an inclusive and positive social climate requires the industrial developer as well as government agencies to act objectively, fairly and openly with a view to fulfil their socio-environmental obligations (Brockner, 2002). This certainly applies to all the parties involved in local controversies. The question is what type of decision-making structure would promote such behaviour by all parties? As experienced in the FEKLHAS case the management of the Bündner Cement Untervaz (BCU) conformed to Brockner’s basic
trust behaviours of objectivity, fairness and openness which included the timely dissemination of accurate information to community stakeholders. This commitment to positive trust behaviour not only provided a climate of social trust, but also resulted in the establishment of participatory structures such as the Coordination Team and the FEKLHAS Project Commission. This unique commitment to openness and inclusion by the BCU moves significantly beyond accustomed practices in community engagement. It furthermore conforms to Kasperson’s et al. (1992) basic social trust behaviours of commitment, competence, caring and predictability.

Conversely, in the EEM case deeply entrenched and case specific deep structure commitments largely prevented a social behaviour of openness, thereby supporting only a severely limited and slow process of information exchange. The EEM data indicates that this restrictive managerial approach to communication significantly increased the complexity of the social relationship between industry, government agencies and the local community, thereby further complicating negotiations between experts and community groups. In the FEKLHAS case, on the other hand, a policy of openness, inclusion and social trust simplified cooperation, reduced negotiation costs and created mutual social obligations which stakeholders agreed to honour. It is in this context that openness and trust act as a medium for communication, which, as Luhmann (1988) and Bradbury et al, (1999) suggest, significantly reduces complexity in industry/community readerships. Early and Cvetkovich (1999) similarly point to social trust as a simplifying strategy, which enables individuals to adapt to complex social environments, thereby benefiting from increased social opportunities, manifest in the FEKLHAS Coordination Team and Project Commission.
Consequently, the FEKLHAS experience confirms Bradbury’s et al (1999) notion that trust-based strategies enable stakeholders to negotiate value differences and address factual uncertainties thereby transforming conflict into consensus. Furthermore, industry and government stakeholders are seen by the local community as fulfilling their social obligations in accordance with agreed societal norms.

As discussed in Chapter 4, the literature on ‘trust’ also refers to the social trust behaviour of competence. This requires techno-economic and socio-environmental competent actions and behaviours by industry and government decision-makers (Kasperson et al (1992). Competent social trust behaviour, Kasperson and his colleagues argue further, is particularly important because local communities judge industrial developers and government agencies in relation to their actions and actual trust behaviour. As previously indicated the absence of clearly defined development strategies in the early stages of the EEM project led to a state of uncertainty and confusion. This, as the data suggests, was not only observed by the local community, but also by the approving government agency, consequently, community and government agency judgements about the competency of the industrial developer were intensely critical. However, such criticism was equally applied by the EEM developer, questioning the technical competency of local stakeholders and their experts.

Industry and government agency competencies were particularly questioned by the local community in relation to the collection and interpretation of the EEM groundwater monitoring data. Here, a systemic decision-making structure of uncertainty and confusion led to accusations of incompetence by community stakeholders. As Kasperson and his colleagues (1992) suggest, local communities do not forgive or tolerate consistent failures and inadequacies in technical or socio-environmental
competencies, as experienced in the EEM monitoring data collection. Consequently, a further loss of social trust in the EEM case occurred, from which recovery cannot be expected in the foreseeable future.

Finally, important for the successful development and maintenance of social trust relationships are public perceptions of a caring attitude and the predictable behaviour in relation to dependent individuals and local communities (Kasperson et al. 1992; Brockner, 2002). The EEM data points to significant discrepancies between a caring attitude and the actual behaviours of the industrial developer and government agencies. Moreover, a detailed examination of the data reveals that industry and government agencies are not seen by dependent individuals and/or the wider farming community as showing concerns for their expectations. Instead, the community views the actual behaviours of industry and government stakeholders as not conducive to the wellbeing or the way of life of the East End and Bracewell communities. It is in this context that the industrial developer in the EEM case as well as the involved government agencies must accept fundamental change in their EEM specific attitudes to rebuild a sustainable social trust relationship with the local community.

As discussed earlier, successful social trust relationships depend largely on meeting expectations. However, if these expectations are repeatedly ignored and not being met then the loss of social trust is most likely to follow, social trust in such circumstances is very difficult to restore (Brockner, 2002). Equally important in the fulfilment of community expectations are the trust behaviours of predictability and consistency (Kasperson et al. 1992). These trust dimensions are largely absent in the EEM development. For example, participatory structures such as the Community Liaison Group (CLG) lacked participatory features such as quorum voting right or power
sharing. Instead, the CLG was used by its participants as political platform to justify their respective positions. Moreover, as the EEM data demonstrates the CLG never evolved beyond a political forum, utilised by stakeholders to justify and consolidate their position. Not bound by constituted guidelines all participants in the CLG could and did change their commitments and mutually accepted largely informal agreements. The data confirms that this unpredictable behaviour is not limited to the CLG, but extends to the overall behaviour of stakeholders in the EEM case. Consequently, such unpredictable social trust behaviour by EEM stakeholders, which this thesis traced back to the inception of the EEM, prevented consistently the meeting of stakeholder expectation, thereby contributing to a social climate of distrust and suspicion.

The following and final Chapter of this thesis offers a conclusive comparative analysis, which examines the primary differences between social climates, participatory structures and community engagement, deep structure choices and strategies and the actual social trust behaviour of the decision-makers in the FEKLHAS and EEM case and the consequences thereof.
Chapter 10

Summary and Conclusion

10.1 Introduction

This final chapter begins with a summary of various organisational change theories, which have been selected as the most appropriate for this thesis. Based on these theories a synergistic theoretical approach has been developed to study organisational structures and substructures in relation to industry/community relationships and community participation in large industrial developments. This theoretical approach is also used to study the deep structure choices of industry and government agencies that exclude community participation from environmental and resource management.

The Chapter proceeds by applying this theoretical approach to comparatively analyse the two case studies of this thesis, the Swiss FEKLHAS\(^1\) limestone quarry development and the East End Mine (EEM) quarry project in Queensland, Australia. In this comparative analysis and throughout this concluding Chapter particular emphasis is placed on the implications that emerge from this thesis, primarily for:

- The general organisational change literature;
- Participatory research; and
- Future models of community participation.

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\(^{1}\) FEKLHAS is the German acronym for the existing FEenza quarry in Untervaz, Switzerland and the newly added limestone reserves of the Kleine Fenza and HASelboden, hence the project name FEKLHAS. The combined mining capacity of the development is estimated to reach at least 20 million cubic meters.

The East End Mine (EEM) limestone deposits, situated in East End, Central Queensland are estimated to hold approximately 100 years of material. These two developments have been chosen by this thesis because of their significant long-term socio-environmental impact on the local host communities.
10.2 Merging organisational change paradigms

10.2.1 Combining the social variable of project specific power sharing with the traditional environmental and resource management paradigm

The primary aim of organisational change theory is to explain the complexities of organisational change processes, to examine the reasons why organisations change, and to analyse the multiple outcomes and consequences of these changes. In answering these questions organisational change is primarily analysed by business scholars in relation to competition, product development and innovation, which are generally accepted to be the main drivers of change (Eisenhardt and Tabrizi, 1995). Sociologists also tend to consider these factors, but focus more on institutional/organisational relations. Expanding on the predominantly techno-economic change factors, this thesis introduced social, cultural, economic and political change motivators and most importantly, added the social variables of community participation and project specific power sharing and project specific deep structure commitments to the organisational change analysis.

Community engagement that includes a limited, project specific power shift as well as project specific voting rights for those affected by development cannot be found in the organisational change literature. Instead, in their analyses of organisational change, particularly in relation to large industrial developments, some scholars suggest, that ecocentrism should serve as the basis for critically scrutinising organisational egocentrism, thereby assuring fundamental paradigmatic change (Shrivastava 1996). Others argue that ecological concerns cannot be successfully integrated into business operations, unless corporations agree to shift from the egocentric paradigm to its
ecocentric alternative (Irwin and Hooper, 1992; Shrivastava and Scott, 1992, 1996; Starik and Rands, 1995). Similarly, Gladwin et al, (1996) view corporate practices as being firmly embedded in a thoroughly egocentric paradigm. Thus, requesting a decisive shift away from corporate egocentrism toward a more ecologically moral conscience. Gladwin and his colleagues expect that this new ecological morality will more properly guide future organisational behaviour.

It is against this background that this thesis argues that most researchers in this field develop and analyse strategies for the "greening" of industry, without considering the social variables of limited, project specific power sharing and project specific voting rights as proposed and applied by this thesis. From integrating these social variables into the analysis three primary implications for the organisational change literature emerge.

Firstly, it confirms Hanna’s (1995) theoretical assumptions about the concept of community engagement and its inclusion into the traditional management paradigm and risk management. Genuine community participation, Hanna argues, provides a powerful counter to the traditional egocentric management paradigm, thereby significantly reducing the danger of irresponsible industrial development.

Secondly, in contrast to Pearce et al, (1993) and O’Riordan (1991), this thesis found that community engagement, but more importantly, project specific power sharing and voting right penetrate paradigmatic boundaries and more effectively alter the traditional management paradigm. This means that a wholesale paradigm shift towards an assumed “greener” ecocentric management position is less effective because it fundamentally contradicts the worldview of organisational decision-makers.
Thirdly, extending Hanna’s (1995) argument on community engagement, the participatory managerial approach in the FEKLHAS case demonstrates that that the traditional managerial paradigm is broad enough to accommodate and fully absorb a limited, project specific power shift towards those affected by development. This thesis found that project specific power sharing and project specific voting rights are consistent with the traditional management and risk management paradigms as well as with the socio-environmental goals of local communities and local interests groups.

*Implications for the organisational change literature*

For the organisational change literature this means that a simple polarisation between egocentrism and ecocentrism cannot be sustained. As the FEKLHAS case demonstrates there can be a successful balance between corporate egocentric views and ecocentrism. Consequently, this approach did not require the establishment of a grand eco / ego synthesis or a fundamental paradigmatic shift from the traditional management approach to its ecocentric alternative. Instead, when project specific power sharing is added to the traditional management paradigm, then the egocentrism/ecocentrism boundary is bridged. This means that eco and egocentric worldviews are neither mutually exclusive nor is ecocentrism an irreplaceable prerequisite for organisational change and responsible socio-environmental behaviour in large industrial development. Therefore, neither fundamental changes to the traditional management paradigm nor a wholesale paradigmatic shift towards an ecocentric alternative are necessary, because a limited, project specific power shift is consistent with traditional risk management as well as with the goals of participatory ecocentrism.

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2 As discussed in chapter one this thesis defines the term socio-environmental as including the social, cultural, economic and political environments as well as the natural environment.
Implications for participatory research

When studying the participatory capacity of an organisational structure and its local substructures, research is most effective by focussing on the socio-environmental deep structure history of the organisation under study. Both case studies of this thesis indicate that early deep structure choices are made at the inception of a new development and may either favour community engagement, as experienced in the FEKHLHAS case or, as the EEM case shows, reject participation. Confirming Gersick’s (1991) theoretical assumptions, this thesis shows that deep structure commitments and strategies are indeed highly inertial, and as both case studies indicate, are passed on from one generation of managers to the next.

Consequently, the study of organisational deep structure histories is particularly effective in highlighting a) the origins of accepting or rejecting participation, b) the history of socio-environmental and participatory contingency responses by the industrial developer, c) the reasons for particular, project specific social trust behaviours of project decision-makers from industry and government agencies, and finally d) it exposes an organisations capacity to include local communities into their planning and decision-making process.

10.2.2 Merging the concept of project specific deep structure commitments with the punctuated equilibrium paradigm and social trust

In Chapters 3 and 9 this thesis points to another important organisational change motivator, the discontinuation of resource availability. As outlined earlier proponents of the punctuated equilibrium paradigm believe that organizations and their activities...
evolve through relatively long convergent periods of stability or equilibrium which are punctuated by fundamental external perturbations, as for example, sudden limitations in resource availability, then deep structures and its core values are altered (Tushman and Romanelli, 1985, Wake, Roth and Wake, 1983, Gersick, 1991). However, this thesis found that such alterations did not occur in both, the East End Mine (EEM) and the FEKLHAS case. Instead, a new phenomenon emerged in both cases, which this thesis calls project specific deep structure commitments. This means that although fundamental changes in environmental and socio-environmental policy were progressively introduced into the Swiss and Queensland organisational structures, project specific deep structure commitments remained unchanged.

Therefore, this thesis argues that organisational structures are capable of isolating change, thereby assuring stability, while maintaining earlier deep structure choices and strategies that are exclusive to specifically critical or controversial developments. In contrast to the punctuated equilibrium literature this thesis found that even drastic punctuating events such as the discontinuation of resource availability, as experienced in both case studies, do not necessarily result in fundamental deep structure change affecting the entire organisational structure. The EEM and FEKLHAS data clearly shows that project specific deep structure commitments are capable of preventing fundamental change in socio-environmental and participatory policy locally; thereby isolating the local organisational substructure from the core organisational structure as well as from the punctuating change processes. It is against this background that this thesis suggests that organisational deep structure forces associated with incremental change are more compatible with the punctuated equilibrium idea than previously considered.
Particularly in the EEM development project specific deep structure commitments continue to prevent the development of a participatory forum in which socio-environmental community values could be aligned with the techno-economic goals of the industrial developer. As experienced in the FEKLHAS case participatory structures such as the Coordination Team and the FEKLHAS Project Commission successfully balanced community interest with those of the developer. This led to a special industry/community relationship in which social trust is developed as a matter of routine, while the continuous exclusion of community stakeholders in the EEM case contributes to community distrust. This lack of community trust increasingly frustrates the industrial developer and government agencies, because it reduces the effectiveness of their contingency responses, which in turn increases public distrust. Ruckelshaus (1996:2) called this cycle of mutual distrust a “vicious and descending dread spiral”, which prevents the development of social trust relationships and lasting mutually beneficial agreements.

**Implications for the organisational change literature**

The punctuated equilibrium literature views the abrupt discontinuation in equilibrium not only as revolutionary change but also as the beginning of new periods of stability (Gersick, 1991; Tushman and Romanelli, 1985). Conversely, this thesis argues that project specific deep structure commitments, as experienced in the EEM case, are deeply embedded strategic choices, which maintain equilibrium at the substructure level, while isolating these substructures from core organisational change. For example, organisations may accept new socio-environmental insights at the core level and revise their policies accordingly. Substructures at the local level, however, particularly when engaged in controversial developments, are most likely to reject these policies to avoid possible legal exposure. The acceptance or rejection of these new socio-environmental
insights and policies is therefore dependent on earlier, case specific deep structure commitments.

This thesis’s definition of selective and project specific deep structure commitments adds to the punctuated equilibrium paradigm by introducing the variables of explicitly site and/or project specific deep structure commitments, choices and strategies. These variables to which a local substructure may subscribe might prevent all encompassing organisational change, which would include the local as well as core level. In relation to the EEM case this thesis found that the core organisational structure tolerates the maintenance of local, project specific techno-economic and socio-environmental equilibria, despite their incompatibility with core organisational policy.

*Implications for participatory research*

This thesis grounded its study of core organisational structures and local substructures on a theoretical synergy, combining the theoretical assumptions of Selznick (1996), Simon (1996), Wollin (1999) and Gersick (1994), which suggest that organisational structures are not unified systems of organization, but hierarchic systems driven by multileveled order and multi-dimensional deep structures. This synergistic approach proved to be most effective for two main reasons. Firstly, it allowed a detailed, multi-level examination of the persisting incongruity between core organisational policy and local, project specific deep structure commitments; and secondly, it led to the discovery that incongruencies in core policy responses are tolerated by the core organisational structure because of the possible legal exposure of itself and in particular its local substructure.
Furthermore, the theoretical synergism chosen by this thesis informed its analytical approach recognising organisational structures and substructures as multi levelled systems. Equally important, it also allowed the analysis to be driven to the lowest level of an organisation’s local managerial substructure and further to the lower end of the microanalytical scale. This means that deep structure histories, socio-environmental contingency responses and social trust behaviours are studied at a local project specific level.

This is particularly important because the study of deep structure commitments and social trust behaviours at a local substructure and more importantly, project specific level, provides more accurate insights into the complexities of heterogeneous organisational contingency responses. As this thesis demonstrates this means that core organisational policy is not necessarily congruent with local substructure policy contingency responses or social trust behaviour. To overcome the inherent theoretical and analytical problems associated with heterogeneity in organisational contingency responses, this thesis suggests a multilevel and multi-dimensional deep structure research approach, which is driven down to the fundamental local substructure and thereby project specific level.

10.3 FEKLHAS vs. East End Mine: A comparative analysis

The previous Chapters of this thesis demonstrate that the collaborative approach chosen by FEKLHAS decision-makers significantly surpasses the community participation efforts of the EEM developer. The FEKLHAS development, therefore, serves as an analytical and practical guide in the following comparative analysis and as a benchmark for future participatory models.
10.3.1 Balancing community and industry goals

FeKlHas: The effective and enduring industry/community relationship in the FeKlHas development rests on three primary pillars. Firstly, FeKlHas decision-makers employed a holistic and synergistic strategy, which recognised the interconnectedness of the socio-environmental and techno-economic elements of the FeKlHas development. Secondly, these opposing elements, generally deemed to be irreconcilable, were integrated into the planning and decision-making process. Thirdly, the FeKlHas developer established participatory forums such as the Coordination Team and the FeKlHas Project Commission. Within these participatory structures a limited power shift towards the community assured the continuous and effective alignment and integration of the socio-environmental and techno-economic elements of the development. This means that the empowerment of the local community allowed its representatives, together with other participants in these community engagement forums, to balance the socio-environmental community concerns with the techno-economic goals of the FeKlHas developer. This is most prominently demonstrated in the co-authorship of the FeKlHas project proposal, the agreement to build the transportation tunnel and the establishment of the monitoring body of the FeKlHas Project Commission. The inclusion of the local community into the planning and decision-making process also provided a favourable social climate; thereby a participatory context in which community stakeholders established and maintained an effective dialogue. Consequently, this participatory and integrative process resulted in the continuous development of social trust as a matter of routine.
EEM: The East End Mine data on the other hand points to a strained relationship between EEM decision-makers and the local farming community, going back as far as the inception of the EEM development. The data equally suggest that the government of the day, its ministers and agencies as well as the EEM developer were firmly committed to an exclusive techno-economic value position, deeming the socio-environmental elements of the EEM as of lesser importance. Consequently, the developer and the participating government agencies never seriously considered a holistic and synergistic approach, or the balancing of community values and industry goals. As established in earlier chapters, EEM decision-makers assigned very little importance to the interconnectedness of the social and technical elements associated with the EEM development. Consequently, the acceptance and alignment of these social and technical elements as well as their alignment within a participatory forum such as the Coordination Team, remains well outside the scope of EEM decision-making.

Considering this background it becomes increasingly clear that EEM and FEKLHAS decision-makers perceive the idea of a holistic and synergistic approach from vastly different perspectives. Consequently, in the FEKLHAS case decision-makers developed a deep understanding of the interconnectedness of social and technical elements or values in large developments, also recognising the importance of their alignment and integration into the decision-making process. Conversely, EEM decision-makers showed little interest in socio-environmental community concerns and displayed a limited understanding of their interconnectedness with the techno-economic elements of the EEM development. Therefore, frameworks of community engagement and genuine participatory structures designed to balance community values and industry goals were never seriously considered by EEM decision-makers.
Table 10.1: Balancing community/industry goals, a comparative summary

<table>
<thead>
<tr>
<th>FEKLHAS Development</th>
<th>East End Mine Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistic and synergistic approach</td>
<td>Exclusive techno-economic approach</td>
</tr>
<tr>
<td>Interconnectedness of social and techno-economic elements recognised and acted upon</td>
<td>Awareness of interconnectedness of social and techno-economic elements but deemed to be of limited importance</td>
</tr>
<tr>
<td>Participatory structures with limited power shift towards community</td>
<td>No genuine community engagement. No provision of participatory forum</td>
</tr>
<tr>
<td>Balancing social community values with techno-economic goals of developer within the framework of <em>Coordination Team</em></td>
<td>Techno-economic goals of EEM decision-makers override socio-environmental community concerns</td>
</tr>
<tr>
<td>Industry/community co-authorship of FEKLHAS project proposal</td>
<td>Exclusion of local community from EEM planning and decision-making</td>
</tr>
<tr>
<td>Favourable social climate. Effective stakeholder dialogue since the inception of the FEKLHAS development</td>
<td>Negative social climate. Strained relationship since the inception of the EEM project</td>
</tr>
<tr>
<td>Social trust development as a matter of routine</td>
<td>Social distrust</td>
</tr>
</tbody>
</table>

Implications for future participatory models

Future community engagement models should be based on the realisation that socio-environmental community concerns and the techno-economic goals of the industrial developer are interconnected. As this thesis demonstrates these inherently connected social and technical factors are not mutually exclusive. This means that a holistic and synergistic approach successfully balances these factors within the frameworks of the traditional management paradigm. This participatory approach, however, requires a project specific power shift towards community stakeholders, which empowers the local community to genuinely participate in the planning and decision-making process. To balance the socio-environmental community values with the techno-economic goals of the developer participatory forums such as the *FEKLHAS Project Commission* or the
Coordination Team must be established. Primarily because these forums provide a favourable social climate in which a sustainable dialogue between stakeholders can occur. It was within these participatory structures that stakeholders from industry and the community mutually planned the FEKLHAS project and mutually developed and co-authored the project proposal. As the FEKLHAS experience shows, project specific power sharing, participatory forums and a favourable social climate led to the development of social trust, which in the FEKLHAS case, has developed into a matter of routine.

10.3.2 Aligning community and industry values: A synergy of traditional management and a progressive deep structure history

FEKLHAS: The important next step in recognising the interconnectedness of the socio-environmental and techno-economic elements, which are associated with large industrial developments, is the acceptance and alignment of their inherent and at times opposing stakeholder value positions. As established in earlier chapters, FEKLHAS decision-makers provided participatory structures and engaged with the local community in the balancing and alignment of these different value positions. It is important to remember, however, that to accept community values and align them with the techno-economic goals of the industrial developer is driven by two very different motivators. In the FEKLHAS case, for example, the primary motivator was by no means simple benevolence. Instead, in the first instance it was a commercial decision to assure future resource availability and to avoid a prolonged controversy. However, it is important to note that the decision to accept community values and align them within the framework of the Coordination Team was also underpinned by a progressive deep structure history.
Early the deep structure commitments of the FEKLHAS decision-makers favoured community participation and collaboration, which has been traced back to the inception of the FEKLHAS project. The deep structure commitments and choices to which the FEKLHAS management subscribed provided a blueprint for successive decision-makers, thereby determining the company’s socio-environmental contingency responses. This is not only reflected in the acceptance and alignment of community value and belief systems, but also in the participatory structures of the Coordination Team and the FEKLHAS Project Commission. It is against this deep structure history of community engagement, participatory structures, value acceptance and alignment that a unique management style developed. The research data indicates a FEKLHAS decision-making process, which is based on a synergy of the company’s traditional managerial approach and its pro socio-environmental deep structure history. This means that the traditional economic motivator of assuring resource availability in the most cost efficient way was synergised with the company’s early deep structure commitments of community engagement. Consequently, no wholesale shift from the traditional management paradigm towards a fundamentally different community engagement theory occurred. Instead, the traditional management paradigm, used by FEKLHAS decision-makers, showed ample capacity in absorbing socio-environmental community concerns as well as the acceptance and alignment of the social and technical value positions of different stakeholders.

**EEM:** Similarly to their FEKLHAS counterparts, EEM decision-makers tried to assure resource availability, by making the commercial decision to extend their mining capacity. It is at this point where the similarities between FEKLHAS and EEM decision-makers end. Firm techno-economic deep structure commitments by the
government of the day, its ministers and agencies as well as by the EEM developer prevented a synergistic management approach from emerging. This is because EEM decision-makers excluded community participation, community value alignment and social responsibility from their strategic planning and decision-making processes. Consequently, a managerial synergism á la FEKLHAS, which merges community engagement and value alignment with the traditional management paradigm, could not occur. This management approach emerged in the early 1970s and created an EEM specific legacy which still influences EEM decision-making today. Considering this background, genuine community engagement, the acceptance and alignment of socio-environmental community values or the balancing of community and industry goals within the framework of participatory structures, remains well outside the reach of EEM decision-makers.

As indicated earlier, the latter should only be linked to EEM specific issues. This is because government agencies and the EEM developer introduced and integrated advanced community engagement and social responsibility policies into their respective organisational core structures, but excluded them from the EEM development. This means that in the EEM case a different dynamics of organisational change emerged, which includes new policies into core organisational structures and simultaneously isolates them from East End Mine decision-making. This phenomenon of project specific resistance to change, which fundamentally contradicts core organisational policies, continues to exclude the East End Mine development from the company’s social responsibility policies. This is the more surprising since the industrial developer demands compliance by its managers with its significantly advanced corporate socio-environmental policies from which the EEM development appears to be excluded. This case specific inertia to change continues to dominate EEM decision-making, stifling
community engagement, the free exchange of information, the development of participatory structures and finally the acceptance and alignment of community values.

**Table 10.2: Deep structure histories and the alignment of community/industry values, a comparative summary**

<table>
<thead>
<tr>
<th>FEKLHAS Development</th>
<th>East End Mine Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial decision to mine</td>
<td>Commercial decision to mine</td>
</tr>
<tr>
<td>Deep structure history of community engagement and collaboration</td>
<td>Deep structure history of exclusion</td>
</tr>
<tr>
<td>Synergetic techno-economic and socio-environmental management approach</td>
<td>Exclusive techno-economic management approach</td>
</tr>
<tr>
<td>Acceptance of socio-environmental community values into decision-making process</td>
<td>Exclusion of socio-environmental community values from decision-making process</td>
</tr>
<tr>
<td>Socio-environmental and techno-economic value alignment</td>
<td>No value alignment</td>
</tr>
<tr>
<td>Value alignment forum provided</td>
<td>No value alignment forum provided</td>
</tr>
</tbody>
</table>

*Implications for future participatory models*

The decision to include the local community into the FEKLHAS planning and decision-making process was not driven by corporate benevolence. Instead, its was driven by very traditional economic motivators, firstly, assuring resource availability and secondly, in the most cost efficient way. The acceptance of socio-environmental community concerns into the decision-making process was therefore a commercial decision designed to avoid extended community resistance to the project and possibly legal battles. This synergistic techno-economic and socio-environmental management approach did not require fundamental changes to the traditional management paradigm to which the FEKLHAS developer subscribed. Instead, the existing management approach comfortably absorbed and accommodated the inclusion of socio-
environmental community concerns into the decision-making process as well as the process of mutual acceptance and alignment of community/industry values and interests. As the data indicates the provision of value alignment forums, such as the *Coordination Team*, as well as the acceptance of community values into the decision-making process resulted in tens of millions of dollars savings for the developer.

10.3.3 Social Trust and participatory strategies

FEKLHAS: Consistent with the inclusive deep structure strategies of FEKLHAS decision-makers is the development of participatory forums such as the *Coordination Team* and the *FEKLHAS Project Commission*. To maintain these structures in which stakeholders can negotiate value differences and address factual uncertainties requires a sustainable climate of social trust. In the FEKLHAS case such a favourable social climate not only facilitated participatory interaction and collaboration, it also provided a formal basis for decisions and actions even when stakeholders disagreed. The participatory strategies in the FEKLHAS case produced social trust routinely, thereby enabling FEKLHAS decision-makers to utilise social trust as an effective tool. The company used social trust to reduce negotiation costs and to simplify techno-economic and socio-environmental complexities, which are inherently associated with the FEKHAS development. The most striking benefit of reducing complexity in the FEKLHAS development is that community stakeholders more easily adapted to complex socio-environmental and techno-economic changes related to the development. The strategy of openness and transparency in the FEKLHAS case emerged as the most important driver in reducing complexity and as a major component in the continuous development of community trust.
To maintain a social climate of community trust, FEKLHAS decision-makers committed themselves to a basic trust behaviour, which assured that the acceptability of risk, related to the FEKLHAS development, was mutually decided. This means that the company effectively communicated FEKLHAS risk issues within the framework of its Coordination Team and the FEKLHAS Project Commission. Furthermore, driven by the direct involvement of the company’s CEO in political and civic affairs, socio-environmental community concerns and the techno-economic risk perceptions of the local community could be more accurately assessed. Also mutually agreed definitions on the acceptability of the risks, which emerged from the FEKLHAS development, could be developed with the local community.

The FEKLHAS decision-makers subscribed to basic social trust dimensions, such as, social commitment, competent risk communication, a caring attitude towards the local community, and predictable and consistent social trust behaviour, which assured a favourable social climate and a routine and sustainable dialogue with the local community.

**EEM:** In the EEM case a strained relationship between government agencies, the industrial developer and the local farming community, dominated the EEM development since its inception. Trapped in a negative social climate and driven by a deep structure history, which severely restricts genuine community engagement, a very low level of trust among EEM stakeholders has been measured by this study. Consequently, stakeholders believe that they cannot rely on the actions and behaviour of others. This equally applies to promises and conciliatory statements, either oral or written, which are generally viewed by its recipients with distrust and suspicion. As demonstrated in previous chapters, a trusting industry/community relationship, which
was essential in the FEKLHAS achievements, is based on distrust and suspicion rather than genuine trust in the EEM development.

Against this background it is not surprising that permanent participatory structures, as experienced in the FEKLHAS case, did not develop in the EEM project. Consequently, there is neither a formal basis for participatory interaction and collaboration nor a forum for a sustainable and effective dialogue between EEM decision-makers and the local community. This means that social trust is not produced as a matter of routine, which deprives EEM decision-makers from using community trust as an effective tool. As the FEKLHAS case demonstrates, a positive social climate not only reduces negotiation costs but also the techno-economic and socio-environmental complexities associated with large industrial developments. This did not occur in the EEM development. Here a negative social climate and the absence of social trust significantly increased techno-economic and socio-environmental complexities, meaning that community stakeholders did not adapt to complex changes in their socio-environmental and techno-economic environments.

As demonstrated in the FEKLHAS case a firm commitment to openness and transparency is the most effective component in reducing complexity, also assuring the continuous development of social trust. Conversely, throughout the EEM development, government agencies and the developer subscribed to selective openness and severely limited information exchange. This not only contributed greatly to community suspicion and distrust, but it also prevented EEM decision-makers from making accurate assessments about socio-environmental community concerns as well as the techno-economic risk perceptions of the local farming community. Consequently, ineffective risk communication and one-sided risk definitions led locals to believe that EEM
decision-makers are seriously neglecting their obligations and social responsibilities in accordance with agreed societal norms and standards.

This means that EEM decision-makers are seen by the local farming community to override their socio-environmental values and concerns in favour of an exclusive techno-economic paradigm. It is in this context that industry and government stakeholders in the EEM case fall short of complying with the most basic social trust dimensions of social commitment, competent risk communication, a caring attitude towards the local community, and predictable and consistent social trust behaviour.

Table 10.3: Social Trust and participatory strategies, a comparative summary

<table>
<thead>
<tr>
<th>FEKLHAS Development</th>
<th>East End Mine Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate of social trust</td>
<td>Climate of suspicion and social distrust</td>
</tr>
<tr>
<td>Participatory forum provided</td>
<td>No participatory forum</td>
</tr>
<tr>
<td>Continuous dialogue negotiating industry/community value differences</td>
<td>Infrequent and ineffective dialogues, no socio-environmental community values considered</td>
</tr>
<tr>
<td>Social trust used as a tool to reduce negotiation costs and complexity</td>
<td>Social distrust and increased negotiation cost as well as complexity</td>
</tr>
<tr>
<td>Reliable and consistent social trust behaviours</td>
<td>Inconsistent and unreliable social trust behaviour</td>
</tr>
<tr>
<td>Strategy of openness and information exchange</td>
<td>Strategy of selective openness and severely limited information exchange</td>
</tr>
<tr>
<td>High level of understanding the techno-economic risk perception of the local community</td>
<td>Very low level of understanding the techno-economic risk perceptions of the local community</td>
</tr>
<tr>
<td>Effective and competent risk communication through mutually agreed acceptability of risk</td>
<td>Ineffective risk communication through exclusive industry/government agency risk definition</td>
</tr>
</tbody>
</table>
Implications for future participatory models

To maintain participatory forums such as the Coordination Team and the FEKLHAS Project Commission requires a sustainable climate of social trust. In the FEKLHAS case such a favourable social climate not only facilitated participatory interaction and collaboration, it also provided a formal basis for action and dialogue, where industry/community value differences could be negotiated even when stakeholders disagreed. Against this background FEKLHAS decision-makers used social trust as a primary tool, significantly reducing negotiation costs and complexity. A strategy of openness and the timely and free flow of information assured predictable and consistent social trust behaviour by stakeholders. This strategy of free information exchange was utilised by the FEKLHAS developer to communicate their perceptions of techno-economic risk, while gaining a better understanding of risk concerns held by the local community. This approach significantly reduced complexity, primarily because industry/community stakeholders mutually agreed on what constituted acceptable risk in relation to the FEKLHAS project. This means that the company effectively communicated FEKLHAS risk issues within the framework of its Coordination Team and the FEKLHAS Project Commission, resulting in effective and competent risk communication throughout the project.

10.4 Conclusion and directions for future research

This thesis offers a comparative analysis of organisational and institutional contingency responses to socio-environmental community demands, which are intrinsically linked to large industrial developments. To underpin this analysis theoretically, this thesis developed a paradigmatic synergy, which emerged from a wide range of theories and paradigms, discussed and analysed in Chapters 2 to 4. Consequently, this thesis places

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3 As explained previously, the term ‘socio-environmental’, as used in this thesis, refers not only to the natural environment, but also to social, cultural, economic and political environments.
particular emphasis on the organisational change theory, the punctuated equilibrium paradigm as well as the deep structure and social trust paradigms, as they affect, in this case, industry/government/community relationships in environmental and resource management.

The application of this theoretical approach presented itself as particularly useful for more accurately interpreting global / local organisational and institutional structures and their responses to local socio-environmental challenges. Consequently, one of the major findings of this thesis is that socio-environmental contingency responses by global organisations are not exclusively determined by the core organisational structure, but by loosely coupled local substructures as, for example, FEKLHAS or EEM decision-makers. Moreover, these contingency responses occur in a variety of methods and sequences as well as in varying timeframes, where local substructures develop their own specific solutions to local contingencies. This means that although part of the same global organisational structure and exposed to similar socio-environmental community demands, local deep structure strategies and choices differ from the deep structure choices of other substructures within the same global organisational network. This means that despite responding to global organisational pressures in relation to core areas of organization, local substructure contingency responses, particularly in the area of environmental management, are not decided globally. They are instead shaped and determined by local subunit decision-makers and in particular by project specific deep structure commitments, which modify and adjust local contingencies even to the extent of contravening global policy.

It is against this background that this thesis re-affirms the “multi-lateral nature of global organisations” (Castells, 2000:120). Additionally, based on the FEKLHAS and EEM findings this thesis argues that trans-national organisations possess much less of a global
or multinational character than previously assumed, at least in relation to environmental and resource management. For example, the traditional ‘top down’ enforcement of global policies, relating to profit transfers are tightly controlled by the global organisational structure, whereas both, the FEKLHAS as well as EEM substructure, decided on local socio-environmental contingency responses.

This thesis recognises two primary processes that influence how industrial organisations, government agencies and local communities organise their interdependencies in relation to power differences. This study assigns the first of these processes to the socio-environmental contingency responses, which, as this thesis found, are local and project specific. The second process is directly linked to the deep structure histories, commitments and strategies of stakeholders, which have also been found to be distinctly project specific and local. As this study discovered, these power alignments require phase specific participatory adjustments throughout the duration of large industrial developments. This means that stakeholder power alignments are not only project specific, but these power adjustments are also continuous and phase or time specific.

Particularly in relation to the FEKLHAS project industry government as well as community stakeholders took up these challenges, which large industrial developments inherit. Consequently, stakeholders in the FEKLHAS case overcame old style relations of dominance and turned them into, what Fung and Wright (2003:5) call, “empowered participatory governance”. The institutional outcome of the FEKLHAS participatory approach has been illustrated by this thesis by the emergence of a multi-stakeholder engagement model characterised by power sharing and trust. This is reflected in the industry/government/community co-authorship of the project proposal, which included
the empowerment of the local community to actually influence project planning and decision-making through a constitutional based framework.

The Bündner Cement Untervaz (BCU) is of course an economic organisation and its motives are economic. However, as this thesis discovered, the BCU is also affected by a deep structure history of good relations with the local community. Its institutional history and structures of decision-making are primarily orientated toward securing its economic base through profits. Consequently, BCU managers view the establishment of the Coordination Team and/or the FEKLHAS Project Commission as a good business decision. From the latter the question arises can rational economic organisations take a different path when contingencies threaten their legitimacy and survival? North (1998) presumes that firms are limited in responding to a mix of incentives and are incapable of ‘learning’ and taking new paths. The findings of this thesis contrast this view, as in the FEKLHAS case the BCU embarked on such a new path, which saved them money, secured resource continuation and legitimised their status as a ‘good corporate citizen’ in the community and the wider region.

Therefore, the primary contribution of this thesis to organisational change theory is the multi-stakeholder engagement model that emerged from its research. It is based on a constitutional framework, in which limited, project specific power sharing is its lasting institutional benefit. The empirical results of this thesis provide a natural resource management and participatory governance tool, which if applied, will affect how industrial organisations approach future problems, balancing techno-economic industry goals and socio-cultural and environmental community expectations.
Finally, since this thesis focused its attention primarily on institutional and organizational contingency responses in relation to socio-environmental community demands, future research should be encouraged to study community structures and their responses to large industrial developments. This may include the deep structure histories, commitments and strategies of those communities, their level of cohesiveness and determination, but also and equally important, their capacity and in particular stamina to participate in a development specific multi-stakeholder, shared power structure.


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